



**City of Poquoson, Virginia**

**VAR 040024**

**Chesapeake Bay TMDL**

**Action Plan**

**2018-2023 Permit Cycle**

October 25, 2019

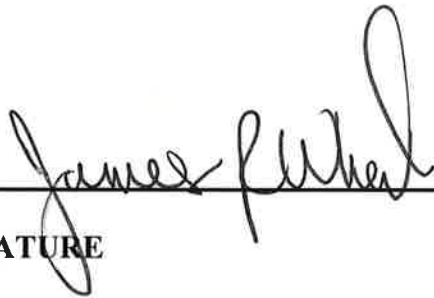


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**CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”



SIGNATURE

10/28/19

DATE

JAMES R WHEELER

PRINTED NAME

CITY MANAGER

TITLE

## DEFINITIONS & ACRONYMS

The following definitions and acronyms are used in this Chesapeake Bay TMDL Action Plan:

**Action Plan** – unless specifically stated otherwise, the Chesapeake Bay TMDL Action Plan  
**City** – unless specifically stated otherwise, the City of Poquoson  
**DEQ** – Virginia Department of Environmental Quality  
**EOS** – Edge of Stream  
**EPA** – The U.S. Environmental Protection Agency  
**HRSD** – The Hampton Roads Sanitation District Commission  
**L2** – Level 2 (scoping run of Chesapeake Bay Watershed Model)  
**MS4** – Municipal Separate Storm Sewer System  
**MTD** – Manufactured Treatment Devices  
**NASA** – National Aeronautics and Space Administration  
**NAVD88** – North American Vertical Datum of 1988  
**Permit** – unless specifically stated otherwise, the City’s current MS4 permit valid from 2013 to 2018  
**POCs** – Pollutants of Concern (Specifically Nitrogen, Phosphorus, and Total Suspended Solids)  
**RMA** – Resource Management Area  
**SLAF** – Stormwater Local Assistance Fund (administered by DEQ)  
**SWIFT** – Sustainable Water Initiative for Tomorrow  
**TMDL** – Total Maximum Daily Load  
**TN** – Total Nitrogen  
**TP** – Total Phosphorous  
**TSS** – Total Suspended Solids  
**RPA** – Resource Protection Area  
**VAMSA** – Virginia Municipal Stormwater Association  
**VSMP** – Virginia Stormwater Management Program  
**WIP** – Watershed Implementation Plan

## **Executive Summary**

In accordance with requirements of the Virginia General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 permit), the City of Poquoson, Virginia (the City) has prepared this Chesapeake Bay TMDL Action Plan for the next MS4 permit cycle.

## **Revisions to the Action Plan**

This action plan covers the time period of November 1, 2018 – October 31, 2023. The action Plan was revised in 2019 to ensure that the wording and information provided aligned with the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), effective November 1, 2019. The changes are editorial in nature only. The pollutant removal requirements and means and methods to address removal requirements did not change. Specifically,

- The Action Plan effective date was revised to align with the permit effective dates.
- Table 3 was replaced with Table 3d from the permit. The removal requirement shown in both tables is the same. The only difference between the two tables is the format.
- Information on the public comment period was added in an appendix. It should be noted that, following the formal 30 day comment period, the plan remains on line and the public is encouraged to provide comments or ask questions.

## **Review of the Current MS4 Program**

Poquoson has coverage under 9VAC25-890-40 and is currently applying for continued coverage during the next permit cycle. This state general permit provides authorization to discharge stormwater from the City's municipal separate storm sewer system (MS4) into state waters. This general permit is consistent with

the Chesapeake Bay TMDL and the Virginia Phase I and II Watershed Implementation Plans.

The City maintains an MS4 program plan that is updated in accordance with the permit schedule and submits an annual report to DEQ prior to October 1<sup>st</sup> of each year. This draft action plan was prepared in accordance with the permit requirements and available DEQ guidance. More information on Poquoson's permit activities can be found on pages of 6 & 7 of the City's approved action plan for the first 5-year permit cycle. This document is found in the appendix.

### **Identification of New or Modified Legal Authorities**

All legal authorities needed to implement this action plan are in place. These include the Virginia law on nutrient trading and the attached Memorandum of Agreement between the City of Poquoson and the Hampton Roads Sanitation District. Should the City opt to construct or modify additional BMPs in furtherance of future Bay TMDL requirements, the only additional legal authorities that would be needed are project-specific permits for construction. These might include land disturbance permits, VPDES stormwater permits for construction activities, or various wetlands or other state and federal permits. These permits would depend on specific project requirements and conditions.

### **Means and Methods to Address Discharges into the MS4 from New Sources**

Stormwater discharges from new development with in Poquoson must comply with the VSMP regulations and laws for both quantity and quality. Post-development BMPs must meet Virginia BMP Clearinghouse standards and specifications. Plans and calculations for these structures are reviewed by staff members as part of the Poquoson development review process. All construction activities must follow the minimum standards and requirements of Virginia's Erosion and Sediment Control Law. Development work must adhere to the Poquoson City Code, including Stormwater, Erosion and Sediment Control, and Chesapeake Bay Preservation



ordinances. Poquoson restricts development in the Bay Resource Preservation Area. In an effort to protect water quality, all areas within Poquoson located upland of the Resource Protection Areas were designated Resource Management Areas. This exceeded Chesapeake Bay Preservation Act minimum requirements.

Applicable City ordinances, staffing, and other aspects of the Poquoson VSMP program were reviewed by DEQ and approved by the State Water Control Board at VSMP implementation. There are lands zoned for industrial use or anticipated industrial development in the City or its MS4.

### **Offsets for Existing Development**

There have been no changes to the City's MS4 service area since its delineation in the first permit cycle. Existing development loads were calculated at that time. This calculation was completed in the 2015 action plan in order to meet MS4 permit requirements. The total offset required for the Bay TMDL has not changed, as the City's MS4 service and urbanized areas have remained the same. Page 12 of the approved 2015 action plan provides the estimated total POC loads.

### **Determination of Total Pollutant Load Reductions**

The total pollutant load reduction required by the Bay TMDL were calculated during the previous permit cycle and included in the approved Action Plan for 2013-2018. They were calculated again for this effort and are shown in the following table. The required total load reductions did not change.

**Table 1: Total Pollutant Load Reductions**

<u>Pollutant</u>	<u>Subsource</u>	<u>Loading Rate (lbs/ac/yr)</u>	<u>Existing developed lands as of 6/30/09 served by the MS4 within the 2010 CUA (acres)</u>	<u>Loading (lbs/yr)</u>	<u>MS4 required Chesapeake Bay total L2 loading rate reduction (decimal numbers)</u>	<u>Total reduction required at the end of the third permit cycle (6/30/28)</u>	<u>Total reduction required at the end of the third cycle (6/30/28)</u>
<b><u>Nitrogen</u></b>	Regulated urban impervious	7.31	636.28	4651.2068	0.09	418.608612	<b><u>1167.25597</u></b>
	Regulated urban pervious	7.65	1631.04	12477.456	0.06	748.64736	
	Regulated urban impervious	1.51	636.28	960.7828	0.16	153.725248	
<b><u>Phosphorus</u></b>	Regulated urban pervious	0.51	1631.04	831.8304	0.0725	60.307704	<b><u>214.032952</u></b>
	Regulated urban impervious	456.68	636.28	290576.3504	0.2	58115.27008	
<b><u>Total Suspended Solids</u></b>							<b><u>68502.1406</u></b>
	Regulated urban pervious	72.78	1631.04	118707.0912	0.0875	10386.87048	

**Means and Methods Used to Meet the Required Reductions for First Permit Cycle**

As documented in its MS4 annual reports, the City of Poquoson has completed all work required to meet the first permit cycle’s 5% reduction goal. Information on BMPs used to meet this first milestone is found on page 9 of the attached first



cycle action plan. Following completion of the BMPs, Poquoson exceeded its required reduction of 5%. Means and methods used to meet the required reductions for the first permit cycle are described in the attached 2015 action plan.

Two more homes were converted from septic tanks to sewer connections. This is in addition to the septic tank disconnections/connections to public sewer listed in the 2015 action plan. The septic tanks were taken off line (pumped out; filled; tops cracked) and cannot be used again. The homes are now connected to public sewer. One conversion was reported in the PY4 annual report Bay TMDL status report. The second septic tank was reported in the PY5 annual report status report. Both of these septic tank conversions were eligible for credit in the first permit cycle.

Table 2 summarizes the achieved load reductions through the means and methods described in the first action plan. It also includes additional work accomplished in the first permit cycle.

**Table 2: Load Reductions Achieved through June 30, 2018**

<u>Pollutant</u>	<u>Load Reductions Achieved by Stormwater BMPs and other methods outlined in approved first cycle Action Plan (achieved prior to June 30, 2018)</u>	<u>Load Reductions Achieved by Additional Septic Tank Disconnection/Connection to Sewer occurring between first action plan approval and June 30, 2018, lb/yr*</u>	<u>Total Load Reductions Achieved through 6/30/2018 (end of first permit cycle), lb/yr</u>
<u>Nitrogen</u>	162.76	18.86	181.62
<u>Phosphorus</u>	18.57	0	18.57
<u>Total Suspended Solids</u>	5597.7	0	5597.7
<u>Notes</u>	<p>*2 tanks disconnected: 205 Hunts Neck connected to sewer in PY4; 209 Odd Road connected to sewer in PY5. Per DEQ guidance, each is credited with 9.432 lbs./yr TN reduction. These septic tanks are in addition to those credited in the first Action Plan.</p>		

**Determination of Total Pollutant Load Reductions Required by  
June 30, 2023**

The City of Poquoson is required to have reached 40% of the total pollutant load reductions by the end of the second permit cycle in June 2023. These load reductions include both reductions made to date and those that will be accomplished in the final permit cycle. Table 3 (MS4 Permit table 3d) follows on the next page.

**TABLE 3d**  
**Calculation Sheet for Estimating Source Loads and Reduction Requirements for the York River and Poquoson Coastal Basin**

	A	B	C	D	E	F	G
POLLUTANT	LOADING RATE (lbs./ac/yr)	Existing Developed Lands as of 6/30/09 served by the MSA within the 2010 CUA (acres)	Load (lbs./yr)	Percent of MSA required Chesapeake Bay total L2 loading reduction	Percentage of L2 required reduction by 6/30/2023	40% cumulative reduction required by 6/30/2023 (lbs/yr)	Sum of 40% cumulative reduction (lb/yr)
Nitrogen	7.31	636.28	4651.21	9%	40%	167.44	466.90
	7.65	1,631.04	12477.46	6%	40%	299.46	
Phosphorous	1.51	636.28	960.78	1.6%	40%	61.49	85.61
	0.51	1,631.04	831.83	7.25%	40%	24.12	
Total Suspended Solids	456.68	636.28	290576.35	2.0%	40%	23246.11	27400.86
	72.78	1,631.04	118707.09	8.75%	40%	4154.75	

October 2019

The following table provides the required reductions for each pollutant of concern that remain to be achieved by 2023.

**Table 4: Removal Requirements for the 2018-2023 Permit Cycle**

**2023 REMOVAL REQUIREMENTS**

<u>Pollutant</u>	<u>Sum of 40% cumulative reduction (lb/yr) from spreadsheet 3d</u>	<u>Reduction provided by 2018 (from 2013-2018 DEQ approved Chesapeake Bay Action Plan)</u>	<u>Additional removal required by 6/30/2023</u>	<u>Credits to be obtained through the HRS Credit Trading Agreement</u>
Nitrogen	466.9	181.62	285.28	285.28
Phosphorous	85.61	18.57	67.04	67.04
Total Suspended Solids	27400.86	5597.7	21803.16	21803.16

**Means and Methods to Meet the Required Reductions for Upcoming Permit Cycle from July 1, 2018-June 30, 2023**

The City of Poquoson has entered into a nutrient and sediment trading agreement with the Hampton Roads Sanitation District to meet the upcoming load reduction requirements. This agreement, the Hampton Roads Water Quality Credit Agreement for Chesapeake Bay Restoration, is provided in the appendix. The following table shows the credits reserved through the agreement and those needed to accomplish the load reductions.

