National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System
Permit No. 11-DP-3313 MD0068276
Permit Term October 9, 2015 to October 8, 2020

Sixth Annual Report
October 21, 2021

Submitted to:
Sediment, Stormwater, and Dam Safety Program
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MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

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Introduction

The following annual report was prepared by the Maryland Department of Transportation State Highway Administration (MDOT SHA) to demonstrate compliance from July 1, 2020 to June 30, 2021 (a.k.a., fiscal year 2021; referred to hereafter as "FY21") in accordance with conditions in Part V.A.1 of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) discharge permit number 11-DP-3313 MD0068276, effective October 9, 2015 and scheduled for expiration on October 8, 2020 (referred to hereafter as the "MS4 Permit"). MDOT SHA submitted its reapplication for MS4 Permit coverage as Attachment B to its fourth, fiscal year 2019 (FY19) MS4 annual report received by the Maryland Department of the Environment (MDE) on October 8, 2019. In correspondence from MDE to MDOT SHA dated November 30, 2020, MDE conveyed that MDOT SHA coverage under the MS4 Permit has been administratively continued, in accordance with the Code of Federal Regulations, until a new MS4 Permit can be issued and that all permit requirements remain in force.

MDOT SHA has submitted, with this FY21 MS4 annual report, five electronic data sets including:

- Geographic Information System (GIS) data (hereafter referred to as the "MS4 Geodatabase – Part 1") in accordance with Part V.A.2 of the MS4 Permit and Version 1.2 of the MDE NPDES MS4 Geodatabase Design and User's Guide distributed to permitted MS4s in May 2017.
- A separate 'annual BMP' geodatabase ("MS4 Geodatabase – Part 2") that contains only an AltBMPPoly feature class with records for MDOT SHA implementation of annual/operational inlet cleaning and street sweeping Best Management Practices (BMPs). Records for other restoration BMP types remain in the MS4 geodatabase – Part 1.
- Two data sets not otherwise captured by the MDE MS4 geodatabase design and submitted to demonstrate compliance with conditions in Part IV.C of the MS4 Permit as described in the *Source Identification* section of this FY21 MS4 annual report, including:
    - A supplementary geodatabase containing inventory information for MDOT SHA stormwater infrastructure
    - A supplementary geodatabase containing non-permitted industrial sources
- A Microsoft Excel workbook containing a comprehensive list of restoration Best Management Practices (BMPs) completed from 2011 to October 8, 2021, separated by contract, with associated location, impervious treatment, and cost information provided in accordance with conditions in Part IV.E.5.c of the MS4 Permit.

MDE supplied MDOT SHA comments, dated July 30, 2021, related to the FY20 MS4 annual report and data submittal. MDOT SHA responses addressing the July 30, 2021 MDE comments are submitted in tandem to this FY21 MS4 annual report.

Permit Administration and Legal Authority

The MS4 Permit was administered during FY21 by the MDOT SHA Office of Environmental Design (OED) and Deputy Director, Mr. Kevin Wilsey, remains the designated liaison with MDE for implementation of the MS4 Permit. In accordance with conditions in Part IV.A of the MS4 Permit, MDOT SHA has provided contact information in the PermitInfo table of the MS4 Geodatabase – Part 1 and an updated organizational chart describing staff roles in relation to NPDES stormwater tasks in Appendix A.

In accordance with conditions in Part IV.B of the MS4 Permit relative to 40 CFR 122.26, MDOT SHA maintained adequate legal authority for compliance with all permit conditions during the FY21 reporting period.

Status of Implementing the Stormwater Management Program

In the following subsections, MDOT SHA has provided the status of implementing the components of its stormwater management (SWM) program that are established as conditions in the MS4 Permit. Stormwater program components reported in this FY21 MS4 annual report in accordance with conditions in Part V.A.1.a of the MS4 Permit include:

- Source Identification
- Stormwater Management
- Erosion and Sediment Control
- Illicit Discharge Detection and Elimination
- Trash and Litter
- Property Management and Maintenance
- Public Education
- Watershed Assessment
- Restoration Plans
- TMDL Compliance
- Assessment of Controls
- Program Funding

Source Identification

In accordance with conditions in Part IV.C.1 of the MS4 Permit and throughout FY21, MDOT SHA continued to maintain its inventory of storm drain infrastructure, major outfalls, SWM facilities, and associated drainage areas as described in Section C.1 of the FY19 MS4 annual report. Due to time and budgetary constraints, minimal data updates to the inventory for surrounding stormwater facilities/infrastructure were captured during respective BMP/facility preventative maintenance inspections. During FY21, the MDOT SHA Office of Highway Development (OHD), Highway Hydraulics Division's (HHD) Drainage Assets Team implemented new procedures for review of permitting issued for ditch trimming and minor pipe replacements by MDOT SHA maintenance forces. This provided a new avenue to glean information on pipe sizes as well as dates of construction for pipes in the inventory that are

planned for upgrade or replacement. These efforts will continue during FY22 and facilitated minor updates to the inventory across the MS4 permitted area during FY21.

During FY21, a program for inspecting culverts using drones was piloted in the MDOT SHA Office of Information and Technology. This program has the potential to provide pipe size information for the stormwater infrastructure inventory and to demonstrate efficiency and other added benefits that may result from utilizing drone technology for field investigations.

During FY20, a new Outfall Inspection tool completed development and was launched to add condition information, including drainage areas, to inventory updates. The new Outfall Inspection tool referenced in Section C.1 of the FY19 MS4 annual report and in the *Source Identification* section of the FY20 MS4 annual report, could not be deployed in FY21 due to budgetary constraints. As part of a MDOT SHA agencywide Asset Management effort that is under development, it is anticipated that additional funding and focus on this new technology for inspections may grow once budgetary issues have been resolved.

MDOT SHA has provided the outfall structure information in the Outfall and OutfallDrainageArea feature classes of the MS4 Geodatabase - Part 1. Information for conveyance and other structures not represented by the MDE MS4 geodatabase design are provided in a supplemental geodatabase submitted with this FY21 MS4 annual report in a format consistent with the FY20 submission.

