Maryland Transportation Authority

Six Minimum Control Measures Report
FY 2021 and FY 2022

October 31, 2022 submittal

National Pollutant Discharge Elimination System General Permit for Discharges from State and Federal Municipal Separate Storm Sewer Systems Permit Number 13-SF-5501

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Six Minimum Control Measures Report

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October 2022

National Pollutant Discharge Elimination System (NPDES)
General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4)

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ACRONYMS AND ABBREVIATIONS

BHT	Baltimore Harbor Tunnel
BMP	best management practice
CFR	Code of Federal Regulations
COMAR	Code of Maryland Regulations
CTP	Consolidated Transportation Program
ECT	Environmental Compliance Team
EEIMS	Enterprise Environmental Information Management System
EMS	Environmental Management System
EO	environmental objective
ESC	erosion and sediment control
ESD	environmental site design
EV	electric vehicle
FMT	Fort McHenry Tunnel
FSK	Francis Scott Key Bridge
FY	fiscal year
GIS	geographic information system
HWN	Harry W. Nice Memorial Bridge
ICC	Intercounty Connector
IDDE	illicit discharge detection and elimination
JFK	John F. Kennedy Memorial Highway
MCM	minimum control measure
MD	Maryland
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MDTA	Maryland Transportation Authority
MEP	maximum extent practicable
MES	Maryland Environmental Service
MS4	Municipal Separate Storm Sewer System(s)
NOI	Notice of Intent
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
OEC	Office of Engineering and Construction
OESRM	Office of Environment, Safety, and Risk Management
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RPC	Responsible Personnel Certification
SOP	standard operating procedure
SPCC	spill prevention, control, and countermeasures
SWM	stormwater management
SWPPP	Stormwater Pollution Prevention Plan
TBU	Transportation Business Unit
TJH	Thomas J. Hatem Bridge
TMDL	Total Maximum Daily Load
WO	work order
WPL	William Preston Lane Jr. Memorial (Bay) Bridge

1 Introduction

The Maryland Transportation Authority (MDTA) maintains coverage of its properties under the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4), referred to as the permit, issued by the Maryland Department of the Environment (MDE). The goal of the permit is to control and improve the quality of stormwater discharged from State and federal properties covered under the General Permit by requiring permittees to comply with six minimum control measures (MCMs). The latest permit became effective on October 31, 2018 with Permit No 13-SF-5501. In addition to the six MCMs, this permit incorporates for first time the Chesapeake Bay Total Maximum Daily Load (TMDL) requirements for nutrients and sediment issued by the U.S. Environmental Protection Agency (EPA) by requiring permittees to treat 20 percent of the untreated impervious area as of a permittee established baseline year using MDE-approved best management practices (BMPs). MDTA submitted a Notice of Intent in October 2018 for coverage under this Phase II Permit. This report summarizes activities completed by MDTA during the past two fiscal years (FYs), from July 1, 2020, through June 30, 2022 (FY21/22), in compliance with the Phase II Permit six MCMs.

MDTA has committed substantial resources to implement six MCMs, as MDTA's goal is to maintain an environmental program to meet or exceed state and federal environmental requirements. This report describes MDTA's efforts related to the MCMs.

1.A MDTA Roadways and Campuses

Properties covered by the permit include toll roadways and their crossings as well as related campuses and maintenance facilities. The roadways are:

- I-95 of John F. Kennedy Memorial Highway (JFK)
- US 40 at the Thomas J. Hatem Memorial Bridge (TJH)
- I-95 and I-395 by the Fort McHenry Tunnel (FMT)
- I-895 at the Baltimore Harbor Tunnel Throughway (BHT)
- I-695/MD-695 at the Francis Scott Key Bridge (FSK)
- US 50/301 at the William Preston Lane Jr. Memorial (Bay) Bridge (WPL)
- US 301 at the Harry W. Nice Memorial Bridge (HWN) and
- MD200 of Intercounty Connector (ICC).

The campuses include administration, finance, human resources, engineering offices, and E-Z Pass customer centers. These office buildings and associated parking lots are covered under this permit.

Facilities where maintenance activities occur (e.g., garages, storage bins, salt barns) are regulated under the General Permit for Stormwater Associated with Industrial Activities (Permit 12-SW-A).

1.B Program Resources

Since January 2005, MDTA has committed operating and capital funds to address permit compliance requirements. **Table 1** shows a breakdown of the anticipated expenditures to implement the six MCMs over the five-year permit term. These values are based on historical spending in earlier permit years and projected costs for future permit years.