**Table 5: HRSD Credits vs. Required Reductions**

<u>Pollutant</u>	<u>Additional Load Reductions Required by June 30, 2023, lb/yr*</u>	<u>HRSD Credits Reserved by the City of Poquoson by the MOA (lb/yr)**</u>	<u>Total HRSD credits to achieve required 40% load reduction, lb/yr</u>
<u>Nitrogen</u>	<u>258.28</u>	408.52	<u>258.28</u>
<u>Phosphorus</u>	<u>67.04</u>	74.9	<u>67.04</u>
<u>Total Suspended Solids</u>	<u>21803.16</u>	23975.8	<u>21803.16</u>
Note	*Represents the difference between reductions achieved to date and total reductions required by June 30, 2023		



In addition, Poquoson will continue to

- maintain its BMPs;
- Track stormwater credits created on new City projects that exceed stormwater regulation-required pollution removal; and
- Promote septic tank to sewer connection conversions.

Septic tank conversions and other possible in-ground pollutant credits are not calculated herein or included in this plan's tables.

The City may take additional actions in furtherance of the Bay TMDL goals. This may include upgrades to existing City-owned ponds or new BMPs. These measures are not reported herein because pollutant load reductions achieved will exceed MS4 permit requirements. Additional pollutant removals will be reported in accordance with MS4 permit requirements and will be summarized in the action plan for the 2023-2028 permit period.

### **Means and Methods to Offset increased Loads from Construction Between July 1, 2009 to June 30, 2014**

Local governments must offset increased loads from projects initiating construction between July 1, 2009 and June 30, 2014 that disturbed one acre or greater and used an average land cover condition greater than 16% impervious cover. There are no such projects in the City of Poquoson and therefore no additional loads were created. Poquoson consistently used an average land cover of 16% impervious throughout this period. No projects were constructed that used an average impervious land cover condition greater than 16%.

## **Means and Methods to Offset Increased Loads from Grandfathered Projects**

Local governments must offset increased loads from projects that are grandfathered in accordance with 4VAC50-68-48 that disturbed one acre or greater, began construction after July 1, 2014, and used an average land cover condition greater than 16% in the design of post-development stormwater management facilities. Poquoson does not have any grandfathered projects that meet this condition. Therefore there are no required means and methods to offset increased loads from grandfathered projects.

## **Modifications to the TMDL or Watershed Implementation Plan**

The City of Poquoson reserves the right to substitute other means and methods, BMPs, and types of treatment practices. Modifications to the TMDL plan shall be addressed during the permit re-application. Actions taken during the permit cycle will be reported in the MS4 permit annual reports.

## **Future Projects and Associated Acreage That Qualify as Grandfathered**

There are no future projects and associated acreage within the City that qualify as grandfathered in accordance with 4VAC50-60-48.

## **Estimate of Expected Costs**

The credits generated by HRSD and being used for nutrient and sediment trading are being funded by HRSD ratepayers. More than 95% of the households in Poquoson are connected to sewer and are therefore HRSD ratepayers. Per the attached MOA, there is no direct cost to the City of Poquoson because its citizens are already funding these credits. Funding for the City's Bay TMDL work will come directly from citizens to HRSD without passing through City coffers.

Any additional work completed by the City in furtherance of the Bay TMDL goals will be funded through General Fund monies. The Bay TMDL is part of the City's Capital Improvement Plan.

### **Public Comment**

This Chesapeake Bay TMDL plan was presented at the June 25, 2018 meeting of the Poquoson City Council and published on the City website at that time. The official public comment period took place on July 2, 2018-August 3, 2018. In addition, the document remains on the website and City staff members are available to answer questions and receive comments since then. No comments have been received to date. The pollutant removal requirements and the means and methods to achieve the required removals have not changed since the formal public comment period.

**Appendix:**  
**2013-2018 Approved and Implemented  
Action Plan**

October 25, 2019





CITY OF POQUOSON, VIRGINIA

# CHESAPEAKE BAY TMDL ACTION PLAN

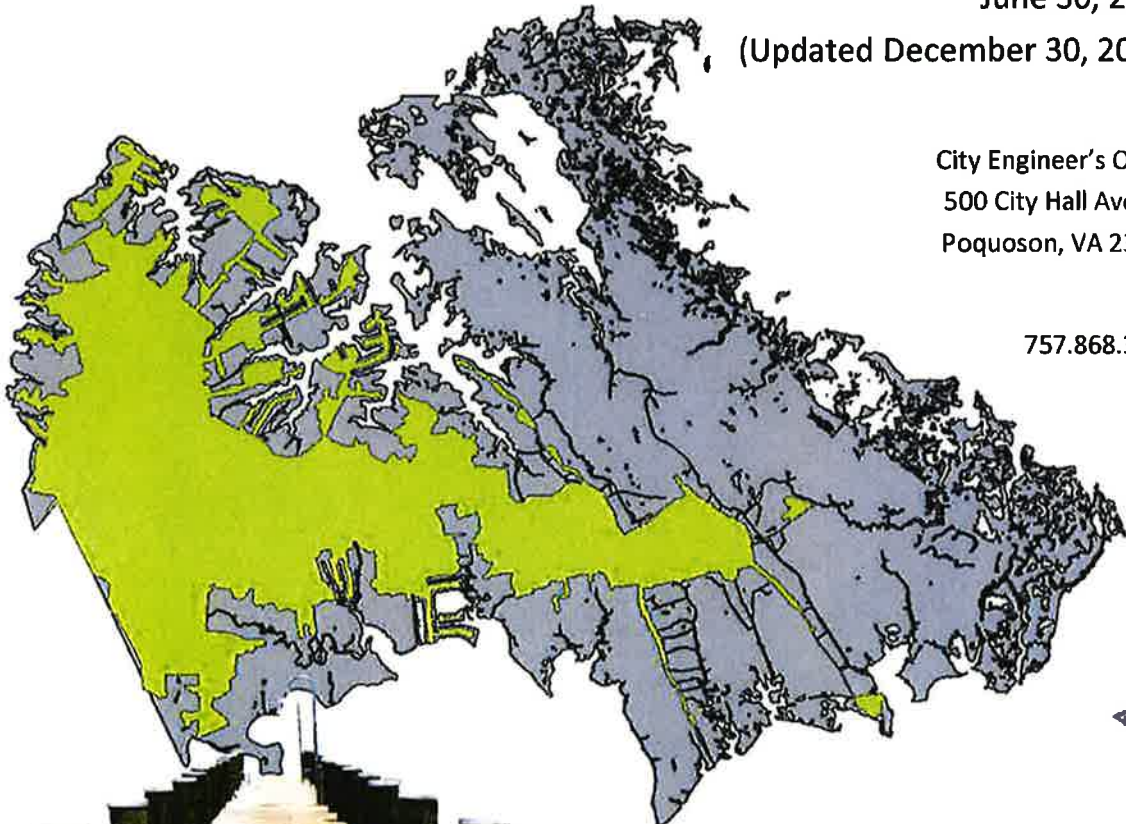
VPDES PERMIT No. VAR040024

June 30, 2015

(Updated December 30, 2015)

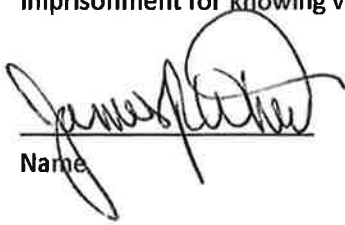
City Engineer's Office  
500 City Hall Avenue  
Poquoson, VA 23662

757.868.3040



# CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

  
Name

City Manager  
Title

1/8/2016  
Date





# CHESAPEAKE BAY TMDL ACTION PLAN (5 PERCENT COMPLIANCE)

VPDES PERMIT NUMBER VAR040024

June 30, 2015  
(Updated December 30, 2015)

Prepared by City staff and

**AECOM**

AECOM No. 60393499

City Engineer's Office  
500 City Hall Avenue, Poquoson, VA 22662  
757-868-3040

## **UPDATE HISTORY**

**June 30, 2015** — Original Document.

**December 30, 2015** — First revision. Addressed review comments provided by DEQ in a Kelsey Brooks email to Ellen Roberts dated December 9, 2015. Modified this Action Plan to account for BMPs, installed between January 1, 2006 and July 1, 2009 that can be credited towards pollutant load reductions required by the Chesapeake Bay TMDL and the City's MS4 Permit. Adjusted land cover to include 11.3 acres of forested land that was excluded (due to small acreage) in DEQ's March 19, 2015 guidance document, then allowed in DEQ guidance issued May 18, 2015. Recomputed pollutant removals using DEQ's corrected loading rate for Total Suspended Solids. Revised the text to address clarifications requested by DEQ.

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**TMDL** – Total Maximum Daily Load

**TN** – Total Nitrogen

**TP** – Total Phosphorous

**TSS** – Total Suspended Solids

**RPA** – Resource Protection Area

**VAMSA** – Virginia Municipal Stormwater Association

**VSMP** – Virginia Stormwater Management Program

**WIP** – Watershed Implementation Plan

# CHESAPEAKE BAY TMDL ACTION PLAN (5 PERCENT COMPLIANCE)

VPDES PERMIT NUMBER VAR040024  
JUNE 30, 2015  
(UPDATED DECEMBER 30, 2015)

## A. EXECUTIVE SUMMARY

Virginia localities, such as the City of Poquoson, are required to comply with the terms of the Chesapeake Bay TMDL regulations as set forth in their MS4 permits. These permits require each regulated locality to prepare and implement an Action Plan to reduce pollutants in stormwater discharges.

Poquoson prepared an Action Plan (dated June 30, 2015) and submitted it to DEQ for review. The original plan identified seven specific projects, one of which was already completed, two of which were under design and had been funded through a SLAF grant, and four additional projects that were to be completed by June 30, 2018. The total cost of the four unfunded projects was estimated to be \$238,831.

After the June 30, 2015 Action Plan was submitted, City staff continued working on a separate grant that Poquoson had received from DEQ to compile an accurate, up-to-date inventory of the City's BMPs. This work led to the discovery of four BMPs—implemented between January 1, 2006 and June 30, 2009—that can qualify for pollutant reduction credits under the Chesapeake Bay TMDL regulations.

DEQ reviewed both the Action Plan and BMP Inventory submittals, and commented in a December 9, 2015 email from Kelsey Brooks to City Engineer Ellen Roberts that qualifying BMPs could be incorporated into the Action Plan and credited towards the City's pollutant reduction goals.

The City asked AECOM to revise this Action Plan and incorporate the qualifying BMPs. When these BMPs are added to the five-percent compliance plan and combined with the two projects funded

by DEQ SLAF grants (a created wetland and a wet pond in Oxford Run), no additional projects are required to satisfy the five-percent pollutant reduction goal for the current permit cycle.

This Action Plan details the City's estimation of its existing source loads of POCs as of June 30, 2009 based on the Chesapeake Bay Program's Phase 5.3.2 watershed model and the required reductions in POCs by the end of this permit cycle using Table 3d in the permit. The means and methods by which the required reductions are met have also been addressed.

To determine the POC loads from existing sources, the City delineated Poquoson's MS4 boundary carefully using guidance from the Virginia Municipal Stormwater Association and definitions from DEQ. The City's GIS data and aerial imagery from 2009 were used to delineate the MS4 area. Contour information, storm system pipe and structure data, as well as infrared LiDAR data obtained from NASA, were used to determine drainage patterns during the delineation process. The City's MS4 service area is shown in Figure 1.

Land cover within the MS4 as of June 30, 2009 was also determined using the City's aerial imagery and parcel development data. The types of land cover identified within the City's MS4 area were regulated urban pervious, regulated urban impervious and forested land. Forested land was only included if it was a contiguous area over 30 meters square. Tidal marsh areas within the MS4 were included as forested land. Table 1 lists the land cover within the City's MS4, as indicated in Figure 2. Table 2 lists the annual pollutant loads generated by existing sources as of June 30, 2009.

Based on a total of 636.28 acres of regulated urban impervious land, and 1,631.04 acres of regulated pervious land within the City's MS4 service area, the estimated annual pollutant loads from existing sources are 17,128.66 pounds of nitrogen, 1,792.61 pounds of phosphorus, and 409,283.44 pounds of total suspended solids.