In accordance with conditions in Part IV.C.2 of the MS4 Permit, MDOT SHA has identified industrial sites within MDOT SHA right-of-way that have the potential to contribute pollutants to MDOT SHA storm drain systems. These include MDOT SHA-owned NPDES 12-SW permitted industrial sites but also salt storage areas, parking lots, rest areas, and other highly trafficked or material storage areas as requested by MDE. There are no commercial sites on MDOT SHA properties. MDOT SHA has provided location and other information for NPDES 12-SW permitted industrial sites in the MunicipalFacilities feature class of the MS4 Geodatabase – Part 1. Non-permitted industrial sites are summarized in the supplemental geodatabase submitted with this FY21 MS4 annual report.

During FY21, updates to the inventory of urban BMPs/SWM facilities continued. MDOT SHA has provided urban BMP information in the BMPPOI feature class and the BMP table of the MS4 Geodatabase – Part 1.

As described in Section C.3 of the FY19 MS4 annual report, the MDOT SHA revised baseline analysis, submitted in June 2018, included GIS data for its impervious surfaces. MDE found it acceptable that this information was not resubmitted with the FY19 MS4 annual report and MDOT SHA has similarly excluded it from the FY20, and this FY21, MS4 annual report. MDOT SHA has provided updates to the ImperviousSurface table of the MS4 geodatabase – Part 1.

Monitoring site locations, established to meet conditions described in Part IV.F of the MS4 Permit, were revised as described in Section F.1 the FY19 MS4 annual report. As described in the Assessment of Controls section of the FY20 MS4 annual report, monitoring stations were removed in June 2020. These changes have been noted for applicable records in the MS4

Geodatabase – Part 1. MDOT SHA has provided information for its monitoring sites in the MonitoringSite and MonitoringDrainageArea feature classes of the MS4 Geodatabase – Part 1.

Information for MDOT SHA water quality improvement projects is provided in the RestBMP, AltBMPLine, and AltBMPPoly feature classes as well as the StrRestProtocols table of the MS4 Geodatabase – Part 1. Information for inlet cleaning and street sweeping annual/operational BMPs is provided in the AltBMPPoly feature class of the MS4 Geodatabase – Part 2. Submitted data includes projects completed through the current permit term as well as projects under construction that MDOT SHA expects to complete in State fiscal year 2023 (FY23) and claim for restoration credit. In accordance with Part V.A.2.d of the MS4 Permit and applicable guidance provided for the AltBMPLine feature class in Version 1.2 of the MDE NPDES MS4 Geodatabase Design and User's Guide and requirements described in Appendix E to the 2014 MDE document, "Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated" (referred to hereafter as "MDE 2014"), MDOT SHA has included a Stream Restoration Analysis Report in Appendix G to show the work behind calculations for defining pollutant load reductions for stream restoration projects using protocols approved by the Chesapeake Bay Program.

Stormwater Management

MDOT SHA continues to comply with State and federal laws and regulations regarding SWM as well as MDE permit requirements. MDOT SHA also continues to implement the practices established in the 2000 Maryland Stormwater Design Manual and the MDOT SHA Sediment and Stormwater Guidelines and Procedures (October 6, 2017) for all projects and remains in compliance with the SWM Act of 2007, including the revised Chapter 5 of the 2000 Maryland Stormwater Design Manual, by implementing environmental site design (ESD) to the maximum extent practicable (MEP) for all new and redevelopment projects.

As described in Section D.1.a of the FY19 MS4 annual report, the OHD Plan Review Division (PRD) is the approving authority for both erosion and sediment control (ESC) and SWM for all MDOT SHA projects. During the FY21 reporting period, PRD continued to coordinate with MDE to update the PRD Sediment and Stormwater Guidelines and Procedures and Current Technical Practices documents in preparation of PRD being designated as an approval authority of NRCS-MD Code 378 Small Ponds on behalf of the MDE Dam Safety Permits Division. As part of this effort, PRD created Small Pond Review and Approval Guidelines and Procedures. These documents were submitted to MDE and are currently under review. MDE was developing a Memorandum of Understanding during FY21 to delegate Small Pond review and approval authority to PRD. PRD will continue to work closely with MDE during FY22 to complete the development and reviews of these documents so they can be accepted by MDE and published by PRD.

MDOT SHA maintained SWM and construction inspection information during FY21 utilizing the processes described in Sections D.1.b. and D.1.c of the FY19 MS4 annual report. In accordance with conditions in Part IV.B of the MS4 Permit, a summary of construction inspections, non-compliance findings, and the actions taken by MDOT SHA Districts is referenced in Section 1.11 of, and is provided as electronic data with, the *MDOT SHA Annual*

Report for Delegation of Sediment and Stormwater Approval Authority that was submitted to MDE on October 6, 2021. Information for the MDOT SHA SWM program; including required documentation in accordance with conditions in Parts IV.D.1.b, IV.D.1.c, and IV.D.1.d of the MS4 Permit; is provided in the SWM table of MS4 Geodatabase – Part 1.

In a communication to MDOT SHA on July 13, 2020, MDE stated that MDOT SHA may use the necessary mechanisms to ensure that maintenance work performed by contractors or District maintenance shops is acceptable and that MDOT SHA may also work with the MDE compliance program when needed to ensure proper facility maintenance. PRD and HHD have committed to schedule a meeting in FY22 with the MDE Compliance Program to collaborate for development of effective compliance strategies and to identify applicable documentation of standard operating procedures that require updates. Due to the pending coordination with MDE and uncertainties surrounding which specific MDOT SHA activities constitute maintenance enforcements or maintenance violations, MDOT SHA has reduced the "3" maintenance enforcements previously reported in the FY20 MS4 annual report to "0" in the "MAIN_ENF" data field of the SWM table in the MS4 Geodatabase – Part 1.

During the FY21 reporting period, MDOT SHA conducted 70 preventative maintenance inspections of SWM facilities applying processes described in Section D.1.d of the FY19 MS4 annual report and in accordance with COMAR 26.17.02 and conditions in Part IV.D.1.d of the MS4 Permit. MDOT SHA budget constraints during FY21, resultant from the COVID-19 pandemic, severely limited these activities. Triennial preventative maintenance inspections could not be performed for many facilities that were due in FY21. FY22 inspection activities will remedy this situation by the next reporting cycle. The program received funding for the FY22 period to inspect all facilities not inspected during FY21 as well as approximately 70% of the facilities required for inspection in FY22. In addition, State Planning and Research (SPR) funds were allocated to create a pilot program for inspection of the numerous 2A grass swales included in the inventory using drone technology. It is anticipated that this technology could increase inspection efficiency by as much as 50% in future years. MDOT SHA has provided the inspection program information in the BMPInspections, RestBMPInpsections, AltBMPLineInspections, and AltBMPPolyInspections tables of the MS4 Geodatabase – Part 1.