These funds are used for education, outreach, training, inventory, inspections, assessments, maintenance, construction, and other efforts directly related to meeting Phase II permit requirements.

Table 1: Six Minimum Control Measures Expenditures

Minimum Control Measures	Anticipated Expenditures
Public/Personnel Education and Outreach	$665,000
Public/Personnel Involvement and Participation	$122,000
Illicit Discharge Detection and Elimination	$463,000
Construction Site Stormwater Runoff Control	$10,667,000
Post-Construction Management	$1,962,000
Pollution Prevention and Good Housekeeping	$857,000
Total	$14,735,000

2 Minimum Control Measures

MDTA has expanded and continued to implement the programs developed in the previous permit term to meet the six MCM requirements specified in Part IV of the current Phase II Permit. The following sections describe how each MCM was addressed by MDTA during FY21/22. The MCMs include:

- Public or personnel education and outreach
- Public or personnel involvement and participation
- Illicit discharge detection and elimination
- Construction site stormwater runoff control
- Post-construction stormwater management
- Pollution prevention and good housekeeping

MDE's permit requirements are listed in bold below for each of the six MCMs. Activities conducted by MDTA are described for each requirement. The information provided in these

sections supplements the responses provided by MDTA in Section II of State and Federal Small MS4 Progress Report (Appendix D) submitted to MDE as part of the FY22 Annual MS4 Progress Report.

2.A MCM No. 1 - Public or Personnel Education and Outreach

2.A.1 According to Part IV.A of the NPDES MS4 Phase II Permit, *"Permittees are required to implement and maintain a public/personnel education and outreach program and distribute education materials to the community and employees to help reduce the discharge of pollutants caused by stormwater runoff."* Develop a process by which the public and/or staff can report water quality complaints that must include a phone number, within one year of permit issuance.

The public and staff can submit complaints related to stormwater at the 24/7 MDTA police dispatch number, 410-537-7911, which is advertised on the MDTA website (https://mdta.maryland.gov/Police/traffic-safety). MDTA is currently evaluating the addition of a "Report a Problem" link on the MDTA website for easier reporting of an issue. MDTA is proactive in addressing and correcting issues while minimizing impacts to the safety of travelers on roadways and adjacent property owners. Typically, environmental staff investigate the stormwater issue, assess the cause, and develop remedial recommendations. MDTA also responds to requests from local municipalities to provide roadway emergency services for impacts from storm events. This process normally involves several MDTA divisions, such as Communications, Engineering, Construction and Operations. For FY21/22, only one water quality complaint was received, as shown in **Table 2**.

Table 2: Water Quality Complaints during FY21/22

Fiscal Year	Water Quality Complaint	Action Taken to Address Complaint
2021	On January 8, 2021, a complaint was made at 15 St. Marks Church Road in Perryville, MD that the well water tasted salty.	MDTA sent personnel to investigate the site and speak with the complainant on February 2, 2021. MDTA concluded that road salt from I-95, the weigh station, stormwater management pond, and salt barn have increased the chloride concentrations found in the well of the complainant. This report was sent to the State Treasurer's office for further action. Since this issue relates to groundwater and not stormwater, MDTA is not responsible for overseeing a resolution.

2.A.2 Determine the target audience and develop materials to educate the audience on the impact of stormwater.

The target audience for this MCM is MDTA staff, including managers, engineers, inspectors, and maintenance staff across many divisions. The training and educational materials were developed for this audience and are provided in **Appendix A.**

2.A.3 Distribute stormwater education materials through newsletters, website, or other appropriate methods. Submit examples of educational material to MDE in accordance with reporting requirements.

To educate the target audience, MDTA continues to distribute stormwater-related education materials through several forms of communication, such as trainings, brochures, presentations, websites, workshops, and various types of signage. These materials and educational platforms are discussed below.

- **Web pages –** MDTA maintains various web pages and online resources to provide the target audience with 24/7 access to information. These web pages are advertised to employees via email, including:
    - "Maryland: Smart, Green and Growing": MDTA is registered in the Maryland Green Registry. This platform provides information about the State's efforts to restore the Chesapeake Bay and preserve green space as well as implement green initiatives to improve the environment. MDTA's green initiatives can be found on the Maryland Green Registry's website: https://mde.maryland.gov/marylandgreen/Documents/MDTA_Profile.pdf.
    - MDTA's enterprise Geographic Information Systems (GIS): This user-friendly tool is accessible to all MDTA staff and provides summary data on inventory, inspection, and remediation. Also included in the tool are best management practice (BMP) photos and plans.
    - MDTA's intranet website: This website includes links to standard operating procedures (SOPs), including those that protect the environment, such as SOPs for spill containment, management of recycled materials, and environmental inspections. It also includes information regarding where MDTA employees should take household hazardous waste as well as tips on personal efforts that can help the environment. Information such as the guide to MDE's Environmental Permits and Approvals, mapping from the Chesapeake Critical Area Commission, and the Maryland Department of Natural Resources Roadside Tree Laws are also available on this website.
    - MDTA's external environmental web page (http://www.MDTA.maryland.gov/Environment/Home.html): This web page contains MDTA's Environmental Policy Statement and information on MDTA's sustainability initiatives, such as its energy conservation, recycling, fuel management, and stormwater management initiatives.
    - MDTA's Bay Bridge web page (www.baybridge.maryland.gov): This web page includes content by "Spike & Otis", the seagull characters also found in radio spots and posters, who promote public information about MDTA's roadways and crossings and promote safety.

