

1 National Park Service

1.1 Location and description of federal agency land and facilities

The National Capital Region (NCR) and the Northeast Region (NER) of the National Park Service (NPS) owns and manages numerous parks and park units within the Chesapeake Bay watershed. Table 1 summarizes the name and approximate acreage of each park unit in Maryland. The group names are administrative units within the NCR and the NER and within each group are units including memorials, park land, parkways and historic sites. Together these NPS lands consist of approximately 238 square miles in Maryland. These parks encompass a variety of uses such as national monuments, scenic trails, historical parks, battlefield parks, and national parkways. These acreages were obtained from GIS layers maintained by the NCR (Boundaries, Visitor Use and Management, dated February 2019) and the NER (NER Park Unit Boundaries, dated March 2019).

Table 1 – NPS Land and Acreage in the Chesapeake Bay in Maryland

Group Name	Unit Name	Acreage
National Capital Region (NCR)		
Antietam National Battlefield	Antietam National Battlefield	1,909
Catoctin Mountain Park	Catoctin Mountain Park	5,760
Chesapeake and Ohio Canal National Historical Park	Chesapeake and Ohio Canal National Historical Park	15,396
Fort Washington and Piscataway Parks	Fort Foote Park	74
Fort Washington and Piscataway Parks	Fort Washington Park	553
Fort Washington and Piscataway Parks	Harmony Hall	66
Fort Washington and Piscataway Parks	National Capital Parks-East	141
Fort Washington and Piscataway Parks	Oxon Cove Park & Oxon Hill Farm	452
Fort Washington and Piscataway Parks	Piscataway Park	1,546
Greenbelt Park & Baltimore-Washington Parkway	Baltimore-Washington National Parkway	1,358
Greenbelt Park & Baltimore-Washington Parkway	Greenbelt Park	1,079
Harpers Ferry National Historical Park	Harpers Ferry National Historical Park	787
Monocacy National Battlefield	Monocacy National Battlefield	1,345
National Capital Parks – East	Suitland Parkway	535
Total NCR Lands in Bay (Maryland)		31,003

Group Name	Unit Name	Acreage
Northeast Region (NER)		
Assateague Island National Seashore	Appalachian National Scenic Trail	78,732
Captain John Smith National Historic Trail	Appomattox Court House National Historical Park	418
Fort McHenry National Monument and Historic Shrine	Captain John Smith National Historic Trail	78
Hampton National Historic Site	Cedar Creek and Belle Grove National Historical Park	104
Harriet Tubman Underground Railroad National Historical Park	Colonial National Historical Park	41,715
Thomas Stone National Historic Site	Fort Monroe National Monument	537
Captain John Smith National Historic Trail	Appomattox Court House National Historical Park	418
Total NER Lands in Bay (Maryland)		121,584
Total NPS Lands in Bay (Maryland)		152,587

Assateague Island National Seashore, Harriet Tubman Underground Railroad National Historic Park and the Chesapeake and Ohio Canal National Historical Park account for 89% of the NPS lands in Maryland.

1.2 Description and estimate of anticipated pollutant load and growth

NPS does not anticipate significant development on its properties through 2025. NPS used the Chesapeake Assessment Scenario Tool (CAST) to evaluate pollutant loads from its lands. NPS plans to review the land area assigned to NPS in CAST and to submit corrections, as needed. Table 2 summarizes estimates of anticipated nitrogen, phosphorus and sediment loads from CAST without existing BMPs included.

Table 2 – NPS Pollutant Load Summary*

Source	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (lb/year)
Developed: MS4	6,436	483	455,736
Developed: Non-Regulated	24,196	1,877	1,372,853
Natural	87,771	16,431	64,322,208
Total	118,404	18,791	66,150,797

* 2018 Progress, Edge of Tide CAST scenario

Please note that ~75% of the NPS pollutant loads are generated from natural sources. Considering NPS's ability to implement stormwater management in its natural areas is limited, NPS will focus on implementing reasonable pollutant reductions from its developed areas. NPS welcomes the opportunity to discuss pollutant reduction targets with a focus on continuing to conserve natural areas, which is not easily reflected in CAST.

1.3 Verified records of existing BMPs

NPS is in the process of verifying its existing BMPs. Park superintendents were requested to verify information gathered in 2015 for existing BMPs and provide information on new projects. Currently, NPS staff have identified the existing BMPs summarized in Table 3. These BMPs have been included in a CAST existing BMP pollutant scenario. NPS will continue to gather information on these BMPs and other existing BMPs from park staff.