During FY21, MDOT SHA performed 121 initial inspections of SWM facilities. Most of these inspections are completed by default during construction as part of the SWM facility as-built certification process as described in detail within the *Stormwater Management* section of the FY20 MS4 annual report. During FY21, MDOT SHA continued to use the Quality Assurance (QA) Toolkit to submit SWM facility as-built certification packages electronically. A designated team of engineers reviews these packages for completeness and accuracy before they are forwarded to PRD for structural approval. Final acceptance for a given facility is not issued by HHD until structural acceptance is issued by PRD, landscaping has been approved, and the facility has been accepted by MDOT SHA maintenance. SWM facilities that have issues or concerns identified in the as-built process are "flagged" for follow-up. Depending on the findings, follow-up may include subsequent inspections with highlights on what to keep an eye on for premature dysfunction or may have a rating that places them in need of repair, remediation, major maintenance, or retrofit/reconstruction. During the reporting period, 67 of the initial inspections were flagged in this way.

MDOT SHA performed minimal routine maintenance for SWM facilities during FY21 due to funding constraints caused by the COVID-19 pandemic. Remediation maintenance for SWM facilities, applying processes described in Section IV.D.1.d of the FY19 MS4 annual report, were suspended in FY21 for the same reasons. Design and/or construction contracts opened to address major maintenance and remediation needs for SWM facilities had to be closed at the start of FY21. Four facilities repaired in FY20, as reported in the *Stormwater Management* section of the FY20 MS4 annual report, are still missing final acceptance records that have not been submitted by the contractor and the remediation contract was cancelled at the end of FY20. At this time, MDOT SHA is investigating strategies to complete activities needed to verify functionality for these facilities and to fully close the contract which remains open until December 2021.

The permits that have been obtained for remediation will remain active throughout FY22 and will be extended as practicable and as necessary. Many applications for Federal Aid have been made on behalf of remediation program activities and significant changes to the program status may be possible by FY23 depending on the outcome. MDOT SHA has not officially abandoned any SWM facilities in FY21; however, HHD and PRD anticipate they will finalize development of procedures for retiring SWM facilities during FY22.

SPR funding has been allocated in FY22 for updates to District operation manuals described in the *Stormwater Management* section of the FY20 MS4 annual report. More information and links to District-specific operation manuals can be found online at the following MDOT SHA webpage:

https://www.roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=363

During the current MS4 Permit term, a total of 51 facilities have been remediated by MDOT SHA. A total of 256 SWM facilities still require major maintenance or retrofit. In accordance with conditions in Part IV.B of the MS4 Permit, a remediation maintenance resolution schedule is provided in **Table IV.D.1.d** located in Appendix B. Maintenance work has been prioritized and expected completion dates are between June 2023 and June 2027. Due to resource constraints during FY20 and FY21 as well as uncertainty surrounding resource availability for FY22, MDOT SHA has updated its remediation completion commitment dates to reflect greater resource availability anticipated in FY23.

Erosion and Sediment Control

During the FY21 reporting period, MDOT SHA maintained compliance with Maryland State and federal laws and regulations for ESC as well as MDE requirements for permitting, including compliance with the General Permit for Stormwater Associated with Construction Activity (NPDES-CA) for projects that disturb at least one acre of land. MDOT SHA continued to submit applications for coverage under the NPDES-CA (State discharge permit number 14GP, effective January 1, 2015; expired December 31, 2019), for all qualifying roadway projects as described in Section D.2.d of the FY19 MS4 annual report. During the FY21 reporting period, a total of 32 MDOT SHA construction projects receiving Notice to Proceed (NTP) required coverage under an NPDES-CA permit.

Under allowance granted by the MDE Consent Order issued May 18, 2020, MDOT SHA has elected to continue operating under the terms of the expired NPDES-CA permit until a new one can be issued. It is the intent of MDOT SHA to comply with the conditions of that allowance as described in the *Erosion and Sediment Control* section of the FY20 MS4 annual report.

In accordance with conditions in Part IV.D.b of the MS4 Permit and in cooperation with the Maryland Transportation Builders and Materials Association (MTBMA), MDOT SHA continued to offer updated ESC training, as described in Section D.2.b of the FY19 MS4 annual report, and issued 219 ESC (a.k.a., "Yellow Card") certifications and 285 re-certifications during the FY21 reporting period. The Governor issued a temporary suspension of certifications that was in affect during FY21 and all existing certifications where extended until 45 days after the conclusion of the emergency declaration which expired on July 1, 2021. Responsible Personnel Certification training was administered through MDE's online Responsible Personnel Course. More information regarding ESC certification is available at the following MDOT SHA webpage:

https://www.roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=56

In accordance with conditions in Part IV.D.2.c of the MS4 Permit, MDOT SHA has provided the ESC program information in the ErosionSedimentControl table and the grading permit program information in the QuarterlyGradingPermits feature class and the QuarterlyGradingPmtInfo table in the MS4 Geodatabase – Part 1.

Illicit Discharge Detection and Elimination

The MDOT SHA Office of Environmental Design, Environmental Compliance Division (ECD) performed illicit discharge detection and elimination (IDDE) screenings during the FY21 reporting period. Whenever possible in FY21, ECD considered pollution potential and selected outfalls that were located in commercial and industrial areas determined to be "stormwater hotspots" with extra focus on permitted counties where IDDE screenings were less concentrated in previous years. Stormwater pipes 12 inches in diameter and greater were selected throughout Prince George's, Washington, Cecil, and Harford Counties.

In accordance with conditions in Part IV.D.3.a of the MS4 Permit, MDOT SHA exceeded the 150 minimum annual requirement for primary field screenings during FY21. Additional IDDE investigation and tracking was conducted during FY21 for illicit discharge (ID) sites whose status was reported as "open" in the FY20 MS4 annual report. Citizen reporting or other MDOT SHA contractors working within MDOT SHA right of way (ROW) also identified potential IDs requiring investigation. An IDDE screening related to this type of notification was completed during FY21 in Prince George's County.

In accordance with conditions in Parts IV.B, IV.D.3.d, and IV.D.3.e of the MS4 Permit, a summary of outfalls screened and potential IDs with associated jurisdictional contacts/resolution schedules for each is provided in **Tables IV.D.3.a and IV.D.3.d** located in Appendix C. In the MS4 Geodatabase – Part 1, MDOT SHA has provided the IDDE program information in the IDDE table.