- **Publications** – MDTA prepares various forms of publications for internal use and public information, including:
    - Engineering Policies and Procedures: MDTA continued to distribute procedures related to environmental design and recordkeeping during FY21/22. These documents describe each phase of the project design process and related environmental permitting and compliance steps, different types of permits, and the associated agency for each permit. These policies and procedures are distributed to employees via email and are available on the MDTA intranet.
    - Connections e-newsletter: MDTA distributes an internal monthly e-newsletter via email that has articles related to the environment, health, and safety. The e-newsletter also advertises upcoming activities such as field trips. Connections encourages employees to participate in various environmental programs, such as MDTA's Earth Day fairs and contests. Each year, the newsletter highlights Earth Day activities.
- **Handouts –** During FY21/22, one educational handout was developed and is available to staff. This material is summarized in **Table 3** and provided in **Appendix A**.

Table 3: Educational Materials Developed in FY21/22

Education/Outreach Material Topic	Type	Distribution	Number of Copies Distributed
Stormwater "Do's and Don'ts"	Poster	Pending digital distribution	-

These topics are appropriate for the target audience because the day-to-day responsibilities of employees can impact stormwater quality. Given the industrial nature of operational activities at MDTA, employees often handle hazardous chemicals, oils and grease, and large machinery. By understanding the impacts of potential pollution from these operations on Maryland's waters, employees can carry out their job descriptions more safely and efficiently.

2.A.4 Develop and implement an annual employee training program that addresses appropriate topics to prevent or reduce the discharge of stormwater pollution into the MS4. Submit example training materials and attendee list to MDE in accordance with reporting requirements.

MDTA delivers a comprehensive training program that promotes environmental awareness to personnel, using a variety of approaches such as in-person training, presentations, guidance documents, and intranet web pages. This training program involves diverse staff across many divisions, including managers, engineers, inspectors, and maintenance staff.

- **Environmental Briefings for Managers** – Throughout the year, MDTA executive and management-level personnel are briefed on the progress and the importance of environmental compliance, particularly with the NPDES permit program. Details are communicated during management meetings to inform managers of compliance

requirements and to ensure that resources and funding sources are maintained. For FY21/22, meetings included briefings for executive staff and senior management on continuing efforts to meet the requirements of NPDES permits (the Phase II General Permit and the 12-SW-A Industrial Stormwater General Permit). Maryland Department of Transportation (MDOT) leadership was briefed on environmental activities at MDTA.

- **Environmental Training –** MDTA performs annual environmental training for staff at each maintenance facility. Training is offered in two sessions (three separate presentations) that focus on stormwater pollution prevention and spill prevention, control, and countermeasures (SPCC) and waste management related to the Resource Conservation and Recovery Act (RCRA). This training is required for all facility maintenance crews and is also offered to all MDTA personnel. Copies of the training presentations are provided in **Appendix A**.

  Stormwater pollution prevention training specifically addresses the requirements in the MS4 and Industrial NPDES permits. Topics such as Stormwater Pollution Prevention Plans (SWPPPs), Chesapeake Bay TMDL, illicit discharge detection and elimination (IDDE), erosion and sediment control (ESC), and good housekeeping procedures are covered. Information on the quarterly facility inspections and sampling at the outfalls, a requirement of the Industrial NPDES permit, is also included. The training sessions include group discussion, short videos, and interactive exercises focused on identifying stormwater issues in the field, recognizing pollutants and illicit discharges, and estimating spill volumes. The training is updated each year, and new activities and videos are added.

  The SPCC training topics include handling of oil and petroleum products and spill response, identification of major versus minor spills, and spill prevention. The training modules include group discussions, short videos, and an informal quiz.