The five-percent required nutrient reduction for the first permit cycle, was calculated based on the land cover acreage within the MS4 and the required reduction in loading rates from Table 3d in the City's MS4 permit. Table 3 lists the total reductions required for the first permit cycle. The City's MS4 area in this Action Plan includes the City's 2010 Census urbanized area, and that land is included in the calculations of the reduction requirements for the first permit cycle. The total annual reductions required during the first permit cycle are 58.36 pounds of nitrogen, 10.70 pounds of phosphorus and 3,425.11 pounds of suspended solids.

To satisfy the first permit cycle requirements, Poquoson has eight BMPs, six of which are already completed, and two of which have been designed and will be awarded for construction in 2016. These two projects have been funded through a SLAF grant. The project locations are shown in Figure 3. Table 4 documents the pollutant reductions for these projects, as summarized in Table 5. Table 6 presents the implementation schedule.

The two SLAF grant projects are a proposed wet pond and created wetland. Land use conversion for the property at 127 Ridge Road has been completed (see Figure 4). The remaining projects that qualify for pollutant removal credit include three wet ponds and an infiltration basin. The City is



also taking credit for an annual reduction of nitrogen of approximately 66.02 lbs/yr for taking seven septic tanks offline and connecting those parcels to the City's sanitary sewer system.

The total annual reductions of POCs, through the implementation of this Action Plan, are approximately 162.76 pounds of nitrogen, 18.57 pounds of phosphorus, and 5,597.70 pounds of total suspended solids. Because all of these projects have been implemented or have already been funded, the implementation cost will be zero additional dollars. The City recognizes that meeting the next phase of the Chesapeake Bay TMDL requirements—developing and implementing a 35-percent Action Plan—will require significant additional planning and funding, and is already working to monitor developments and changes in the regulations with that plan in mind.

DEQ provisionally approved Poquoson's June 30, 2015 Action Plan on December 22, 2015—incorporating additional information provided by Poquoson that addressed DEQ comments and stated the City's intent to take credit for qualifying historical BMPs. This Action Plan is considered an enforceable part of the MS4 Program Plan. DEQ requested that Poquoson submit its updated Action Plan by January 11, 2016. This December 30, 2015 update addresses all outstanding issues listed in DEQ's email from Kelsey Brooks to City Engineer Ellen Roberts dated December 9, 2015.

The City reserves the right to make adjustments to this plan, and to substitute any projects that can achieve the required pollutant reductions, for economic or other reasons. If DEQ approves more cost-effective BMP types for credit under the Chesapeake Bay TMDL, the City will modify its Action Plan to meet the nutrient reduction requirements during this permit cycle as well as future permit cycles.

## **B. BACKGROUND INFORMATION**

The City of Poquoson encompasses an area of less than 16 square miles, near the mouth of the Chesapeake Bay. The City drains to three water bodies: the Poquoson River, Back River, and the Chesapeake Bay itself, but is considered to be part of the York River watershed in the current Bay model, and for purposes of developing this Action Plan to comply with the Chesapeake Bay TMDL requirements in its permit. The City has noted on many occasions that it does not drain to the York River, and feels that its POC reduction requirements are unrealistically high to make up for contributions of POCs by entities far upstream in the York River watershed.

With a 2010 population of approximately 12,500 residents, Poquoson is one of the smallest regulated MS4s in the state of Virginia. However, the City strives to protect the Chesapeake Bay through its local program, which it continues to update since the implementation of its 1999 comprehensive Chesapeake Bay Preservation Ordinance. The City of Poquoson's history is directly linked to the Chesapeake Bay. Historically, Poquoson was a fishing village, with generations of families making their living fishing in the Bay and many of Poquoson's residents still depend on the waters around Poquoson for their livelihood.

The land cover in the current Phase 5.3 Chesapeake Bay Watershed Model is highly inaccurate and in Poquoson's case is a poor representation of the actual land cover in the City's MS4 service area. The City has approximately 5,089 acres of tidal wetlands within its boundary, which are not regulated under the City's permit. The majority of those tidal wetlands are contained within the 3,276-acre Plum Tree Island National Wildlife Refuge. The remaining 1,800 acres of tidal wetlands surround the shoreline of the City's tidal creeks. In addition, there are approximately 1,575 acres of land that are not part of the MS4 service area because stormwater runs off directly to tidal waters, or stormwater is conveyed from City owned ditches or pipes through private property which is not maintained by the City. During the development of this Action Plan, the City spent considerable time and effort to delineate its MS4 service area and determine the total acres of regulated urban pervious and urban impervious land within that service area.

Poquoson, like other Hampton Roads localities, has flat, low-lying topography, high water tables, and soils that are not conducive to infiltration. As of spring 2015, there are not many Clearinghouse-approved BMPs that can be used in a cost-effective manner in the City. Many low impact development (LID) practices such as rooftop disconnection and vegetated roofs are acceptable as BMPs for individual parcel development but are not practical as retrofits for localities to implement on a large scale. The flat topography and high water tables in Poquoson preclude many of the BMPs with the highest nutrient removal efficiencies. Infiltration basins make ideal BMPs to treat impervious areas such as parking lots, but cannot be used in areas with high water tables. The primary BMPs considered by the City for the Action Plan were wet ponds, created wetlands, wet swales, vegetated filter strips, permeable asphalt, manufactured treatment devices and land conversions.

During the preparation of this Action Plan, DEQ made two revisions to its draft guidance memorandum (No. 14-2012) issued on August 18, 2014. The first revision was issued for public comment on March 19, 2015. The final guidance memorandum (No. 15-2005) was issued on May 18<sup>th</sup>, 2015—less than six weeks before this Action Plan was due to be implemented. Two revisions made in the final guidance memo impact the City's Action Plan. The first revision—reverting back to the Chesapeake Bay Program's size requirement for forested lands of 30 meters by 30 meters—reversed a change in the March 19<sup>th</sup> guidance memo, stating that forested lands must be at least one-half acre in size. While this change resulted in a very slight decrease in the City's pollutant load, it did not affect the City's Action Plan. The second revision, which corrected an issue with rounding the required reduction in loading rates, found in Table 3d of the permit, does affect the City's POC reduction requirements, which are increased for nitrogen and phosphorus. Due to the delay in issuing the final guidance document, the City was not able to update the land cover and the means and methods to achieve the first permit cycle reductions to account for the forested land that had been excluded by the March 19<sup>th</sup> revision of the guidance document, as well as the additional nutrient reductions required due to the corrected reductions in loading rates listed in the final guidance memo. However, this updated Action Plan has revised the land cover in Table 1 to include approximately 11.31 acres of forested land that had been excluded and counted as regulated pervious land due to changes in the March 19<sup>th</sup> guidance memorandum. In addition, the loading rates in Table 2 have been updated to reflect the change in acreage of forested and regulated

pervious land. The corrected loading rates from the May 18, 2015 guidance memorandum were also used to update Table 3, which presents the revised reductions required during the first permit cycle.

During the development of its Action Plan, the City identified BMPs to help it meet the required POC reductions for both the first and second permit cycles. Originally the City identified four projects—three vegetated filter strips and a wet swale—that when combined with two BMPs that were already in the design phase, seven lots connected to sanitary sewer, and a City-owned residential parcel converted to grass, met the required five-percent reductions for the first permit cycle. The four BMPs eligible for POC credit that were identified as a result of the City’s 2015 Historical Data Cleanup help the City achieve the required five-percent reductions for the first permit cycle without the need for the three proposed vegetated filter strips and the wet swale. However, the City recognizes that meeting its required second permit cycle reductions will be difficult, and may use those projects to help achieve its 35-percent POC reductions during the second permit cycle.

## **C. REQUIRED COMPONENTS OF THE CHESAPEAKE BAY TMDL ACTION PLAN**

The following sections of the Action Plan are required components, described in Section I.C.2.a of the City’s MS4 Permit. The “Permit Requirements” described below are taken verbatim from Section I.C.2.a of the City’s MS4 Permit.

### **1. REVIEW OF CURRENT MS4 PROGRAM**

*Permit Requirement: A review of the current MS4 program implemented as a requirement of this state permit including a review of the existing legal authorities and the operator's ability to ensure compliance with this special condition.*

The City of Poquoson has obtained coverage under 9VAC25-890-40, the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4’s), with authorization to discharge under the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. This state permit authorizes operators of small municipal separate storm sewer systems to discharge to surface waters within the boundaries of the Commonwealth of Virginia, except those waters specifically named in State Water Control Board regulations, which prohibit such discharges. This permit is consistent with the Chesapeake Bay TMDL and the Virginia Phase I and II WIPs to meet the Level 2 (L2) scoping run for existing developed lands as it represents an implementation of five percent of L2 as specified in the 2010 Phase I WIP.

The City maintains an MS4 program plan, which was updated according to the schedule found in Table 1 of the permit, and submitted to DEQ on September 30, 2014 along with its Permit Year 1 Annual Report. In accordance with the permit requirements, Poquoson developed and submitted

to DEQ, for its review and acceptance, an approvable Chesapeake Bay TMDL Action Plan dated June 30, 2015. DEQ provisionally approved Poquoson's June 30, 2015 Action Plan on December 22, 2015—incorporating additional information provided by Poquoson that addressed DEQ comments and stated the City's intent to take credit for qualifying historical BMPs. This Action Plan is considered an enforceable part of the MS4 Program Plan. DEQ requested that Poquoson submit its updated Action Plan by January 11, 2016. This December 30, 2015 update addresses all outstanding issues listed in DEQ's email from Kelsey Brooks to City Engineer Ellen Roberts dated December 9, 2015.

The City implements its MS4 program through legal authorities found in Section 34 of the City Code. The City's Erosion and Sediment Control, Wetlands, and Stormwater Management Ordinances; Articles III, IV, and V of Chapter 34 respectively, are the primary legal authorities governing land development, water quality, and environmental protection. In addition to its environmental ordinances, the City has taken other steps to preserve the environment and protect water quality. In 1991, areas equal to approximately 16% of the City of the City's total land mass were designated as RPAs. All upland areas outside the RPAs were designated as RMAs. As a result, every construction project within the City is reviewed for compliance with the Chesapeake Bay Act.

Actions undertaken to implement the Chesapeake Bay TMDL Special Condition shall be undertaken on City-owned lands, using General Funds, in accordance with all applicable state laws and regulations.

## **2. IDENTIFICATION OF NEW OR MODIFIED LEGAL AUTHORITIES**

*Permit Requirement: The identification of any new or modified legal authorities such as ordinances, state and other permits, orders, specific contract language, and interjurisdictional agreements implemented or needing to be implemented to meet the requirements of this special condition.*

The only new legal authorities required for plan implementation will be site-specific permits related to construction activity. These include coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities; Poquoson Land Disturbance Permits; Poquoson Right-of-Way Permits; and Wetlands permits obtained on an as-needed basis. All other local and state construction and procurement laws are sufficient to implement the plan.

## **3. MEANS AND METHODS TO ADDRESS DISCHARGES INTO THE MS4 FROM NEW SOURCES**

*Permit Requirement: The means and methods that will be utilized to address discharges into the MS4 from new sources.*

The City of Poquoson requires that stormwater discharges from any new development adhere to the criteria outlined in the VSMP regulations for both water quality and quantity. Post-

development stormwater management facilities and structures must meet the design standards and specifications of the Virginia Stormwater BMP Clearinghouse, and plans for proposed post-development stormwater management facilities must be reviewed and approved by the City. In addition, all construction activities must follow the minimum standards and requirements outlined in Virginia's Erosion and Sediment Control Law as well as the City's Erosion and Sediment Control ordinance, to prevent sediment-laden stormwater from being discharged into receiving waters.

Also, the City restricts all development in its RPAs in accordance with the Chesapeake Bay Preservation Act. In an effort to protect water quality, all City upland areas outside the RPAs were designated as RMAs in 1991. This designation exceeds the Chesapeake Bay Act's minimum technical requirements for RMA designation. The City's Environmental Management Area Overlay District ordinance allows the City to request that a Water Quality Impact Assessment be performed for any proposed land disturbance, development, or redevelopment activity within an RMA, when the City deems it necessary due to unique site conditions, or the intensity of the proposed use, development or redevelopment.