In accordance with conditions in Part IV.D.3.b of the MS4 Permit, during FY21, ECD performed a total of 302 inspections across 164 MDOT SHA industrial facilities (inspecting 32 NPDES 12-SW permitted sites and 132 non-permitted sites) identified by MDOT SHA, per Part IV.C.2 of the MS4 Permit, as having the potential to contribute significant pollutants to MDOT SHA storm drain systems.

The types of inspections performed by ECD for identified industrial areas as well as the associated inspection tracking system remain unchanged relative to descriptions provided for each in the FY19 MS4 annual report. A total of 118 stormwater related findings were generated by facility inspections during FY21 and applicable records were uploaded to the MDOT SHA web-based tracking system. Of those findings, 85 were resolved during FY21 whereas 33 findings remain unresolved at the close of the final quarter. Some of the remaining corrections needed require further communication with maintenance managers and additional tracking. In accordance with Part IV.B of the MS4 Permit, a summary of the most recent quarterly inspection report for each of the NPDES 12-SW permitted sites located within the MS4 Permit areas is provided in Appendix C.

As part of its overarching program to respond to illegal discharges, dumping, and spills; ECD continued to coordinate with MDE, surrounding jurisdictions, and property owners during the FY21 reporting period to eliminate IDs and clean up spills and dumping. The full implementation of a new IDDE management tool was planned for completion during FY21; however, due to budgetary shortcomings resultant from the COVID-19 pandemic, further development has been delayed until FY23.

Trash and Litter

MDOT SHA provided comprehensive descriptions of its "multi-pronged" trash/litter reduction strategy in the FY18 and FY19 MS4 annual reports. The approach utilizes MDOT SHA employees, contractors, correctional services, the Sponsor-A-Highway (SAH) program and partnerships, as well as labor donated through Adopt-A-Highway (AAH) volunteers. Implementation in FY21 was heavily impacted by COVID-19 with reduced contractor and SAH staffing, MDOT SHA crews alternating work every other week for several months, no support from correctional services, and very limited access to support from AAH volunteers.

In accordance with conditions in Part IV.D.4.d of the MS4 Permit, trash/litter removed by MDOT SHA trash reduction strategies during the FY21 reporting period is documented in **Table IV.D.4.d** below. Implementation of the AAH and SAH programs in FY21 resulted in 86 highway miles adopted and 292 miles sponsored. Relative to implementation reported for the FY20 period, this is a decrease of 20 and 96 miles respectively for the two programs. MDOT SHA believes that COVID restrictions and community concern for health and safety during quarantine and lockdown periods reduced volunteer participation and widespread economic hardship contributed to reduced SAH sponsorship.

Table IV.D.4.d: Trash and Litter Removed During FY21 by MDOT SHA Trash Reduction Strategies

Jurisdiction	Truckloads	Conversion to Pounds
Anne Arundel	377	181,285
Baltimore	1,736	841,362
Carroll	74	35,929
Cecil	85	41,274
Charles	82	40,375
Frederick	158	77,226
Harford	131	63,609
Howard	486	234,598
Montgomery	338	162,966
Prince George's	765	372,898
Washington	56	27,132
Salisbury	43	20,855
Totals	**4,331**	**2,099,509**

During FY21, MDOT SHA continued to maintain its "Educational Outreach" webpage first described in Section D.4.b of the FY19 MS4 annual report. Content is accessible at the following address:

https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=48

In accordance with conditions in Parts IV.D.4.b and V.A.1.d of the MS4 Permit, additional public education and outreach activities implemented by MDOT SHA during FY21 to reduce littering are incorporated into the summary describing public education programs in Appendix D.

The MDOT Excellerator program, as described in Section D.4.c of the FY19 MS4 annual report, remains the primary performance management system for tracking the effectiveness of MDOT SHA trash reduction strategies. The most recent biannual report is publicly accessible at the following web address and includes; in charts 9.2D.1, 9.2D.2, and 9.2D.3; an evaluation of quarterly implementation and associated expenditures by MDOT for litter pickup from FY19 through the end of the first FY21 quarter:

https://www.mdot.maryland.gov/tso/pages/Index.aspx?PageId=170

Property Management and Maintenance

During FY21, MDOT SHA continued to monitor the need to update Storm Water Pollution Prevention Plans (SWPPP) and maps following site changes and renovations and continued providing annual SWPPP training to its maintenance personnel. As previously described in the *IDDE* section of this FY21 MS4 annual report, the MDOT SHA maintenance facility staff continued to perform monthly inspections and ECD continued to perform inspections at all MDOT SHA facilities through its District Environmental Coordinators throughout the FY21 reporting period. ECD managed resultant maintenance issues identified in accordance with the process previously described in Section D.3.b of the FY19 MS4 annual report.

For each municipal facility within the MS4 permitted jurisdictions covered under the General Discharge Permit (12-SW), MDOT SHA has provided, in **Table IV.D.5.a**, a summary of updates to facility SWPPPs and associated trainings for staff in accordance with conditions in Parts IV.D.5.a and IV.D.5.b.v of the MS4 Permit. Please note that the Thurmont facility is considered a "satellite" site of the Frederick facility meaning no MDOT SHA staff report to the Thurmont facility directly. MDOT SHA staff work at the Thurmont facility routinely but are technically staff from the Frederick facility. The Thurmont facility is a 12-SW permitted site and consequently requires an associated SWPPP; however, the staff training is accounted for within the Frederick facility's staff training totals in Table IV.D.5.a below. In the MS4 Geodatabase – Part 1, MDOT SHA has provided information regarding 12-SW permitted facilities in the MunicipalFacilities feature class.