  Waste management/RCRA training addresses topics such as RCRA regulations, hazardous, solid, and universal waste disposal, and waste management. This module includes group discussion and a short informal quiz.

  Due to the ongoing pandemic, all training sessions held earlier in FY21 were virtual. Later in the year, in person events were conducted. In FY21, MDTA conducted 5 virtual and 10 in-person SWPPP training events for a total of 252 employees. In person RCRA and SPCC training sessions were held for 34 employees. In FY22, MDTA conducted 15 in-person SWPPP training events for a total of 230 employees.

- **Erosion and Sediment Control Training –** Engineering, Construction, and Operations staff were encouraged to take ESC training to understand MDE's ESC and stormwater management (SWM) requirements. To obtain or renew ESC certifications, project reviewers and project managers attend training courses sponsored by MDE and the MDOT State Highway Administration.

Currently, 23 Office of Engineering and Construction (OEC) personnel have MDE's latest Responsible Personnel ESC certification (formerly called the "Green Card"). Maintenance personnel are encouraged to obtain ESC certification, and each facility is urged to have at least one ESC-certified supervisor.

MDTA staff and consultants are kept abreast of new regulations, such as those in the latest version of the 12-SW-A Permit and in the *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control* (MDE 2011).

- **Invasive Species Training** – These sessions were paired with the SWPPP training and focused on identifying and removing invasive species at MDTA.
- **Professional Training** – MDTA staff continued to broaden their stormwater expertise by participating in a variety of training events and professional groups. Staff viewed webcasts sponsored by the U.S. EPA, MDE, and the American Society of Civil Engineers that focused on NPDES compliance and Chesapeake Bay TMDL implementation. Topics included the Baltimore Urban Waters partnership flood policy, MDE dam embankment guidance, and pipe and precast installation. Staff also attended stormwater and environmental conferences and training sessions such as the American Society of Highway Engineers Water Resources Conference, Annual Transportation Research Board Meeting, and Chesapeake Water Environment Association Stormwater Seminars. The content of these events provides overall stormwater awareness, as well as specific technical information and professional growth and networking opportunities.
- **BMP Maintenance Training** – MDTA continued to train operations staff on preventative maintenance of BMPs. Maintenance manuals for each facility are provided and include information related to its BMPs, such as inventory, descriptions, location maps, and standard maintenance work orders. Training included field instructions on how to inspect BMPs and perform maintenance activities. This training is further discussed in Section 2.E.4

Appendix A provides examples of training materials and the attendee lists for annual employee trainings conducted by MDTA.

2.A.5 Briefly describe in reports to MDE how the education programs complement and strengthen other programs of the MS4 permit.

The stormwater education program complements other programs relating to the NPDES MS4 Phase II Permit by educating how to prevent stormwater pollution through awareness of key issues and improved behaviors. Through the education program, the target audience learned about topics such as IDDE, spill response, stormwater pollution prevention, BMPs, and good housekeeping. MDTA staff attending the annual training provide anonymous feedback on topics they learned and liked as a part of the environmental training. As a result of these trainings, findings from IDDE and construction site stormwater runoff control programs are improved because of the increased knowledge and participation of MDTA staff. For instance, the target

audience is aware of what stormwater pollution or an illicit discharge can look like, they may notice and report issues that may arise to the appropriate manager.

Similarly, the target audience may now be inclined to change their personal behavior through such actions as washing vehicles at designated car washes, containing vehicular fluids with absorbent booms, or planting rain gardens at their own residences.

MDTA evaluates the effectiveness of this MCM program by comparing reported complaints and examining the frequencies of illicit discharges detected, spills, and BMPs that are in passing condition year to year. As fewer discharges are reported, fewer complaints come in, and BMPs maintain a passing condition, then MDTA can conclude that the program is effective at educating and empowering employees to protect water resources through their actions at work and at home.

2.A.6 Implementation costs and summary of activities planned for the next reporting cycle

Based on prior years of spending, MDTA anticipates spending approximately $665,000 over the course of the five-year permit to implement this MCM. For the next reporting cycle, MDTA will continue to hold regular training sessions for its employees and produce additional outreach materials. It will also continue to advertise online resources to staff to ensure they have immediate access to information. MDTA will also continue to address water quality complaints quickly and effectively.

2.B MCM No. 2 - Public or Personnel Involvement and Participation

According to Part IV.B of the Permit *"Permittees are required to create and foster opportunities for public and/or staff participation in the MS4 management program for controlling stormwater discharges."* MDTA has developed a successful program by using multiple techniques to reach a variety of audiences.

2.B.1 Determine the target audience to promote public and/or staff involvement and participation activities.