#### **4. ESTIMATE OF ANNUAL POC LOADS DISCHARGED FROM EXISTING SOURCES AS OF JUNE 30, 2009**

*Permit Requirement: An estimate of the annual POC loads discharged from the existing sources as of June 30, 2009, based on the 2009 progress run. The operator shall utilize the applicable versions of Tables 2 a-d in this section based on the river basin to which the MS4 discharges by multiplying the total existing acres served by the MS4 on June 30, 2009, and the 2009 Edge of Stream (EOS) loading rate.*

To determine the POC loads from existing sources, the City delineated Poquoson's MS4 boundary carefully using guidance from VAMSA and definitions from DEQ. The City's GIS data and aerial imagery from 2009 were used to delineate the MS4 area. Contour information, storm system pipe and structure data, as well as infrared LiDAR data obtained from NASA, were used to determine drainage patterns during the delineation process. Drainage ditches through private property were not included as part of the City's MS4 area, except for those ditches that the City identified as being maintained by City personnel. The majority of the City's outfall ditches are tidal at some point, and interstate waters and wetlands are outside of the City's MS4 jurisdiction. The MS4 area was terminated where outfall ditches reached "vegetated wetlands." Virginia's definition of vegetated wetlands is those lands between mean low water and an elevation above mean low water equal to 1.5 times the mean tide range. Using the Sewell's Point tidal recording station, this elevation is approximately equal to 2.16 feet on the NAVD88 datum. Figure 1 maps the resulting MS4 service area.

Land cover within the MS4 as of June 30, 2009 was also determined using the City's aerial imagery and parcel development data. The types of land cover identified within the City's MS4 area were regulated urban pervious, regulated urban impervious, and forested land. Forested land was only included if it met the Bay Program size requirement of a contiguous area at least 30 meters by 30



meters. Forested areas on the edge of the MS4 boundary were included if they were less than 30 meters square, but were part of a contiguous area greater than 30 meters by 30 meters. Tidal marsh areas within the MS4 are included as forested land. Land cover within the City's MS4 is listed in Table 1 and shown in Figure 2. Table 2 lists the annual pollutant loads generated by existing sources as of June 30, 2009.

The land cover found in Table 1 was revised for this December 30, 2015 Action Plan update to account for approximately 11.3 acres of forested land that had been excluded by DEQ's March 19<sup>th</sup> guidance memorandum, and was counted as regulated urban pervious land in the June 30, 2015 Action Plan. The net result is a very small decrease in required pollutant reductions for the first two permit cycles. For the first permit cycle, the required nutrient reductions are reduced by 0.26 pounds of nitrogen, 0.02 pounds of phosphorus, and 3.60 pounds of suspended solids. The second permit cycle reductions are reduced by 1.82, 0.14, and 25.19 pounds of nitrogen, phosphorus and suspended solids respectively. These reductions do not have any impact on the means and methods for meeting the nutrient reduction requirements for the first two permit cycles.

## 5. DETERMINATION OF TOTAL POLLUTANT LOAD REDUCTIONS

*Permit Requirement: determination of the total pollutant load reductions necessary to reduce the annual POC loads from existing sources utilizing the applicable versions of Tables 3 a-d in this section based on the river basin to which the MS4 discharges. This shall be calculated by multiplying the total existing acres served by the MS4 by the first permit cycle required reduction in loading rate. For the purposes of this determination, the operator shall utilize those existing acres identified by the 2000 U.S. Census Bureau urbanized area and served by the MS4.*

The five-percent required nutrient reductions for the first permit cycle are based on the land cover acreages within the MS4 and the required reduction in loading rates from Table 3d in the City's MS4 permit. As previously mentioned, DEQ's May 18, 2015 final guidance memo recognized that the required reductions in loading rates found in Table 3d of the City's MS4 permit contain problematic rounding of significant digits. This updated Action Plan uses the corrected load reductions from the May 18, 2015 guidance memorandum.

Table 3 lists the total reductions required for the first permit cycle. It should be noted that the City's MS4 area in this Action Plan includes the City's 2010 Census urbanized area, and that land was included in the calculations of the reduction requirements for the first permit cycle.

## 6. MEANS AND METHODS TO MEET THE REQUIRED REDUCTIONS WITH SCHEDULE

*Permit Requirement: The means and methods, such as management practices and retrofit programs that will be utilized to meet the required reductions included in subdivision 2 a (5) of this subsection, and a schedule to achieve those reductions. The schedule should include annual benchmarks to demonstrate the ongoing progress in meeting those reductions.*



To satisfy the first permit cycle requirements, Poquoson has identified three specific projects, one of which is already complete, two of which are under design and are funded through a SLAF grant, and four additional qualifying BMPs that all together meet the City's required reductions. The project and BMP locations are shown in Figure 3. Table 4 documents the pollutant reductions for these projects and BMPs.

Pollutant removals for the proposed wet pond and created wetland currently under design were calculated along with the land use conversion for the property at 127 Ridge Road to determine the remainder of the first permit cycle reductions. Because the created wetland does not meet the water quality volume under the Virginia BMP Clearinghouse specifications for a level 1 design, the Bay Program retrofit curves were used to determine the pollutant removal efficiencies. With a treatment depth of only 0.23 inches over the impervious area treated, the removal rates are approximately half of those for a level 1 design. The land use conversion at 127 Ridge Road involved the conversion of 0.08 acres of impervious land and 0.21 acres of managed turf to grass. The grass on this parcel will be unmanaged. Figure 4 shows photos of the converted property taken on December 10, 2015.

During its 2015 Historical Data Cleanup, the City identified four BMPs within its MS4 service area that were implemented between January 1, 2006 and June 30, 2009, and thus are eligible for credit towards the City's required five-percent POC reductions during the first permit cycle. Three of the BMPs are wet ponds (Hunts Neck Estates, Island Cove, and River's Edge) and one is an infiltration basin (Villas Phase 2) that was verified during the Historic Data Cleanup to be in good order and functioning as designed. The calculated reductions for these BMPs are included in Table 4.

It should be noted that the service areas and impervious acres served that were reported for the Hunts Neck Estates wet pond, and the Villas Phase 2 infiltration basin were taken from engineering calculations submitted to the City for the BMPs prior to construction. When calculating the reduction loads for those BMPs, GIS data was checked to confirm the land cover in the service areas. Discrepancies were found in the impervious areas served for both BMPs, and the total service area for the Villas Phase 2 infiltration basin. The Hunts Neck Estates wet pond has a service area of 16.46 acres. Impervious acres served were reported as 6.13 acres, but GIS data and aerial photos show that area to be approximately 2.51 acres. Similarly, The Villas Phase 2 infiltration basin has a service area of 3.59 acres—not the 4.13 acres as initially reported—with an impervious area served of 0.99 acres, not 2.2 acres. In both cases the changes are conservative, resulting in less impervious acres served, and a slight reduction in phosphorus removal.

In addition to the BMP construction projects listed above, the City will take nitrogen reduction credit for recent disconnections of household septic tanks and the conversions of the lots to sanitary sewer hookups. During the mid-2000s, the City spent millions of dollars to install new sanitary sewer lines and make pump station upgrades. Currently, it is estimated that more than 95% of the City's parcels are connected to the sanitary sewer system. With less than thirty parcels remaining with septic tanks, the City is working towards a 100% connection rate to its sanitary sewer system.

In a June 17, 2015 conference call with the Hampton Roads Regional Stormwater Work Group, DEQ decided that localities could take nitrogen reduction credits for sanitary sewer connections equal to 3.6 pounds of TN per person per year. In a June 29, 2015 email to the City, DEQ stated that when determining the number of individuals in a household for calculating sewer connection credits, the average number of people per household based on the latest Census data for that locality should be used. For Poquoson that number is 2.62 people per household.

Since July 1, 2009, the City has disconnected seven septic tanks and connected those parcels to the sanitary sewer system. Using 2.62 people per household, and nitrogen reductions of 3.6 lbs TN/person/year results in a reduction of 9.43 lbs TN/year for each household disconnected. With seven household disconnects, the total nitrogen reduction is 66.02 lbs/yr.

The City will reserve the right to make adjustments to this plan, and to substitute any projects that can achieve the required pollutant reductions at less total cost. Alternative BMPs and nutrient credit trading opportunities that are not available in 2015 could become available in time to be implemented by June 30, 2018.

## **7. MEANS AND METHODS TO OFFSET INCREASED LOADS FROM CONSTRUCTION BETWEEN JULY 1, 2009 AND JUNE 30, 2014**

*Permit Requirement: The 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 operator shall utilize Table 4 in this section to develop the equivalent pollutant load for nitrogen and total suspended solids. The operator shall offset 5.0% of the calculated increased load from these new sources during the permit cycle.*

Poquoson has consistently used an average land cover condition of 16% impervious cover for the design of post-development stormwater management facilities. The City therefore does not have to identify any means and methods to offset increased loads from new sources initiating construction between July 1, 2009 and June 30, 2014—as addressed in Phase II General Permit Section I.C.2.a.(7).

## **8. MEANS AND METHODS TO OFFSET INCREASED LOADS FROM GRANDFATHERED PROJECTS**

*Permit Requirement: The 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 operator shall utilize Table 4 in this section to develop the equivalent pollutant load for nitrogen and total suspended solids.*

Poquoson does not have any grandfathered projects that began construction after July 1, 2014—as addressed in Phase II General Permit Section I.C.2.a.(8). Therefore, there are no required means and methods to offset increased loads from grandfathered projects.

## **9. ANY MODIFICATION TO THE TMDL OR WATERSHED IMPLEMENTATION PLAN**

*Permit Requirement: The operator shall address any modification to the TMDL or watershed implementation plan that occurs during the term of this state permit as part of its permit reapplication and not during the term of this state permit.*

The City of Poquoson reserves the right to substitute locations, sizes and types of treatment practices if more cost effective measures are approved by the Bay Program or if site conditions warrant. Modifications to the TMDL plan shall be addressed during the permit reapplication.

## **10. FUTURE PROJECTS AND ASSOCIATED ACREAGE THAT QUALIFY AS GRANDFATHERED**

*Permit Requirement: A list of future projects and associated acreage that qualify as grandfathered in accordance with 4VAC50-60-48.*

There are no future projects and associated acreage within the City that qualify as grandfathered in accordance with 4VAC50-60-48.

## **11. ESTIMATE OF EXPECTED COSTS**

*Permit Requirement: An estimate of the expected costs to implement the requirements of this special condition during the state permit cycle.*

The total implementation cost of four proposed projects identified in the June 30, 2015 version of this Action Plan was estimated to be \$238,831. As described elsewhere in this December 30, 2015 update, Poquoson will meet its requirements for the first permit term and exceed the five-percent compliance level documented in Table 3 without constructing additional projects. The projects that meet the five-percent goal are documented in Tables 4 through 6.

## **12. PUBLIC COMMENT**

*Permit Requirement: An opportunity for receipt and consideration of public comment regarding the draft Chesapeake Bay TMDL Action Plan.*

The City of Poquoson Chesapeake Bay TMDL Action Plan was discussed at a televised City Council Work Session on June 22, 2015, and made available on line on the City website, and at City Hall on Friday, June 26, 2015. Public Comments were received from June 26, 2015 to July 27, 2015.

**Table 1. City of Poquoson Regulated MS4 Area**

MS4 Land Use	Area (ac)
Regulated Impervious	636.28
Regulated Pervious	1,631.04
Forest*	828.33
Open Water*	15.94
<b>Total Area</b>	<b>3,111.59</b>

\* Excluded land

**Table 2. Existing Pollutant Loads (As of June 30, 2009)**

Pollutant	Subsource	2009 EOS Loading Rate for the York River Basin (lbs/ac) <sup>1</sup>	Total Existing Acres Served by MS4 (6/30/09)	Estimated Load (lbs)	Estimated Total POC Load Based on 2009 Progress Run (lbs)
Nitrogen	Regulated Impervious	7.31	636.28	4,651.21	17,128.66
	Regulated Pervious	7.65	1,631.04	12,477.46	
Phosphorus	Regulated Impervious	1.51	636.28	960.78	1,792.61
	Regulated Pervious	0.51	1,631.04	831.83	
TSS	Regulated Impervious	456.68	636.28	290,576.35	409,283.44
	Regulated Pervious	72.78	1,631.04	118,707.09	

1. Existing Source Loads for the York River Basin taken from Table 2d of the City's MS4 General Permit.

**Table 3. Reductions Required During First Permit Cycle (5% of the Level 2 Scoping Run)**

No offsets are required for "New Sources" as of 06/30/2009. An average land cover of 16% imperviousness was used by the City for the design of post-development stormwater management facilities for development that occurred between June 30, 2009 and June 30, 2014.