Table IV.D.5.a: Summary of SWPPP Status and Training for MDOT SHA Municipal Facilities

District	Maintenance Facility	12 SW Permit Type	Date of Most Recent SWPPP Update (Month YR)	Date of Most Recent SWPPP Training (Month YR)	Number of Individuals Trained
1	Cambridge	General	January-17	December-20	15
	Salisbury	General	December-19	November-20	47
2	Elkton	General	April-19	October-20	22
3	Fairland	General	January-19	December-20	43
	Gaithersburg	General	February-19	June-21	28
	Laurel	General	February-19	December-20	24
	Marlboro	General	February-19	March-21	31
4	Churchville	General	March-19	June-21	36
	Golden Ring	General	March-19	June-21	32
	Hereford	General	March-19	June-21	29
	Owings Mills	General	March-19	June-21	22
5	Annapolis	General	March-19	September-20	20
	Glen Burnie	General	March-19	September-20	19
	La Plata	General	March-19	September-20	29
	Hanover Auto Shop	General	June-20	November-20	5
6	Hagerstown	General	February-20	September-20	41
7	Dayton	General	April-20	September-20	31
	Frederick	General	April-20	September-20	39
	Thurmont	General	May-20	-	-
	Westminster	General	May-20	September-20	43
				Total	**556**

MDOT SHA continued to clean inlets using vacuum technology as described in Section D.5.b of the FY19 MS4 annual report. MDOT SHA was not able to perform street sweeping activities along many roadways in FY21 due to significant budget reductions. FY22 budgets prioritize essential maintenance activities for roadway operation and safety and eliminated all supplemental street sweeping and inlet cleaning activities implemented exclusively to maintain current levels of MS4 impervious area treatment credit and Total Maximum Daily Load (TMDL) pollutant load reductions from annual/operational BMPs. Information for implementation of inlet cleaning and storm drain vacuuming operations during FY21 is provided in **Table IV.D.5.b** below.

Table IV.D.5.b: Tons Collected in FY21 from Inlets Cleaning and Storm Drain Vacuuming

County	MDOT SHA Maintenance Shop	Total Number of Inlets Cleaned	Tons Collected	Tons Collected from Storm Drain Vacuuming
Anne Arundel	Annapolis	4	0.4	7
	Glen Burnie	0	0	1
Baltimore	Golden Ring	191	20.1	9
	Hereford	135	14.2	7
	Owings Mills	445	46.7	4
Carrol	Westminster	0	0	0
Cecil	Elkton	19	2.0	6
Charles	La Plata	0	0	0
Frederick	Frederick	40	4.2	0
Harford	Churchville	71	7.5	24
Howard	Dayton	26	2.7	6
Montgomery	Fairland	990	103.9	44
	Gaithersburg	677	71.1	5
Prince George's	Laurel	644	67.6	42
	Upper Marlboro	118	12.4	17
Wicomico County	Salisbury	0	0	1
	Totals	**3,360**	**352.8**	**173**

Most vegetation management on MDOT SHA property is performed by mechanical methods. Herbicides are applied when it is not possible to meet management objectives by mechanical methods alone. MDOT SHA uses herbicides to control noxious weed species identified by the Maryland Department of Agriculture (MDA), invasive weeds, and plants that reduce highway safety and operability. MDOT SHA continues to decrease use of glyphosate, largely by minimizing use of non-selective herbicides on guardrails. To reduce mowing costs and fuel use, MDOT SHA also promotes use of plant growth regulators (e.g., trinexapac-ethyl).

To report statewide application of vegetation management chemicals, MDOT SHA uses purchasing records and estimates contractor application usage from contract documents. Less herbicide was applied during the FY21 reporting period due to programmatic improvements and impacts from the COVID-19 pandemic. In accordance with conditions in Part IV.D.5 of the MS4 Permit, MDOT SHA has provided its statewide usage during FY21 for herbicide, fertilizer, and deicing chemicals, including percent change for each chemical type based on amounts reported for the FY20 period, in the ChemicalApplication table of the MS4 Geodatabase – Part 1.

Work on the MDOT SHA Landscape Management Guide (LMG), described in Section D.5.b.iii of the FY19 MS4 annual report, was suspended in FY21. Efforts for agencywide implementation of the LMG have been deferred until funding can be made available. During FY21, MDOT SHA continued 3 of the 4 pesticide applicator training classes described in Section D.5.b.iii of the FY19 MS4 annual report, training 119 MDOT SHA pesticide applicators.

The excluded training, 'ENV 220', which qualifies participants to take MDA's *Category 5 – Aquatic* test, requires in-person attendance and could not be offered in FY21 due to COVID-19 safety restrictions.

As reported in the FY20 MS4 annual report, MDOT SHA concluded its multi-year cooperative research effort with MDA on biocontrol of invasive plants using the Mile-a-Minute Vine Weevil (*Rhinoncomimus latipes*). During FY21, MDOT SHA continued research described in the FY20 MS4 annual report that focused on Japanese Knotweed Psyllid (*Aphalara itadori*) and its potential to suppress the growth and spread of Japanese Knotweed (*Polygonum cuspidatum*).

MDOT SHA challenges introduced in FY21 due to the COVID-19 pandemic required significant adjustments to snow and ice management operations. New social distancing and decontamination practices implemented for facilities and equipment added complexity that negatively impacted overall implementation and progress. Despite these challenges, MDOT SHA continued to test and evaluate new equipment and strategies in an on-going effort to improve the level of service provided to motorists during winter storms while minimizing the impact of its operations on the environment. Minimization practices described in Section D.5.b.iv of the FY19 MS4 annual report continued during the FY21 reporting period. A description of MDOT SHA winter operations and a link to the current version of the MDOT SHA Salt Management Plan, most recently updated in October 2020, is publicly accessible at the following web address:

https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=352

Within the MS4-permitted areas, MDOT SHA applied a total of 180,544 tons of sodium chloride (rock or solar salt) during the 2020-2021 winter season. MDOT SHA uses a metric of pounds of road salt per total lane miles per inch of snow (lbs/lm/inch) in its year-to-year comparisons of road salt usage. For the FY21 reporting period, the value for this metric was 642 lbs/lm/inch which is an increase of 329 lbs/lm/inch when compared to amounts reported for the FY20 period. This increase can be attributed to an unusually high number of freezing rain/ice events, which require more salting and less plowing, coupled with decreased efficiency resultant from utilization of 63 newly hired operators who lacked experience managing MDOT SHA roadways.

As described in Section D.5.b.iv of the FY19 MS4 annual report, MDOT SHA continued its "Annual Snow College" training during FY21 in accordance with conditions in Part IV.D.5.b.v of the MS4 Permit. Snow College was implemented statewide in FY21 across all MDOT SHA Districts. FY21 Snow College events trained 86 operators in snow removal and salt management, including new hire and refresher training. MDOT SHA continued administration of supplementary annual maintenance shop winter meetings and hired equipment operator trainings during FY21, with annual outreach estimated at 1,000 State employees and 2,100 hired equipment operators respectively. The scale of outreach for these supplementary trainings is variable year-to-year depending on active contracts, State employee vacancies and new-hires, and equipment acquisitions but the annual variance is estimated to be less than 10% relative to the reported figures. Due to COVID related protocols, all trainings were conducted in a virtual environment during FY21.