The target audience for this permit includes MDTA employees, the general public in adjacent communities, travelers, and project stakeholders. Outreach activities led by MDTA are designed to engage this audience.

2.B.2 Specify activities appropriate for the target audience and promote participation.

Activities appropriate for this target audience include events such as public notices and meetings, MDTA initiatives, trash pickups, volunteering events, the Earth Day event, and other "pop-up" events. The information presented at these events directly relates to the daily job responsibilities of the target audience, the majority of whom are employed by MDTA.

These activities are valuable and appropriate for the target audience because MDTA employees are continually working in and around the environment and stormwater assets. Involvement in

these activities increases their awareness of issues and situations related to preventing stormwater pollution.

2.B.3 Perform at least five public and/or staff participation events during the permit term and report to MDE in accordance with reporting requirements

During the first 2 years of the permit, MDTA exceeded this requirement. Fewer activities were held in FY21/22 due to the ongoing COVID-19 pandemic. Activities in FY21/22 included:

- **MDOT / MDTA Initiatives** – staff participate in programs that promote environmental compliance and stewardship. MDTA also participates in MDOT work groups composed of MDOT Transportation Business Units (TBUs). Some of the topics discussed in the work groups include emerging technologies to meet the Chesapeake Bay's restoration requirements.
    - Environmental Management System (EMS) – The EMS is implemented across MDOT TBU's.
    - MDOT Annual Attainment Report – This report measures the progress of the MDOT TBUs toward achieving their strategic goals through projects in the Consolidated Transportation Program (CTP). The Environmental Stewardship sections of these reports summarize the environmental achievements of these TBUs, including MDTA. **Appendix B** of this report provides copies of the environmental stewardship sections of the MDOT 2021 and 2022 Annual Attainment Reports.
    - MDOT Excellerator Performance Management System – This system is composed of 10 tangible results that drive the business decisions of the TBUs. The ninth tangible result, which is to "Be a Good Steward of Our Environment" measures the following areas:
        - Water Quality Treatment to Protect and Restore the Chesapeake Bay
        - Stormwater Cleanup – Street Sweeping and Inlet Cleaning
        - Bay Restoration Program Spending
        - Recycled Waste from Office and Non-Office
        - Recycled/Reused Materials from Maintenance Activities and Construction/Demolition Projects
        - Fuel Efficiency: Miles Per Gallon and Total Gallons Consumed
        - Utility Electricity Use
        - Renewable Energy Generation
        - Air Quality Emissions

      The Excellerator report is available on the MDOT website.

- **MDTA's Bay Bridge web page** (www.baybridge.maryland.gov) – This web page has children's games that help families become aware of the Bay as an environmental and cultural resource.
- **Earth Day Fair** – MDTA organizes this event annually. Due to the COVID-19 pandemic, the FY21 event was held virtually over several days. Webinars offered included presentations on the "Spotted Lanternfly" and the "Benefits of Stream Restoration." Approximately 24 people attended the events.
- **Environment Management System (EMS) Meetings –** MDTA's EMS team of 8 to 10 staff meets monthly to discuss environmental objectives (EOs) to reduce environmental risks, updating EMS procedures, and developing EMS awareness training. The EMS team has representatives from OESRM, Operations, OEC, and Planning and Program Development. In FY22, several EOs were set and action plans developed include:
  - Study road salt reduction/salt brine expansion.
  - Environmental due diligence.
  - Internal audit preparation.

  A sample agenda from the EMS meeting on June 2022 is provided in **Appendix B**.
- **Storm drain markers –** To increase stormwater awareness among the public, MDTA affixed permanent storm drain markers, shown in the adjacent figure, on MDTA's storm drains along access roads and travel plaza parking lots. These markers tell the public not to dump in the storm drains and that drainage goes to the Chesapeake Bay. The public can scan the bar-code on these markers with a smart phone to access a website with stormwater pollution prevention information. MDTA is listed as a sponsor on this website: *www.StormDrainMarkingUSA.com*. No new storm drains were marked in FY21/22, although markers are replaced when the markings become faded or damaged.



Storm Drain Marker

- **Tree Planting -** MDTA planted 6,384 trees in FY21 and 7,624 trees in FY22 as part of their environmental stewardship.

Table 4 quantifies the public and staff involvement in various activities. Due to impact of COVID-19, some of the public and/staff involvement activities have been paused, but MDTA plans to resume these activities virtually when feasible.