Pollutant	Subsource	First Permit Cycle Required Reduction in Loading Rate (lbs/ac)	Total Existing Acres Served by MS4 (6/30/09)	Reduction Required (lbs)	Total Reduction Required During First Permit Cycle (lbs)
Nitrogen	Regulated Impervious	0.032895	636.28	20.93	58.36
	Regulated Pervious	0.02295	1,631.04	37.43	
Phosphorus	Regulated Impervious	0.01208	636.28	7.69	10.70
	Regulated Pervious	0.00184875	1,631.04	3.02	
TSS	Regulated Impervious	4.56680	636.28	2,905.76	3,425.11
	Regulated Pervious	0.3184125	1,631.04	519.34	

**Table 4. Computation of Proposed Credits for First Permit Cycle (5% of the Level 2 Scoping Run)**

<b>SUMMARY — Reductions Required for First Permit Cycle, 5% of the Level 2 Scoping Run</b>			
	<b>TN</b>	<b>TP</b>	<b>TSS</b>
5% Required Annual Reductions - (1st Permit Cycle)	<b>58.36</b>	<b>10.70</b>	<b>3,425.11</b>
Total Annual Reductions (lbs/yr) from BMPs	<b>162.76</b>	<b>18.57</b>	<b>5,597.70</b>
Pounds in Excess of Requirements: (carried forward to 2nd permit cycle)	✓ 104.40	✓ 7.87	✓ 2,172.59

**1-1. Proposed Created Wetland (In Progress)**

Land Use	Acres	Loading Rates (lbs/ac/yr)			Pollutant Loads (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Forest	7.42	2.13	0.07	27.61	15.80	0.52	204.87
Reg. Pervious	4.14	7.65	0.51	72.78	31.67	2.11	301.31
Reg. Impervious	8.88	7.31	1.51	456.68	64.91	13.41	4,055.32
Total (lbs/yr)					<b>112.39</b>	<b>16.04</b>	<b>4,561.49</b>
Removal Efficiency*					15%	24%	30%
Annual Reduction (lbs/yr)					<b>16.86</b>	<b>3.85</b>	<b>1,368.45</b>

\*Efficiencies taken from the Bay Program Retrofit Curves for a treatment depth of 0.23 inches.

**1-2. Proposed Wet Pond (In Progress)**

Land Use	Acres	Loading Rates (lbs/ac/yr)			Pollutant Loads (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Forest	1.86	2.13	0.07	27.61	3.96	0.13	51.35
Reg. Pervious	1.84	7.65	0.51	72.78	14.08	0.94	133.92
Reg. Impervious	3.41	7.31	1.51	456.68	24.93	5.15	1,557.28
Total (lbs/yr)					<b>42.96</b>	<b>6.22</b>	<b>1742.55</b>
Removal Efficiency*					20%	45%	60%
Annual Reduction (lbs/yr)					<b>8.59</b>	<b>2.80</b>	<b>1045.53</b>

\*Chesapeake Bay Program established efficiencies for wet ponds.

**1-3. Land Use Change - 127 Ridge Rd. (Completed)**

Area Converted	Acres	Load Reductions (lbs/ac/yr)			Total Reductions (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Impervious to Grass	0.08	6.06	1.17	430.00	0.48	0.09	34.40
Pervious to Grass*	0.21	4.41	0.08	-	0.93	0.02	-
Total Reduction for Land Conversion (lbs/yr)					<b>1.41</b>	<b>0.11</b>	<b>34.40</b>

\*Pervious land converted was managed turf. See Figure 4 for photos.



**Table 4. Computation of Proposed Credits for First Permit Cycle (5% of the Level 2 Scoping Run)**

**1-4. Hunts Neck Estates Wet Pond (Online 2/2/2006)**

Land Use	Acres	Loading Rates (lbs/ac/yr)			Pollutant Loads (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Forest	1.09	2.13	0.07	27.61	2.32	0.08	30.09
Reg. Pervious	12.86	7.65	0.51	72.78	98.38	6.56	935.95
Reg. Impervious	2.51	7.31	1.51	456.68	18.35	3.79	1,146.27
Total (lbs/yr)					<b>119.05</b>	<b>10.43</b>	<b>2,112.31</b>
Removal Efficiency*					20%	45%	60%
Annual Reduction (lbs/yr)					<b>23.81</b>	<b>4.69</b>	<b>1,267.39</b>

\*Chesapeake Bay Program established efficiencies for wet ponds.

**1-5. Island Cove Wet Pond (Online 6/21/2007)**

Land Use	Acres	Loading Rates (lbs/ac/yr)			Pollutant Loads (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Forest	0.14	2.13	0.07	27.61	0.30	0.01	3.87
Reg. Pervious	4.28	7.65	0.51	72.78	32.74	2.18	311.50
Reg. Impervious	1.28	7.31	1.51	456.68	9.36	1.93	584.55
Total (lbs/yr)					<b>42.40</b>	<b>4.13</b>	<b>899.91</b>
Removal Efficiency*					20%	45%	60%
Annual Reduction (lbs/yr)					<b>8.48</b>	<b>1.86</b>	<b>539.95</b>

\*Chesapeake Bay Program established efficiencies for wet ponds.

**1-6. River's Edge Wet Pond (Online 12/3/2007)**

Land Use	Acres	Loading Rates (lbs/ac/yr)			Pollutant Loads (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Forest	1.76	2.13	0.07	27.61	3.75	0.12	48.59
Reg. Pervious	8.77	7.65	0.51	72.78	67.09	4.47	638.28
Reg. Impervious	1.17	7.31	1.51	456.68	8.55	1.77	534.32
Total (lbs/yr)					<b>79.39</b>	<b>6.36</b>	<b>1,221.19</b>
Removal Efficiency*					20%	45%	60%
Annual Reduction (lbs/yr)					<b>15.88</b>	<b>2.86</b>	<b>732.71</b>

\*Chesapeake Bay Program established efficiencies for wet ponds.

**Table 4. Computation of Proposed Credits for First Permit Cycle (5% of the Level 2 Scoping Run)**

**1-7. Villas Phase 2 Infiltration Basin (Online 7/1/2008)**

Land Use	Acres	Loading Rates (lbs/ac/yr)			Pollutant Loads (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Forest	-	2.13	0.07	27.61	-	-	-
Reg. Pervious	2.60	7.65	0.51	72.78	19.89	1.33	189.23
Reg. Impervious	0.99	7.31	1.51	456.68	7.24	1.49	452.11
Total (lbs/yr)					<b>27.13</b>	<b>2.82</b>	<b>641.34</b>
Removal Efficiency*					80%	85%	95%
Annual Reduction (lbs/yr)					<b>21.70</b>	<b>2.40</b>	<b>609.27</b>

\*Chesapeake Bay Program established efficiencies for infiltration practices w/o sand, veg.

**1-8. Septic Tank Disconnects/Connections to Sanitary Sewer**

Conversion	Number of Households Connected to Sewer	Load Reductions (lbs/Household/yr)*			Total Reductions (lbs/yr)		
		TN	TP	TSS	TN	TP	TSS
Septic to Sanitary Sewer	7.0	9.432	-	-	66.02	-	-
Total Reduction for Land Conversion (lbs/yr)					<b>66.02</b>	<b>-</b>	<b>-</b>

\*Per email from DEQ to City on June 29, 2015 based on a stream loading value of 3.6 lb TN/year/person and an average number of people per household of 2.62 based on Poquoson's 2009-2013 Census data.

*See the summary at the beginning of this table for cumulative totals.*



**Table 5. Projects for First Permit Cycle (5% of the Level 2 Scoping Run)**

<b>Project</b>	<b>Location(s)</b>	<b>2015 Estimated Cost <sup>1</sup></b>	<b>Notes</b>
<b>1-1. Proposed Created Wetland (In Progress)</b>	Adjacent to Oxford Run Ditch just south of Victory Boulevard	-	Project funded previously (SLAF grant)
<b>1-2. Proposed Wet Pond (In Progress)</b>	Adjacent to Oxford Run Ditch, west of the City Hall parking lot	-	Project funded previously (SLAF grant)
<b>1-3. Land Use Change - 127 Ridge Road (Completed)</b>	127 Ridge Road	-	Project completed previously
<b>1-4. Hunts Neck Estates Wet Pond</b>	South of Volunteer Trail, in the Hunts Neck Estates Subdivision	-	Pond online 2/2/2006
<b>1-5. Island Cove Wet Pond</b>	North of Elm Street in the Island Cove subdivision	-	Pond online 6/21/2007
<b>1-6. Rivers Edge Wet Pond</b>	Adjacent to Hollingsworth Way	-	Pond online 12/3/2007
<b>1-7. Villas Phase 2 Infiltration Basin</b>	Between Ambrosia Place and Government Ditch	-	Basin online 7/1/2008
<b>1-8. Septic Tank Disconnects/Connections to Sanitary Sewer</b>	(See notes)	\$ -	Completed after July 1, 2009
<b>Total Cost:</b>		<b>\$ -</b>	

**Notes:**

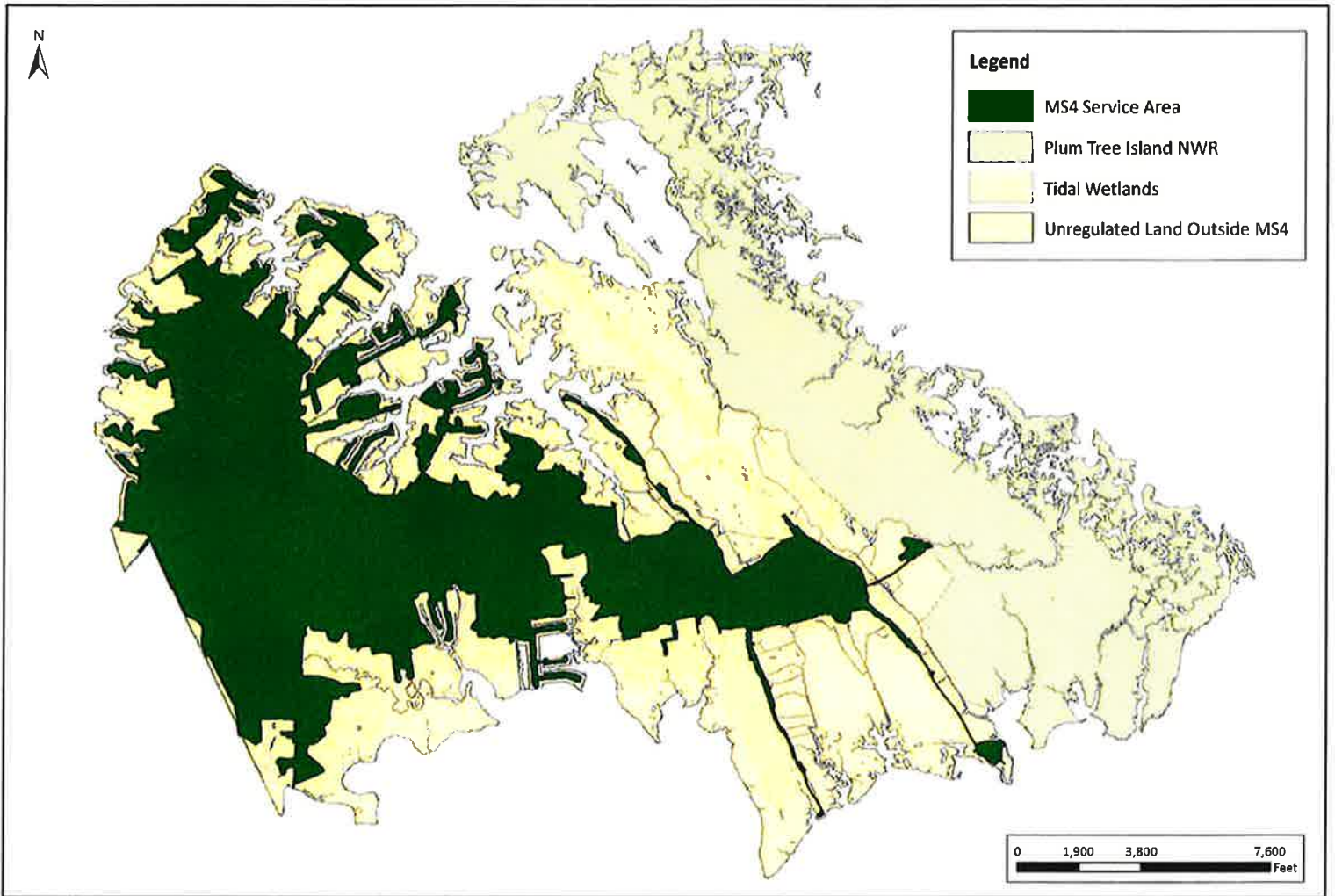
1. These projects have been fully funded or completed prior to December 30, 2015. There will be no additional cost to construct them.
2. See Figure 3 for specified locations.
3. See Table 4 for computation and tabulation of Chesapeake Bay TMDL pollutant removal credits.
4. The following parcels were connected to sanitary sewer: 220 Browns Neck Rd., 2 Lyons Creek Dr., 3 Lyons Creek Dr., 4 Lyons Creek Dr., 5 Lyons Creek Dr., 6 Lyons Creek Dr., 201-A Odd Rd. Nitrogen reductions were based on a stream loading value of 3.6 lb TN/year/person, and an average of 2.62 people per household in Poquoson according to the City's 2009-2013 Census data. The stream loading value of 3.6 lb TN/year/person and Poquoson's average number of people per household of 2.62 were confirmed in a DEQ email to the City dated June 29, 2015.