Public Education

MDOT SHA continued to operate its Customer Care Management System, as described in Section D.6.a of the FY19 MS4 annual report, throughout FY21 for submission of complaints and concerns. In FY21, this system received approximately 20,071 service requests. There were approximately 2,921 service requests regarding littering related issues. These figures do not represent a significant difference relative to amounts reported for FY20.

During the FY21 reporting period, MDOT SHA maintained its public education webpage, providing links to several interactive maps and educational resources as previously described in the *Trash and Litter* section of this FY21 MS4 annual report. MDOT SHA also participated in numerous educational opportunities described in Appendix D.

Watershed Assessment

In accordance with conditions in Part IV.E.1 of the MS4 Permit, MDOT SHA continued to reference County watershed assessments to identify specific watershed issues and restoration project opportunities, as described in Section E.1 of the FY19 MS4 annual report. Additionally, throughout the current permit term, MDOT SHA committed resources to advocating for, drafting, negotiating, executing, and amending long-term Memorandums of Understanding/Agreements with 15 different county, State, and federal government agencies in order to facilitate collaborative watershed restoration and monitoring activities. These interagency partnerships have facilitated data exchanges, ROW/easement acquisition, pooled stormwater and restoration monitoring and research, and construction of new restoration SWM, tree planting, outfall stabilization, impervious area removal, and stream restoration BMPs.

Restoration Plans

In accordance with conditions in Part IV.E.2.a of the MS4 Permit, MDOT SHA submitted impervious surface area assessments (as described in Section E.2.a of the FY19 MS4 annual report) and implemented restoration efforts for more than the required 4,621 equivalent acres of impervious surfaces before the end of FY20. Restoration implemented was consistent with the methodology described in the MDE 2014 document and all subsequently provided MDE guidance.

On April 9, 2021, MDOT SHA submitted response to the MDE letter dated November 30, 2020 that requested MDOT SHA provide a final impervious acre restoration analysis and total. In comments dated July 30, 2021, MDE confirmed MDOT SHA has completed 8,100 acres of restoration by October 8, 2020, representing 175% achievement of the 4,621 acres restoration required by the end of the permit term. In those same comments, MDE stated that MDOT SHA may not claim restoration implemented after the date of permit expiration and instead, must claim restoration completed after October 8, 2020 for the next permit.

In accordance with conditions in Part IV.E.3 of the MS4 Permit, MDOT SHA has provided the cumulative impervious acres restored achieved through FY21 and under the administratively

continued permit compliance period in **Table IV.E.3** below. In its July 30, 2021 comments, MDE stated that restoration credit must be removed for any 'failed' restoration BMP until proper performance can be verified. In accordance with MDE guidance and to account for other programmatic adjustments in FY21, MDOT SHA has temporarily removed credits from the summaries presented in Table IV.E.3 and in **Table V.A.1.e** contained in Appendix E and has aligned credit 'claimed' information in the GEN_COMMENTS attribute field of BMP records in the AltBMPPoly, AltBMPLine, and RestBMP features classes and the StrRestProtocols associated table of the MS4 Geodatabase – Part 1 for:

- 293 BMPs where the most recent credit verification inspection was assigned a 'failed' designation or performance could not otherwise be verified by inspection data
- 8 retrofit BMPs that are currently under consideration by PRD for Water Quality Bank Account submittals associated with the IS-495/IS-270 Public Private Partnership (a.k.a., "P3") Project (reference PRD No. 20-PR-0040-08)
- 2 outfall stabilization BMPs (see BMP identification numbers 030020UO and 150014UO) where credit generated must be proportionally divided in accordance with terms in interagency agreements with respective landowners, Baltimore County and the City of Rockville

Table IV.E.3: Impervious Acres Restored Achieved During the MS4 Permit Compliance Period

BMP Type	Oct. 21, 2010 to 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Impervious Surface Elimination to Pervious	0.00	0.00	1.83	0.02	0.11	0.49	0	**2.45**
New Stormwater Control Structures	84.69	52.11	33.09	50.94	30.72	0	0	**251.55**
Grass Swales	0	9.07	12.01	0.35	0	0	0.89	**22.32**
Outfall Stabilization	0	11.92	9.20	169.91	54.24	134.23	472.41	**851.91**
Retrofit Existing Stormwater Control Structures	0	90.54	6.33	45.37	48.85	3.02	56.13[1]	**250.24**
Stream Restoration	1,158.80	390.60	212.48	6.84	175.70	3,696.26	1,124.86	**6,765.54**
Tree Planting	370.76	39.94	7.09	30.25	66.45	23.83	9.23	**547.55**
Built BMP Subtotals =	**1,614.25**	**594.18**	**282.03**	**303.68**	**376.07**	**3,857.83**	**1,663.52**	**8,691.56**
Inlet Cleaning	164[2]						210.50	
Street Sweeping	29[2]						10.90	
Credit Acquisition	0						0	

[1] Total includes BMPs 020363, 130048, and 130073 that were still under construction at the end of FY21 and are estimated to restore 15.22 impervious acres

[2] Total acres achieved for inlet cleaning and street sweeping annual BMPs is presented here as the average annual implementation through FY20 as finalized in MDE comments dated July 30, 2021

TMDL Compliance

In FY20, 4 new TMDLs were approved by the United States Environmental Protection Agency (EPA). Per Part IV.E.2.b of the MS4 Permit, MDOT SHA completed and submitted TMDL Implementation Plans for 3 of the new TMDLs by their respective FY21 due dates. The names and submission dates of the 3 required plans are as follows:

- Marsh Run Sediment TMDL Implementation Plan; September 29, 2020
- Piscataway Creek Sediment TMDL Implementation Plan; October 3, 2020
- Port Tobacco River Sediment TMDL Implementation Plan; October 9, 2020

Each of the public comment periods for the 3 Implementation Plans that were submitted to MDE were announced in the Baltimore Sun, Washington Post, and on MDOT SHA's website during FY21 in accordance with conditions in Part IV.E.4 of the MS4 Permit. No comments were received during the respective comment periods.