Table 4: Summary of Public and/or Staff Involvement and Participation for FY21/22

Activity	Quantity
Number of participants at public and/or staff events	24

Activity	Quantity
Quantity of trash and debris removed at clean-up events	0
Number of employee volunteers participating in sponsored events	6
Number of trees planted	14,008
Length of stream cleaned (feet)	0
Number of storm drains stenciled	0
Number of public notices published to facilitate public and/or staff participation	0
Number of public and/or staff meetings organized	4
Total number of attendees at all public and/or staff meetings	36

2.B.4 Provide public and staff members access to the permittee's MS4 Progress Reports via website or other method and consider any substantive public and/or staff comments received concerning the permittee's MS4 program.

The Annual MS4 Progress Report submitted to MDE is available can be accessed by MDTA and MDOT staff. Staff can review the reports and submit comments to the OEC staff responsible for preparing the MS4 report. Staff-provided comments are strongly considered and are incorporated into the MS4 program where applicable. MDTA is working toward publishing a summary of the Annual MS4 Progress Report on the MDTA website.

2.B.5 Comply with all State and federal public notice requirements for any regulated activity associated with this general permit.

MDTA notifies the target audience of any regulated activities under the NPDES MS4 Phase II permit. To notify the public and project stakeholders about stormwater pollution and control activities in the planning, design, and construction phases of all major projects, MDTA has set up public notices and meetings. Major projects (discussed in section 2.D.5) involve the following:

- Conducting public hearings and public meetings
- Providing a point of contact between the public and the project team
- Proactively informing adjacent property owners and key stakeholders of pending construction activities, potential environmental impacts, and impacts that were avoided.
- Promoting environmental mitigation/stewardship projects, for example, with news releases on upcoming MDTA construction projects that describe environmental efforts related to the work
- Offering project stakeholders a chance to provide input into specific project decisions
- Holding field meetings during construction to resolve any public concerns

2.B.6 Implementation costs and summary of activities planned for the next reporting cycle.

MDTA anticipates spending approximately $122,000 to implement this MCM program. For the next reporting cycle, MDTA will continue to host events and promote public/staff involvement in activities related to stormwater pollution prevention, such as Earth Day events and possibly another event at Turner Station. Because of the changing status of the COVID-19 pandemic, MDTA will plan events that can be hosted virtually, if needed.

2.C MCM No. 3 - Illicit Discharge Detection and Elimination

According to Part IV. C of the Phase II Permit, *"Permittees are required to develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4 in accordance with 40 CFR § 122.34(b)(3)."*

MDTA has a robust IDDE program that focuses on field screening of outfalls in potential hot spots.

2.C.1 Develop and maintain an updated map of the MS4 that identifies all stormwater conveyances, outfalls, stormwater BMPs, and waters of the U.S. receiving stormwater discharges.

MDTA continues to review information related to stormwater structures as new projects are constructed. Attribute and spatial information for drainage pipes are logged in a comprehensive GIS geodatabase that depicts the drainage network owned by MDTA. A map created from this information is updated annually and is provided in **Appendix C**. In addition, illicit discharge screening and outfall inspections are logged in the NPDES database.

2.C.2 Establish a policy or other agency directive that prohibits illicit discharges into the MS4.

MDTA, prohibits illicit discharges into the MS4 through environmental directives. OEC has published the *Illicit Discharge Detection and Elimination Directive* for MDTA employees prohibiting illicit discharges into the storm drains. This directive has been made available to employees on MDTA's intranet. MDTA has published the *Environmental Management System (EMS) Manual,* which outlines policies that foster environmental protection and reinforces practices among MDTA employees that are essential to operations. The EMS Manual also outlines the various operations that would be conducted by MDTA staff, including maintenance of underground storage tanks, construction and earth-disturbing activities, storage of petroleum products, and concrete/asphalt surfacing, and their potential to impact water resources. The EMS Manual can be accessed on the MDTA intranet.

2.C.3 Maintain the capability to access the storm sewer system across the entire property(ies) to investigate and eliminate illicit discharges (e.g., maintain physical access, proper internal permissions).

MDTA maintains access to its storm sewer system by ensuring that access points are in good condition. This maintenance involves tending to outfalls and surrounding areas to ensure vegetation, debris, or a safety hazard are not preventing access. MDTA is also in contact with property owners of areas surrounding MDTA outfalls. This close coordination allows MDTA constant access to stormwater conveyance systems without trespassing. Site accessibility allows MDTA to address illicit discharges and other water quality concerns promptly after they are reported.

2.C.4 Develop and implement written SOPs.

MDTA has procedures to proactively detect and address potential illicit discharges. The screening for illicit discharges involves visual inspection of storm drain outfalls or affiliated drainage structures. If there is any type of dry-weather flow three days after a storm event, the discharge is characterized, the source of discharge is investigated, as-needed corrective actions are evaluated, and appropriate actions are taken.