Table 6. Schedule for First Permit Cycle (5% of the Level 2 Scoping Run)

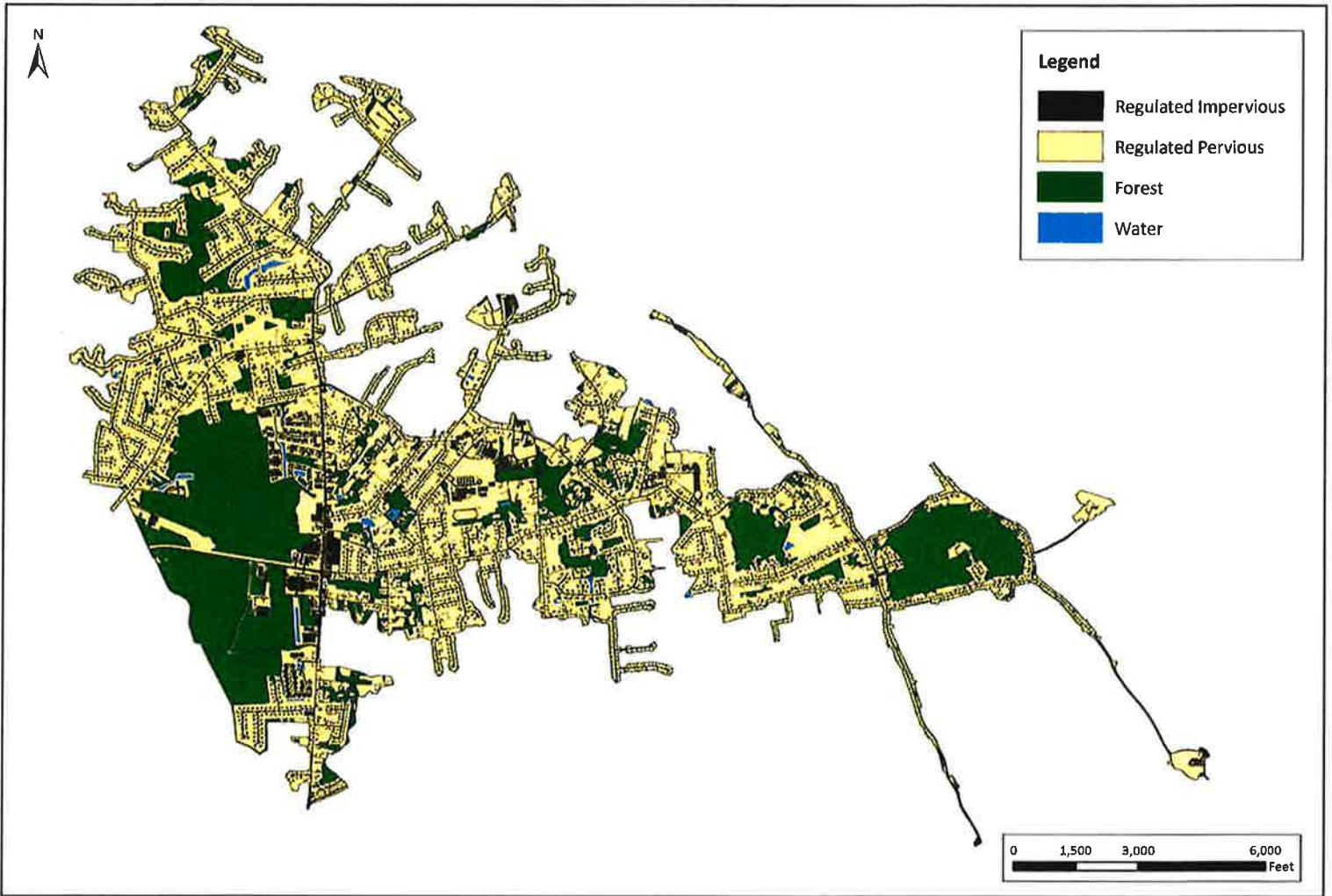
Project	DATES <sup>2</sup>			Notes
	BMP Initiated <sup>1</sup>	BMP Construction to Begin	BMP Installation Completed	
<b>1-1. Proposed Created Wetland (In Progress)</b>	n/a	1/22/2016	6/20/2016	SLAF grant. Design completed in 2015.
<b>1-2. Proposed Wet Pond (In Progress)</b>	n/a	1/22/2016	6/20/2016	SLAF grant. Design completed in 2015.
<b>1-3. Land Use Change - 127 Ridge Rd. (Completed)</b>	n/a	-	Before 6/30/2014	Completed.
<b>1-4. Hunts Neck Estates Wet Pond</b>	n/a	-	2/2/2006	Completed.
<b>1-5. Island Cove Wet Pond</b>	n/a	-	6/21/2007	Completed.
<b>1-6. Rivers Edge Wet Pond</b>	n/a	-	12/3/2007	Completed.
<b>1-7. Villas Phase 2 Infiltration Basin</b>	n/a	-	7/1/2008	Completed.
<b>1-8. Septic Tank Disconnects/Connections to Sanitary Sewer</b>	After 6/30/2009	-	-	Completed.

**Notes:**

1. This column is for non-structural BMPs.
2. This information is formatted as requested in DEQ Guidance Memo No. 15-2005 (Finalized 5/18/2015).
3. This schedule can be used as the annual benchmarks required by the Phase II General Permit.

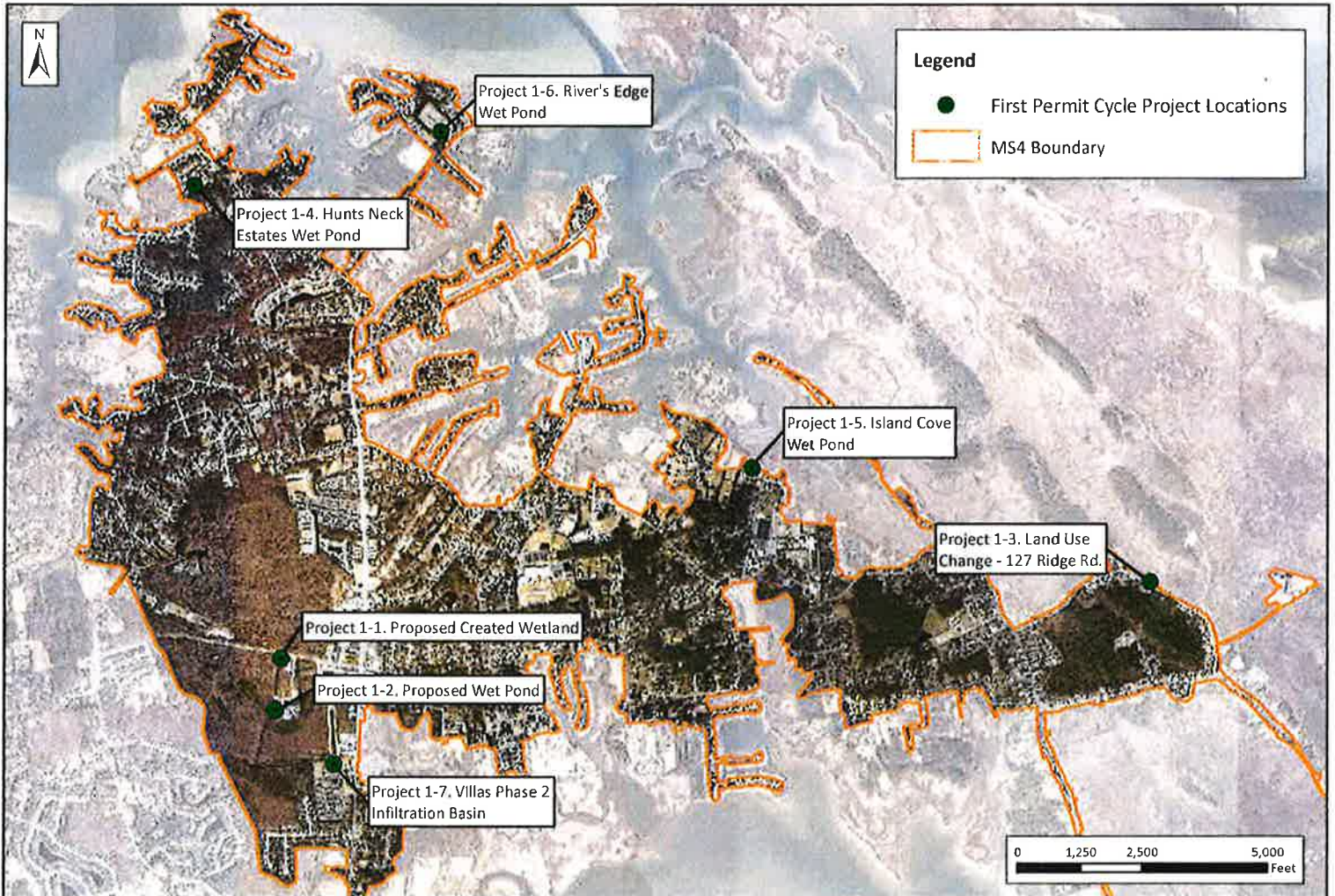


**Figure 1. City of Poquoson's MS4 Service Area**



**Figure 2. Land Use in the MS4 Service Area**





**Figure 3. Project Locations for First Permit Cycle (5% of the Level 2 Scoping Run)**





**Figure 4. Photos of Land Conversion at 127 Ridge Road**





**Appendix:**  
**Hampton Roads Water Quality**  
**Credit Agreement for the**  
**Chesapeake Bay**

October 25, 2019



**HAMPTON ROADS WATER QUALITY CREDIT AGREEMENT  
FOR CHESAPEAKE BAY RESTORATION**

**THIS HAMPTON ROADS WATER QUALITY CREDIT AGREEMENT FOR CHESAPEAKE BAY RESTORATION** (this "Agreement") is made this 5<sup>TH</sup> day of JULY, 2017, by and between the Hampton Roads Sanitation District ("HRSD") and the City of Poquoson (the "City") (each a "Party" and jointly the "Parties").