Table 3 – NPS Existing BMPs

BMP Type	Amount	Location
Alternative Crops*	10 acres	Antietam National Battlefield Park
Bioswales**	To be determined	Antietam National Battlefield Park
Forest Planting	45 acres	Antietam National Battlefield Park
Septic Conversion and Septic Pumping*	To be determined	Antietam National Battlefield Park
Bioretention**	To be determined	Catoctin Mountain Park
Impervious Surface Reduction	0.5 acres	Catoctin Mountain Park
Pervious Pavement	0.5 acres	Catoctin Mountain Park
Forest Planting	6.5 acres	Catoctin Mountain Park
Cover Crops*	357 acres	Chesapeake and Ohio Canal National Historical Park
Forest Buffer	3.5 acres	Monocacy National Battlefield Park
Dry Detention Ponds and Hydrodynamic Structures	1 acre	Monocacy National Battlefield Park
Cover Crops, Barnyard Runoff Control, Agricultural Program*	750 acres	Monocacy National Battlefield Park
Permeable Pavement	0.5 acres	Monocacy National Battlefield Park
Bioretention	0.07 acres	Hampton National Historic Site
Bioswale	0.12 acres	Hampton National Historic Site
Cover Crops*	1.16 acres	Hampton National Historic Site
Grass Buffer*	10.51 acres	Hampton National Historic Site
Forest Planting	1.01 acres	Hampton National Historic Site

* NPS was not assigned any agricultural or septic loads in CAST, so agricultural and septic BMPs do not currently receive pollutant reduction in the model. A methodology for NPS to document credit for these practices will be developed in the future.

** Will be included in CAST after acreages are determined.

Table 4 summarizes estimates of anticipated nitrogen, phosphorus and sediment loads from CAST with existing BMPs included.

Table 4 – NPS Pollutant Load Summary with Existing BMPs*

Source	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (lb/year)
Developed: MS4	6,433	482	455,461
Developed: Non-Regulated	23,754	1,836	1,353,174
Natural	87,259	16,107	63,570,265
Total	117,445	18,426	65,378,899

* 2025 Base Year, Edge of Tide CAST Scenario, with 2018 Progress BMPs

1.4 Inventory of NPDES permits

A search of the Maryland Department of the Environment Wastewater Permits Interactive Search Portal located one permit summarized in Table 5.

Table 5 – NPS NPDES Permits

Permit Number	Permit Type	Facility
MDR002128	General	Greenbelt Park and Baltimore Washington Parkway

MDE has also included the following NPS facilities on its list of federal facilities requiring an MS4 permit:

- Clara Barton Parkway – George Washington Memorial Parkway
- Suitland Parkway – National Capital Parks East
- Baltimore-Washington Parkway – National Capital Parks East

1.5 Planning Targets and Local Planning Goals

Maryland provided planning targets to Federal Facilities in November 2015. Maryland computed the targets based on stormwater treatment of 20% of untreated impervious area. The NPS local area planning goals were 3,931 lb/year of nitrogen and 421 lb/year of phosphorus.

1.6 Strategies to Meet Pollutant Reduction Targets

1.6.1 Planned pollutant reduction targets

Table 6 provides the 2018 progress loads and Maryland local planning area targets with the resulting planned pollutant target.

Table 6 – NPS Planned Pollutant Target and Gap (Edge of Tide)

	Nitrogen (lb/year)	Phosphorus (lb/year)
Pollutant Load: 2018 Progress from CAST	118,404	18,791
Total Reduction Goal from Maryland WIP III	3,931	421
Target Pollutant Load	114,473	18,370
Pollutant Load with Existing BMPs*	117,445	18,426
Pollutant Reduction Gap	2,972	56

* See Table 4

1.6.2 BMP implementation scenarios

To reduce nutrients to the planning goal, NPS is proposing to implement additional stormwater projects through 2025. NPS is currently evaluating specific stormwater project opportunities and hopes to partner with Maryland on project opportunities in the future. For planning purposes, NPS is proposing to implement a variety of stormwater projects on park properties. NPS must consider constraints in implementation of structural BMPs on properties such as battlefield and historical parks, which are maintained to reflect the important historical conditions of the sites.

Table 7 provides a summary of potential BMPs and treatment area.