An implementation plan was not submitted for one TMDL approved in FY20 for the following reason:

- Non-Tidal Upper Choptank River Sediment TMDL in Caroline, Talbot, and Queen Anne's Counties Maryland; approved on October 31, 2019 -

  No Implementation Plan was submitted due to this TMDL being located in Phase II Counties that are not currently listed on MDOT SHA's 2015 MS4 Permit (11-DP-3313). When the new permit is issued and MDOT SHA updates its baseline to include newly approved Phase II jurisdictions, this TMDL will be analyzed to determine if an implementation plan is needed.

To insure that MDOT SHA is on track to meet TMDL target dates set during the current MS4 Permit term, MDOT SHA has begun planning projects to meet all Total Nitrogen, Total Phosphorus, and Total Suspended Sediment TMDLs with a target date of 2025 to 2030 and has identified the amount of pollutants needed to reach the pollutant reduction requirements. MDOT SHA also identified a preliminary cost to implement projects to meet those pollutant reduction requirements. It is understood that TMDLs issued during the current MS4 Permit term apply the MDE 2014 guidance when modeling progress for TMDL wasteload allocation (WLA) obtainment. Prior to the date of this FY21 MS4 annual report, all TMDLs that were issued to MDOT SHA were developed using a version of the Maryland Assessment and Scenario Tool (MAST). Considering these details, MDOT SHA believes it is appropriate to continue modeling progress for obtainment of those TMDL WLAs using MDE 2014 in association with MAST. Moving forward, MDOT SHA will coordinate with MDE concerning the appropriate modeling guidance.

In accordance with conditions in Part IV.E.5 of the MS4 Permit, MDOT SHA has provided the required FY21 TMDL Assessment Report in Appendix E. MDOT SHA has also provided Bay and local TMDL compliance information, respectively, in the CountywideStormwaterWatershedAssessment and LocalStormwaterWatershedAssessment tables of the MS4 Geodatabase – Part 1. Bacteria and PCB progress modeling was removed

from Table V.A.1.e in Appendix E and from the aforementioned tables of the MS4 Geodatabase – Part 1 in anticipation of updated MDE guidance for reporting progress for PCB and Bacteria WLA obtainment qualitatively. Upon reception of said guidance, MDOT SHA will coordinate with MDE for steps needed to develop an active strategy to meet and model those TMDLs.

Assessment of Controls

The MDE-approved monitoring plans, developed by MDOT SHA to satisfy conditions in Part IV.F of the MS4 Permit, were appended to the FY16 and FY17 MS4 annual reports. Those approved monitoring plans contained a schedule for monitoring activities proposed by MDOT SHA based on project schedules at the time the plans were developed. No applicable monitoring activities were performed in FY21 so the summaries for monitoring schedules and progress provided in Table IV.F of the FY20 MS4 annual report remain valid and unchanged.

Due to impacts to available resources that initiated in FY20 and persisted in FY21 as a result of the COVID-19 pandemic, MDOT SHA removed monitoring installations and deferred CHEM 4 and BIO 4 monitoring activities at the Little Catoctin Creek stream restoration site. Funding was not available in FY21 or in initial FY22 budgets to coordinate and complete the remaining BIO 4 monitoring activities (habitat assessment) before the end of the summer 2021 sampling index period. The earliest date that MDOT SHA can resume and complete BIO 4 monitoring activities is during the summer 2022 sampling index period (i.e., June through September 2022). Funding has been allocated in budgets for the remaining three quarters of FY22 to resume CHEM 4 monitoring activities; by March 30, 2022 as directed by MDE in its July 30, 2021 comments; and BIO 4 monitoring activities as soon as practicable, at the start of the summer sampling index period in June 2022. Progress will be reported in the FY22 MS4 annual report and its associated MS4 geodatabase.

In response to MDE's July 30, 2021 comments, MDOT SHA completed analysis of benthic macroinvertebrate samples collected during the spring 2020 sampling index period as a component of BIO 4 and summarized associated data and Index of Biological Integrity calculations in Appendix F. In an MDE email communication to MDOT SHA on September 10, 2019, MDE expressed that placeholder values should not be used in the BiologicalMonitoring table of the MS4 geodatabase and that MDOT SHA should instead stagger (i.e., defer) its reporting of biological monitoring data in the MS4 geodatabase until the dataset for the given reporting year is complete. In accordance with that guidance and with conditions in Part IV.F.1.d of the MS4 Permit, MDOT SHA has provided Watershed Restoration Assessment information that matches what was submitted with the FY20 MS4 annual report in the BiologicalMonitoring table of the MS4 Geodatabase – Part 1. To complete reporting for BIO 4 monitoring activities, MDOT SHA will report benthic macroinvertebrate data from the spring 2020 sampling index period, summarized in Appendix F to this FY21 MS4 annual report, collectively with the fish sampling and habitat assessment data collected during the upcoming summer 2022 sampling index period as a single record in the BiologicalMonitoring table of the MS4 geodatabase submitted with the FY22 MS4 annual report.

On April 27, 2021, the United States Geological Survey (USGS) notified MDOT SHA that it had discovered an issue impacting ammonium, nitrite, and orthophosphate results for 16 samples collected at the Little Catoctin Creek stream restoration site and analyzed between March 2019

and June 2020 in association with the USGS gage numbers 0163688445 and 01636846. MDOT SHA notified MDE of this issue on June 10, 2021. On September 22, 2021 USGS notified MDOT SHA that the investigation has not yet been resolved and no values are expected to change regardless of the outcome. Although USGS has decided to flag these records as data of poor quality and remove them from the National Water Information System (NWIS) web portal, they acknowledged that the data may still have value for use in regulatory compliance if qualified with appropriate comments noting results may be biased high. MDOT SHA has decided to include theses data results within the ChemicalMonitoring table of the MS4 Geodatabase – Part 1 with specific qualifiers noted for each affected parameter in the GEN_COMMENTS data field in accordance with USGS recommendations. MDE should pay special attention to these data qualifiers before making its determination whether to use these data for further analysis. In response to MDE's aforementioned July 30, 2021 comments, MDOT SHA also coordinated with USGS during the first quarter of FY22 to obtain missing data for zinc and Biochemical Oxygen Demand and updated FY20 storm records in the ChemicalMonitoring table of the MS4 Geodatabase – Part 1.

As described in Section F.2 of the FY19 MS4 annual report, the construction schedule for the MDOT SHA-owned BMPs referenced in the MDE-approved monitoring plan for SWM Assessment is integrated with, and dependent on, the construction schedule for a Howard County bridge replacement project. The bridge replacement project design schedule was amended by the County in FY21 and the earliest potential construction start date is now August 2022. At the conclusion of FY20, MDOT SHA stopped work and deferred completion of its BMP design activities due to agencywide budget constraints resulting from the COVID-19 pandemic but funding has been allocated in FY22 budgets so that BMP design activities can resume and maintain alignment with the revised County bridge replacement project schedule.