**BACKGROUND**

A. The HRSD Plants. HRSD owns and operates various wastewater treatment plants that are authorized to discharge the nutrients total nitrogen ("TN") and total phosphorus ("TP") as well as sediment as total suspended solids ("TSS") to the Chesapeake Bay watershed (the "HRSD Plants"). The HRSD Plants have TN, TP and TSS waste load allocations assigned by the State Water Control Board and the Virginia Department of Environmental Quality (jointly, "DEQ") pursuant to the Water Quality Management Planning Regulation, 9 VAC 25-720, and by the U.S. Environmental Protection Agency ("EPA") pursuant to the Chesapeake Bay Total Maximum Daily Load ("TMDL") and related Virginia Watershed Implementation Plan ("WIP"). The HRSD Plants are subject to the General Virginia Pollutant Discharge Elimination System ("VPDES") Watershed Permit Regulation for TN and TP Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia, 9 VAC 25-820, most recently reissued by DEQ effective February 8, 2017, as hereafter modified or reissued from time to time (the "Watershed General Permit"). Due to exceptional performance and current operating conditions, the HRSD Plants currently discharge less TN, TP and TSS than they are authorized to discharge under the Watershed General Permit while protecting Chesapeake Bay water quality and, therefore, HRSD has the ability to provide TN, TP and TSS credits on at least a temporary basis.

B. The Locality MS4. The City owns and operates a municipal separate stormwater sewer system ("MS4") authorized to discharge TN, TP and TSS to the Chesapeake Bay watershed. Like the HRSD Plants, the MS4 is subject to the Chesapeake Bay TMDL as derived from the Virginia WIP and to a VPDES Permit issued to the City by DEQ. Pursuant to the TMDL, WIP and VPDES Permit for the MS4, it is anticipated that the City will reduce MS4-related TN, TP and TSS discharges pursuant to City-developed and DEQ-approved TMDL Action Plans for each of three, five-year permit cycles, which are referred to as the First Bay TMDL Permit Cycle (5% Progress), Second Bay TMDL Permit Cycle (40% Progress), and Third Bay TMDL Permit Cycle (100% Progress). During 2017, the City is in its First Bay TMDL Permit Cycle.

C. The SWIFT Project. HRSD's Sustainable Water Initiative For Tomorrow ("SWIFT") Project was conceived with multiple benefits in mind for the Hampton Roads region. Aside from TMDL benefits, this innovative water purification project is designed to enhance the sustainability of the long-term groundwater supply and help address other environmental pressures such as sea level rise and saltwater intrusion. The SWIFT Project is intended to achieve these benefits by taking already-treated wastewater that would otherwise be discharged into the Chesapeake Bay watershed, purifying it through additional rounds of advanced water treatment to meet drinking water standards, and injecting the resulting drinking quality water into the Potomac aquifer deep underground. With respect to TMDL benefits, SWIFT will result in a

significant reduction in the total volume of HRSD discharge to the Chesapeake Bay watershed, to achieve greater environmental benefits with corresponding significant reductions of TN, TP and TSS discharges to the Chesapeake Bay watershed.

D. Legal Authority. Pursuant to Virginia Code § 62.1-44.19:21, the City may acquire and use TN and TP credits for purposes of compliance with the Chesapeake Bay TMDL loading reductions of its MS4 VPDES Permit, including credits generated by the HRSD Plants by discharging less TN or TP than permitted under the Watershed General Permit. Pursuant to Virginia Code § 62.1-44.19:21.1, the City may also acquire and use TSS credits for purposes of compliance with the Chesapeake Bay TMDL loading reductions of its MS4 VPDES Permit, including credits generated by the HRSD Plants by discharging less TSS than allocated under the Chesapeake Bay TMDL. With respect to all three parameters, it is recognized that this authority does not limit or otherwise affect the authority of DEQ to establish and enforce more stringent water quality-based effluent limitations in permits where such limitations are necessary to protect local water quality and, further, that the use of water quality credits does not relieve an MS4 permit holder of any requirement to comply with applicable local water quality-based limitations.

E. Redevelopment-Based MS4 TMDL Action Plan. The City expects to achieve its Chesapeake Bay TMDL reduction goals more cost-effectively by utilizing HRSD-generated TN, TP and TSS credits before and during operation of the SWIFT Project in lieu of stormwater retrofit projects on a condensed 10-year schedule (*i.e.*, Second and Third Bay TMDL Permit Cycles) coupled with ongoing stormwater quality improvements from redevelopment projects, which are subject to TP reduction criteria (and associated TN and TSS reductions) under the applicable water quality design requirements of DEQ's Virginia Stormwater Management Program Regulation, 9VAC25-870-63.A.2. By aligning with the normal redevelopment cycle rather than scheduling retrofits prior to redevelopment activity, the City's Chesapeake Bay TMDL Action Plan will also conserve scarce state and local resources for other important water quality projects.

F. Credit Trading Premise of SWIFT. For all of the above reasons and others, the ability to generate TN, TP, and TSS credits through the SWIFT Project and apply those credits as progress under the Hampton Roads localities' MS4 Permits and associated TMDL Action Plans is a fundamental premise for the SWIFT Project. HRSD is proceeding with the SWIFT Project, and the City is supporting it, in large part in reliance on these critical water quality trading-based benefits.

## AGREEMENT

NOW, THEREFORE, in consideration of the foregoing premises (hereby incorporated as if fully set forth herein), the mutual covenants and conditions herein, and other good and valuable consideration, the receipt and sufficiency of which HRSD and the City acknowledge, the Parties hereby agree as follows.

1. Annual Credit Transfers Prior to SWIFT Feasibility Determination. Prior to HRSD's determination of SWIFT Project feasibility as provided below, HRSD shall annually generate and transfer to the City the quantity of water quality credits needed to meet the City's

compliance requirements under its DEQ-Approved Chesapeake Bay TMDL Action Plan for its MS4, as provided below. This annual transfer shall be made by HRSD's execution and delivery to the City of the Annual Water Quality Credit Transfer Form (Attachment B hereto) on or before May 20 immediately following each calendar year of HRSD's credit generation.

a. Determination of Total Reductions Needed. The City shall determine the total TN, TP and TSS reductions required for its full MS4 implementation of the Chesapeake Bay TMDL and WIP as issued in December 2010, in accordance with the procedures established in its VPDES Permit and DEQ Guidance Memorandum 15-2005, Chesapeake Bay TMDL Special Condition Guidance (May 18, 2015).

b. Credit Demand Minimization Elements. The City shall minimize its calculated reductions by (i) accurately mapping and delineating its existing MS4 service area, (ii) taking full credit for reductions achieved by stormwater projects and regulated redevelopment projects occurring prior to the effective date of the City's VPDES Permit in effect as of the effective date of this Agreement, and (iii) other procedures or accounting measures reasonably available to the City.

c. Credit Transfer Ceilings. HRSD's annual credit transfer obligations to the City shall not exceed the lesser of (i) the City's initial estimate of credit needs, or (ii) 95 percent of the City's total calculated reductions determined in accordance with Subparagraphs 1.a. and 1.b. and set forth in a DEQ-approved Chesapeake Bay TMDL Action Plan, or (iii) the quantity of credits actually needed to meet such total calculated reductions. The City's initial estimate of credit needs as of the effective date of this Agreement is set forth in Section 1 of Attachment A hereto. Following DEQ's approval of the City's Chesapeake Bay TMDL Action Plan and subsequent acceptance of the credit needs by HRSD as consistent with the requirements of this Subparagraph 1.c., HRSD shall issue an update to Attachment A setting forth in Section 2 thereof HRSD's actual annual credit transfer obligation determined in accordance with this Subparagraph 1.c.

d. Term & Termination of Initial Credit Transfers. HRSD's annual credit transfer obligations to the City under this Paragraph 1 shall expire upon (i) conversion to a permanent transfer of wasteload allocations as provided in Paragraph 2, (ii) termination as specifically authorized by any other provision of this Agreement, or (iii) December 31, 2036, whichever occurs first.

2. Permanent Transfer After SWIFT Feasibility Determination. Upon HRSD's determination that full-scale implementation of the SWIFT Project is feasible, HRSD shall permanently transfer to the City the quantity of TN, TP and TSS waste load allocations set forth for its MS4 on Attachment A hereto, as updated and issued by HRSD in accordance with Paragraph 1 c.

a. Factors for Feasibility Determination. Feasibility shall be determined in HRSD's sole discretion taking into account (i) whether all required permits and approvals have been acquired in final, non-appealable form acceptable to HRSD including the federal Safe Drinking Water Act Underground Injection Control Permit, (ii) whether the first full-scale



HRSD plant upgrade is online and performing as desired, (iii) whether full-scale implementation of the SWIFT Project is technically and financially feasible, and (iv) other material factors.

b. Timing for Feasibility Determination. Without limiting HRSD's discretion to determine whether full-scale SWIFT Project implementation is feasible or when to make such determination, it is the mutual goal of the Parties for HRSD to make such determination as soon as reasonably possible and not later than December 31, 2025, so as to preserve the maximum amount of time prior to the termination date for the City to implement stormwater retrofit projects or other permit compliance measures that might be necessary should it be determined that the SWIFT Project is not feasible.

3. Regulatory Plans & Approvals. In furtherance of the annual credit transfer and, when applicable, the permanent transfer contemplated by this Agreement, the Parties shall collaborate on appropriate submittals to and requests of DEQ, as follows; however, HRSD shall have no responsibility for the failure or refusal of DEQ or other governmental authority to approve such transfers.

a. City's TMDL Action Plan. For purposes of annual and, when applicable, permanent transfers, the City shall each include in its Chesapeake Bay TMDL Action Plan a provision for the receipt and use of TN, TP and TSS credits from the HRSD Plants in the form set forth in Attachment C hereto (or such other form as may be mutually agreeable to the City and HRSD).

b. HRSD Watershed General Permit Registration. For purposes of permanent wasteload allocation transfers, when applicable, HRSD shall modify its Watershed General Permit Registration and, if necessary, individual VPDES permits to reflect such transfers.

c. Virginia Chesapeake Bay TMDL Phase III WIP. HRSD and the City shall collaborate to seek inclusion in the Phase III WIP of recognition of the SWIFT Project and the annual and, when applicable, permanent transfers contemplated by this Agreement.

4. Authorized Use of Credits. The City agrees that its sole and limited use of the TN, TP, and TSS credits transferred under this Agreement shall be for the purpose of MS4 Permit compliance and Chesapeake Bay TMDL implementation and that it shall not transfer any portion of HRSD-generated credits (or waste load allocations, if applicable) to any other person or entity. In the event that the City no longer requires some or all of the credits (or waste load allocations) for such use, they shall revert to HRSD and HRSD shall update and reissue Attachment A accordingly.

5. Mutual Cooperation. The Parties shall continue to cooperate with each other as reasonably necessary to confirm or bring about the transfers contemplated by this Agreement.

6. Permits & Approvals. If for any reason any federal, state, regional or local government or agency fails to issue any necessary permit, approval or other authorization for the SWIFT Project or the transfers contemplated by this Agreement, HRSD shall be excused from its performance hereunder.

7. Force Majeure. The obligations of HRSD, including its annual or permanent transfer obligations, shall be suspended while and as long as performance is prevented or impeded by strikes, disturbances, riots, fire, severe weather, acts of war, acts of terrorism, acts of God, government action (other than by HRSD), major technical, engineering or construction related delays, or any other cause similar or dissimilar to the forgoing that is beyond the reasonable control of and not due to the gross negligence of HRSD.

8. Change in Law. In the event of any material change in applicable laws or regulations, the Parties shall work together to attempt to amend this Agreement to conform to such change, while maintaining as closely as practical the provisions and intent of this Agreement. If in any such event HRSD is unable to perform its transfer obligations as provided herein, the City shall be solely responsible for otherwise meeting its TMDL and MS4 Permit obligations.

9. Significant Financial & Budgetary Constraints. Notwithstanding any other provision of this Agreement or any prior determination of feasibility of the SWIFT Project, HRSD reserves the right to terminate or renegotiate this Agreement in the event HRSD experiences significant financial or budgetary challenges which, in HRSD's opinion, would significantly impair its ability to perform its obligations hereunder. In such event, the Parties shall work together to attempt to amend this Agreement to accommodate such challenges, with the goal of providing annual credits to the City (and to other Hampton Roads localities with similar water quality credit agreements) as practical.