Table 7 – Potential BMP Types and Treatment Areas

BMP Type	Load Source	Amount	Unit
Permeable Pavement	Impervious Developed	3	acres
Dry Ponds and Hydrodynamic Structures	Developed	5	acres
Bioretention	Developed	5	acres
Bioswale	Developed	5	acres
Infiltration Practices	Developed	4	acres
Filtering Practices	Developed	4	acres
Nutrient Management Plan	Turfgrass in Developed	200	acres
Conservation Landscaping Practices	Turfgrass in Developed	75	acres
Forest Planting	Turfgrass in Developed	10	acres
Buffer - Upland	Turfgrass in Developed	15	acres

BMP Type	Load Source	Amount	Unit
Wet Ponds and Wetlands	Non-regulated Pervious Developed	20	acres
Urban Shoreline Management	Shoreline	2,500	feet
Non-Urban Shoreline Management	Shoreline	3,000	feet
Stream Restoration	Stream Bed and Bank	5,000	feet

CAST was used to evaluate pollutant loads with existing and potential BMPs. See Table 8 for a summary of potential pollutant reductions.

Table 8 – NPS Pollutant Reductions Summary (2025 Base Year, Edge of Tide)*

	Nitrogen (lb/year)	Phosphorus (lb/year)
Target Pollutant Load	114,473	18,370
Pollutant Load with Existing BMPs	117,445	18,426
Pollutant Load with Existing and Potential BMPs	116,302	18,053
Gap to Target Pollutant Load	1,829	-317

*CAST Scenarios include 2018 Progress BMPs

NPS will continue to evaluate potential project opportunities to meet the Chesapeake Bay pollutant reduction goals and to close the phosphorus reduction gap. Detailed calculations of pollutant reductions for future projects will use the Chesapeake Bay Expert Panel stormwater treatment/runoff reduction curves and stream restoration protocols.

Facilities that are currently in design or construction included as part of the potential BMPs summarized in Table 7 include the following:

- Antietam National Battlefield Park: 19 acres of warm season grasses at Parks Farm
- Catoctin Mountain Park: 32.3 acres of forest buffer and 0.5 acres of permeable pavement
- George Washington Memorial Parkway & Chesapeake and Ohio Canal National Historic Park: Parkland Restoration Plan downstream of the Intelligence Community Campus-Bethesda (ICC-B) that includes 2,270 feet of stream stabilization/restoration
- Fort Washington: 1,000 feet of stream restoration and 1,000 feet of bioswale
- Monocacy National Battlefield Park: 2,640 feet of shrub and grass buffer at Thomas Farm

The NPS is currently evaluating site modifications or projects that could present opportunities for potential stormwater BMPs or land use changes that include the following:

- Antietam National Battlefield Park: Visitor Access and Circulation Plan
- Chesapeake and Ohio Canal National Historic Park: annual cover crops
- National Capital Parks East and George Washington Memorial Parkway: Planning for stormwater treatment to meet MS4 permit requirements for Clara Barton Parkway, Suitland Parkway and Baltimore Washington parkway

- Piscataway Park: Marshall Hall culvert repair and stormwater management
- Thomas Stone National Historic Site: forest buffer, septic pumping and upgrades, alternative crops
- Wetland Restoration Plan for Catoctin Mountain Park, Chesapeake and Ohio Canal National Historical Park, Harpers Ferry National Historical Park and Monocacy National Battlefield - where 42 sites were evaluated for potential wetland and stream restoration opportunities. The Maryland opportunities from this plan are summarized in Table 9

Table 9 – Wetland Restoration Plan Opportunities in Maryland

Park	Potential Wetland Restoration Area (acres)	Potential Stream Restoration Length (feet)
Catoctin Mountain Park	3.33	5,073
Monocacy National Battlefield	10.39	9,535
Chesapeake and Ohio Canal National Historical Park	34.25	3,983
Total	47.97	18,591

Progress updates on these projects and newly identified projects will be documented in NPS two-year milestone reporting.

1.6.3 Existing programs and planned actions

NPS is currently evaluating and prioritizing opportunities for stormwater projects and program modifications to meet the pollutant reduction goal.

NPS will continue to participate in the Chesapeake Bay Federal Agency workgroup. Furthermore, NPS will continue to implement best management stormwater practices as an instrumental component of park facility or site rehabilitation or new construction projects.

1.7 Crediting, Tracking, Reporting, and Verification

NPS is in the process of developing a method for tracking and reporting BMP implementation, inspection, and maintenance activities. The goal is to create a process that NPS staff can use to generate Chesapeake Bay compliance documents and to track progress toward meeting pollutant reduction goals.