MDOT SHA has fulfilled its SWM Assessment monitoring obligations by monitoring for at least two full years during the pre-construction period and consequently, did not perform any further pre-construction monitoring activities during FY21. MDOT SHA did not commit to any construction phase monitoring activities in the MDE-approved monitoring plan for SWM Assessment. Continuous flow measurements were performed throughout the pre-construction period and MDOT SHA evaluated the effects of continuous flow on channel geometry in its previously submitted MS4 annual reports. Hydrologic and/or hydraulic modeling was not performed in the fourth year of the MS4 Permit term, in accordance with conditions in Part IV.F.2.c, because the pre-requisite BMP construction did not initiate during the current MS4 Permit term.

Program Funding

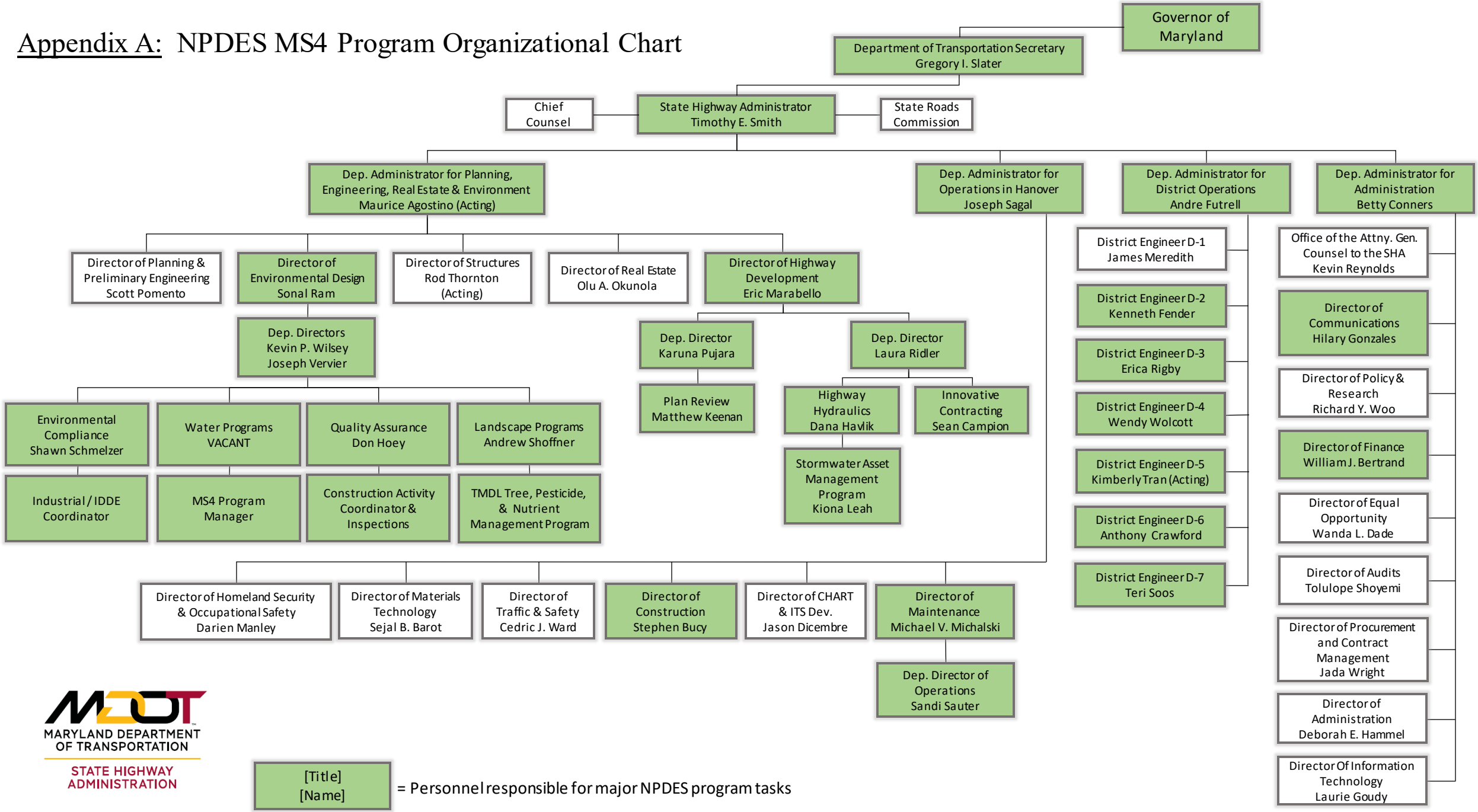
In accordance with conditions in Parts IV.G.1 and V.A.1.c of the MS4 Permit, MDOT SHA has provided program funding information in the FiscalAnalyses table of the MS4 Geodatabase – Part 1. **Table V.A.1.c** below contains a supplemental summary of this information.

Table V.A.1.c: MS4 Expenditures for FY21 and Proposed Budget for FY22

Fund	FY21 Expenditures (Millions*)	FY22 Budget (Millions*)
Fund 82 – TMDL/MS4	$31.0	$15.0
Fund 74 – Drainage	$6.1	$4.6
Fund 49 – Industrial	$0.09	$0.07
Operations/ Maintenance	$10.6	$11.5
Totals:	**$47.7**	**$31.2**
*Funding numbers are rounded to nearest $0.1 Million with the exception of Fund 49 which is rounded to the nearest $0.01 Million		

As described in Section G of the FY19 MS4 annual report, MDOT SHA does not impose fees or generate funding for watershed protection and restoration and all MS4 Program funding is sourced from the State Transportation Fund. The significant budget reductions for FY21 and FY22 periods is a consequence of impacts to the State Transportation Fund and the budget cuts described in the *Introduction* section to the FY20 MS4 annual report. Restrictions imposed on Maryland residents; by the State of Emergency Declaration issued by Governor Larry Hogan on March 5, 2020; remained in effect until July 1, 2021 and had significant impact on the State Transportation Fund and consequential funding availability for the MS4 Program during the FY21 reporting period.

Appendix A: NPDES MS4 Program Organizational Chart



MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

[Title]
[Name]
= Personnel responsible for major NPDES program tasks