10. Credit Supply Constraints. Notwithstanding any other provision of this Agreement, to the extent that HRSD determines in its sole discretion that its available quantity of water quality credits (or allocations) is insufficient to meet the total MS4 Chesapeake Bay TMDL Action Plan compliance requirements of the City and of all other Hampton Roads localities that are party or become party to a similar water quality credit agreement, HRSD's obligations hereunder shall be limited to transferring to the City its pro rata share of HRSD's available credits based on pollutant-specific total credit needs of all Hampton Roads localities. HRSD agrees to provide the City with notice of its ability only to transfer a pro rata share of HRSD's available credits as promptly as possible but no later than 90 days after becoming aware of the event limiting HRSD's ability to meet the total credit needs of all Hampton Roads Localities. For clarity, HRSD shall assume no obligation under this Agreement to install, upgrade, improve, or significantly alter the operation of any portion of its sewerage system or treatment works for purposes of providing water quality credits (or allocations).

11. No Third-Party Beneficiaries. This Agreement is solely for the benefit of the Parties hereto and their permitted successors and assigns and shall not confer any rights or benefits on any other person or entity.

12. No Assignment. This Agreement, and the rights and obligations established hereunder, shall be binding upon and inure to the benefit of any successors of the Parties. However, no Party may transfer or assign this Agreement, or its rights or obligations hereunder, without the prior written consent of the other Party, which consent shall not be unreasonably withheld.

13. Expenses; Commissions. Except as provided herein, each Party shall pay its own fees and expenses, including its own counsel fees, incurred in connection with this Agreement or any transaction contemplated hereby. The Parties represent and warrant to each other that they have not dealt with any business broker or agent who would be entitled to a brokerage commission or finders fee as a result of this Agreement or any related transactions. .

14. Governing Law; Venue; Severability. This Agreement shall be construed in accordance with and governed for all purposes by the laws of the Commonwealth of Virginia. This Agreement is a Virginia contract deemed executed and accepted in the City of Virginia Beach; and all questions with respect to any of its provisions shall be instituted, maintained, and contested in a court of competent jurisdiction in the City of Virginia Beach, Virginia or the U.S. District Court for the Eastern District of Virginia. If any word or provision of this Agreement as applied to any Party or to any circumstance is adjudged by a court to be invalid or unenforceable, the same shall in no way affect any other circumstance or the validity or enforceability of any other word or provision.

15. No Waiver. Neither any failure to exercise or any delay in exercising any right, power or privilege under this Agreement by either Party shall operate as a waiver, nor shall any single or partial exercise of any right, power or privilege hereunder preclude the exercise of any other right, power or privilege. No waiver of any breach of any provision shall be deemed to be a waiver of any preceding or succeeding breach of the same or any other provision, nor shall any waiver be implied from any course of dealing.

16. Entire Agreement; Amendments. This Agreement contains the entire agreement between the Parties as to the subject matter hereof and supersedes all previous written and oral negotiations, commitments, proposals and writings. No amendments may be made to this Agreement except by a writing signed by both Parties.

17. Counterparts; Signatures; Copies. This Agreement may be executed in counterparts, both of which shall be deemed an original, but all of which together shall constitute one and the same instrument. A facsimile or scanned signature may substitute for and have the same legal effect as an original signature. Any copy of this executed Agreement made by photocopy, facsimile or scanner shall be considered the original for all purposes.

18. Authorization. Each Party represents that its execution, delivery and performance under this Agreement have been duly authorized by all necessary action on its behalf, and do not and will not violate any provision of its charter or enabling legislation or result in a material breach of or constitute a material default under any agreement, indenture, or instrument of which it is a party or by which it or its properties may be bound or affected.

IN WITNESS WHEREOF, the Parties hereto have caused the execution of this Agreement as of the date first written above.


[SIGNATURES BEGIN ON NEXT PAGE]



**SIGNATURE PAGE OF HAMPTON ROADS WATER QUALITY CREDIT  
AGREEMENT FOR CHESAPEAKE BAY RESTORATION BY AND BETWEEN  
HRSD AND CITY OF POQUOSON**

**HAMPTON ROADS SANITATION  
DISTRICT**

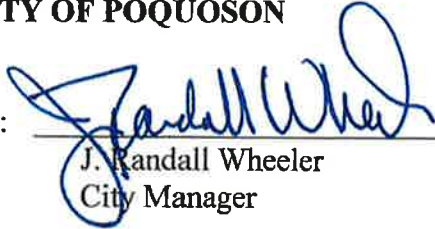
By: \_\_\_\_\_

  
Edward G. Henifin  
General Manager

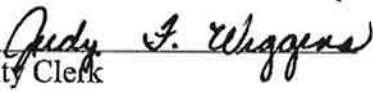
**SIGNATURE PAGE OF HAMPTON ROADS WATER QUALITY CREDIT  
AGREEMENT FOR CHESAPEAKE BAY RESTORATION BY AND BETWEEN  
HRSD AND CITY OF POQUOSON**

**CITY OF POQUOSON**

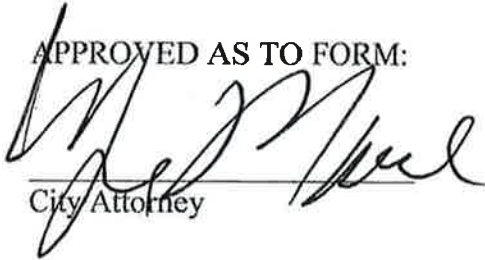
By: \_\_\_\_\_

  
J. Randall Wheeler  
City Manager

ATTEST:

  
City Clerk

APPROVED AS TO FORM:

  
City Attorney

**HAMPTON ROADS WATER QUALITY CREDIT AGREEMENT  
FOR CHESAPEAKE BAY RESTORATION  
ATTACHMENT A**

**Water Quality Credit Needs for Second & Third Bay TMDL Permit Cycles**

*Section 1: Initial Estimate of Credit Needs (lbs/yr)  
[As Estimated by City as of Effective Date of this Agreement]*

Parameter	James River Basin			York River Basin		
	2 <sup>nd</sup> Permit Cycle	3 <sup>rd</sup> Permit Cycle	Total Both Cycles	2 <sup>nd</sup> Permit Cycle	3 <sup>rd</sup> Permit Cycle	Total Both Cycles
TN	0.0	0.0	0.0	408.52	700.32	1108.84
TP	0.0	0.0	0.0	74.90	128.40	203.30
TSS	0.0	0.0	0.0	23,975.8	41,101.4	65,077.2

*Section 2: City-Calculated and HRSD-Accepted Credit Needs (lbs/yr)  
Under DEQ-Approved TMDL Action Plan and Subparagraph 1.c. of this Agreement  
[As Accepted by HRSD After DEQ Approval of City's TMDL Action Plan]*

Parameter	James River Basin			York River Basin		
	2 <sup>nd</sup> Permit Cycle	3 <sup>rd</sup> Permit Cycle	Total Both Cycles	2 <sup>nd</sup> Permit Cycle	3 <sup>rd</sup> Permit Cycle	Total Both Cycles
TN	0.0	0.0	0.0	408.52	700.32	1108.84
TP	0.0	0.0	0.0	74.90	128.40	203.30
TSS	0.0	0.0	0.0	23,975.8	41,101.4	65,077.2

\* DEQ approved the City's TMDL Action Plan prior to the effective date of this Agreement. Section 2 is complete.

**HAMPTON ROADS WATER QUALITY CREDIT AGREEMENT  
FOR CHESAPEAKE BAY RESTORATION  
ATTACHMENT B**

**Annual Water Quality Credit Transfer Form**

***Instructions: To be completed and executed by HRSD and delivered to the City on or before each May 20 immediately following the calendar year of credit generation by HRSD.***

By execution and delivery of this Annual Credit Transfer Form, HRSD transfers the following water quality credits in the amounts specified to the City in accordance with, and for the specific and limited purposes of, the Hampton Roads Water Quality Credit Agreement for Chesapeake Bay Restoration.

Transferor: Hampton Roads Sanitation District

Transferee (MS4): City of Poquoson, Virginia

Year Credits Generated: \_\_\_\_\_

Date Credits Transfer: \_\_\_\_\_

River Basin	TN (lbs/yr)	TP (lbs/yr)	TSS (lbs/yr)
James			
York			

Signed (for HRSD): \_\_\_\_\_

Name (Print): \_\_\_\_\_

Title: \_\_\_\_\_

**HAMPTON ROADS WATER QUALITY CREDIT AGREEMENT  
FOR CHESAPEAKE BAY RESTORATION  
ATTACHMENT C**

**MS4 TMDL Action Plan Provision for Use of HRSD-Generated Water Quality Credits**

The intent of this plan is the generation and use of TN, TP and TSS credits before and during operation of the SWIFT Project in collaboration with HRSD pursuant to the Hampton Roads Water Quality Credit Agreement for Chesapeake Bay Restoration to which the City and HRSD are signatories. This compliance method is in lieu of more traditional stormwater retrofit projects, which may not be feasible to execute on a condensed 10-year schedule (i.e., Second and Third Bay TMDL Permit Cycles). Not only does this method have the advantage of more reliably meeting the MS4 Permit's short deadlines, but it is also beneficial to the public in that it will meet the City's Chesapeake Bay TMDL reduction goals more cost-effectively than otherwise possible. This component of the plan is fully in accordance with Virginia Code §62.1-44.19:21 (TN and TP) and §62.1-44.19:21.1 (TSS). The quantity of reduction credits from the SWIFT Project that are allocated to this TMDL Action Plan for the James River Basin are 0.0 lbs/yr TN, 0.0 lbs/yr TP, and 0.0 lbs/yr TSS and for the York River Basin are 1108.84 lbs/yr TN, 203.30 lbs/yr TP, and 65,077.2 lbs/yr TSS.

# **Appendix:**

## **Public Comment Period Information**

October 25, 2019





### Draft 2018 - 2038 Comprehensive Plan

The Draft 2018-2038 Comprehensive Plan is available [here](#), as recommended for approval by the Poquoson Planning Commission.



### Hurricane Preparedness

[Hurricane Preparedness Information 2018](#)  
[Know Your Zone](#)



### Draft TMDL Action Plan

The City of Poquoson has prepared a draft Chesapeake Bay TMDL Action Plan for 2018-2023. The draft is available [here](#) through August 3, 2018. Comments can be sent to the City Engineering Department at 500 City Hall Avenue, Poquoson, VA 23662 or emailed to [elishah.roberts@poquoson.va.gov](mailto:elishah.roberts@poquoson.va.gov).



# Chesapeake Bay TMDL Action Plan: 2018-2023

City Council

June 25, 2018



# Bay TMDL

- Poquoson is required to reduce Phosphorus, Nitrogen and Sediment being discharged by our drainage system
- 5% by 2018 (Exceeded)
- 40% by 2023
- Mandated by our stormwater (MS4) permit



## Proposed Plan for 2<sup>nd</sup> permit cycle

- Use HRSD nutrient and sediment credits (rate payer financed)
- Continue maintaining and improving existing structures
- Septic tank conversions, land use changes, redevelopment: track credits



# Other MS4 Permit Requirements

- Bacterial TMDL Action Plan
- Mapping
- Increasingly rigorous requirements
- Good Housekeeping
  
- Funding needed to meet permit requirements



# What's Next?

- Permit Approval by State Water Control Board (late summer)
- Results of Consent Order regulatory review
- State's Phase III Watershed Implementation Plan
  - Over the next calendar year;
  - Will provide some insight on what will be required in the 3<sup>rd</sup> permit
- Next MS4 permit: Drafted in 2022



# Public Comment Period

- July 2<sup>nd</sup>-August 3<sup>rd</sup>
- Plan will be on the City website and in engineering office.
- Comments should be directed to:

Ellen Roberts

[Ellen.roberts@poquoson-va.gov](mailto:Ellen.roberts@poquoson-va.gov)

(757)868-3025





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