The *Illicit Discharge Detection and Elimination Practices and Procedures Manual* (updated January 29, 2019) developed by MDTA documents the procedures for conducting IDDE inspections. The manual includes the following information, as required by the Phase II permit:

- An inspection checklist for collecting site description, outfall description, structural integrity of the outfall, characteristics of the discharge, and measurement of chemical parameters in case a dry weather flow is observed at the outfall
- Frequency of outfall inspections — up to 100 outfalls per year per permit requirements, as MDTA, at more than 2,000 acres, is considered a large property
- Procedures for identifying the source and eliminating spills, illegal dumping, and other suspected illicit discharges
- Identification of priority areas or hot spots for illicit discharge screening based on pollution potential

2.C.5 Submit SOPs to MDE for review and approval within 2 years of permit issuance. MDE will review for consistency with the guidance [in the permit] in Appendix B, Section II.

MDTA provided the SOP in the Year 2 Progress Report submission to MDE, which has been approved, so it is not included in this Year 4 submission.

2.C.6 Document results of illicit discharge screening efforts, including a description of how screening locations were prioritized, and any necessary follow-up

investigations and remediation measures implemented to address any suspected discharge. Submit to MDE in accordance with reporting requirements.

There are 1,573 total outfalls at MDTA properties, and 20%, up to 100 outfalls, are required to be screened annually per MDE guidelines. Generally, MDTA prioritizes screening of major NPDES outfalls, which are storm drainpipes with an equivalent diameter of 36 inches or larger that discharge to Waters of the United States. However, for the recent IDDE inspections, MDTA has been considering all outfalls. MDTA performs IDDE screening on a 3-year cycle, divided by facility, generally with ICC in one cycle; BHT, FMT, and FSK in another cycle; and JFK, TJH, WPL, and HWN in the third cycle. MDTA performs more frequent screening at selected outfalls when there may be a suspected illicit discharge. Outfalls identified as having a higher pollutant potential at MDTA facilities include LBEH00017, LBEH00019, LBEH00037, HTEH00119, HTEH00020, HTEH00245, HTEH00246, FTEH00124, KBEH00082, KBEH00083, KHEH00861, KHEH00872, NBEH00009, and NBEH00012. These outfalls were identified as high-priority outfalls because their drainage areas include multiple potential pollutant sources.

During FY21/22, illicit discharge screenings were conducted for NPDES outfalls along roadways associated with BHT, FSK, FMT, ICC, TJH, JFK, and WPL. In FY21/22, 109 and 118 outfalls or associated upstream inlets were inspected, respectively. Field tests kits were used to test dry weather flows observed at 25 outfalls in FY21 and at 21 outfalls in FY22. The dry weather flows were screened for temperature, pH, chlorine, phenol, copper, and detergents.

Dry weather flow screening for FY21 revealed that one outfall had a phenol concentration that exceeded the screening criteria. During re-inspection of this outfall, dry weather flow was tested and found to be compliant with threshold parameter/contaminant values. Therefore, it was concluded that no illicit discharges were identified during FY21, and it is likely that the suspicious sample was due to seasonal fluctuations or activities performed by members of nearby communities in the watershed on an infrequent basis.

Dry weather flow screening for FY22 found all flowing outfalls to be compliant with threshold parameter/contaminant values. Therefore, no illicit discharges were identified in FY22.

For cases where a true illicit discharge is discovered, it will be traced through the drainage system to determine the source. If it originates on a neighboring property, the landowner will be contacted. If the source is on MDTA property, clean-up procedures will be initiated based on the material. The MDE response unit may be called, in appropriate instances. The source of the illicit discharge will be eliminated, and the site will be closely monitored to prevent recurrences.

MDTA also addresses discharges from vehicular spills along highways and major crossings. Discharge Notification Forms are completed that record the date, time, and location of the spill, and the authorities that were notified and procedures that were used to clean up the spill and properly dispose of the hazardous materials. When required, documentation is provided to MDE. **Table 11** in section 2.F.2 summarizes reported spills on MDTA roadways in FY21/22.

MDTA also has a drainage inspection protocol for storm drain outfalls to assess drainage performance and structural condition. As part of the IDDE investigations, the drainage structure conditions are noted. Where warranted, remedial work orders are developed to address

deficiencies. Drainage inspections also can help identify potential illicit discharge issues for further investigation.

During FY21/22, 60 and 57 outfalls with maintenance concerns were identified, respectively. These outfalls had cracking concrete, vegetation buildup, sediment accumulation, and/or corrosion in the pipes. Remedial actions taken to resolve these issues included structural repair or replacement of headwalls and pipes and removal of vegetation or sediment accumulation. MDTA has addressed the issues identified in FY21 and is currently addressing the issues identified in FY22.

Reports summarizing the results of the IDDE inspections are provided in **Appendix C**.

2.C.7 Maintain complete records of IDDE program investigations and make them available to MDE during field reviews of the permittee's MS4 program.

MDTA maintains records of all IDDE inspections electronically and at the Point Breeze office. These records are updated after every IDDE inspection.

2.C.8 IDDE education and training program

As part of the annual environmental training, MDTA provided IDDE training to 252 employees in FY21 and to 230 employees in FY22. The employees learned how to identify pollutant types, observe pollutant characteristics, and report findings to the appropriate authority, which can investigate and eliminate the illicit discharge. Materials developed to meet education and training requirements are provided in **Appendix A**. These materials include sections of the stormwater pollution prevention training related to IDDE inspection.

2.C.9 Cost of implementation

MDTA anticipates spending approximately $463,000 to implement this MCM program. MDTA dedicates significant resources to the IDDE program to ensure that issues are addressed in a timely manner.

2.D MCM No. 4 - Construction Site Stormwater Runoff Control

According to Part IV.D of the Phase II Permit *"Permittees are required to comply with Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland and State erosion and sediment control regulations under Code of Maryland (COMAR) 26.17.01. The statute and COMAR specify the requirements for any construction activity that disturbs 5,000 square feet of land area or 100 cubic yards or more of earth movement. MDE considers compliance with the State statute to be compliance with this MCM of the general permit, and 40 CFR § 122.34(b)(4)."*

2.D.1 Submit erosion and sediment control plans to MDE (or other authority when applicable) for review and approval in accordance with COMAR and with the

Maryland Stormwater Management and Erosion and Sediment Control Guidelines for State and Federal Projects (February 2015).

When required, MDTA prepares an ESC plan for activities involving land disturbance for MDE review and approval. Once MDE approves the plan, MDTA is issued a Sediment and Stormwater Permit for projects that have earth disturbances exceeding 100 cubic yards or 5,000 square feet.

2.D.2 Ensure compliance with requirements under MDE's 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control or more recent revision and COMAR 26.17.01.

Maryland laws require enacted ESC regulations to protect waters of the state. MDE has promulgated regulations for ESC, and all MDTA construction projects are governed by the Code of Maryland Regulations Title 26, Subtitle 17, Chapter 1 (COMAR 26.17.01). The chapter governing ESC consists of 11 regulations. MDTA complies with Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland and State and federal laws, regulations, ordinances, and procedures that regulate construction site activity.

2.D.3 Ensure all necessary permits have been obtained, including MDE's General Permit for Stormwater Associated with Construction Activity for projects disturbing one acre or more, and local sediment and erosion control plan approval.

Construction projects are initiated only when the required permits, including the ESC permit (unless the project is exempt), are obtained. For projects with disturbances that exceed 1 acre, MDTA must obtain coverage under the General Permit for Stormwater Associated with Construction Activity in compliance with the federal NPDES program.

2.D.4 Develop a process for receiving, investigation, and resolving complaints from any interested party related to construction activities within the property(ies). Notify the complainant of the investigation and findings within seven days.

Noncompliance findings and complaints from different stakeholders are reported directly to project management staff or through other contacts in MDTA. Assigned staff information for active construction projects is distributed monthly within the OEC and makes it possible to direct complaints to the respective project managers without delay. The general procedure to address noncompliance findings and concerns is for field management staff to investigate and recommend corrective actions when necessary. Project or Area Engineers would direct the contractor to perform corrective actions, regardless of the payment involved, to resolve complaints in a timely manner. The interested party would be notified of the follow-up actions within seven days. Project management staff ensure that documentation on such action items and routine inspections is available on-site. No construction complaints were received during FY21/22.

2.D.5 Track all active grading permits for each property covered under this general permit and report disturbed areas for all active grading permits to MDE in accordance with reporting requirements.

MDTA tracks active grading (erosion and sediment control) permits, project status, approvals, inspections, inspection findings and compliance efforts for all projects and tasks orders via coordination between different divisions and offices within MDTA. There were 46 projects in FY21/22 that were issued ESC permits. The area disturbed by the 46 grading permits totals 571.19 acres and has been reported to MDE. **Table 5** lists these construction projects and the disturbed areas.

Table 5: Active Construction Projects and Disturbed Area during FY21/22

Construction Project Number	Project Name	Erosion and Sediment Control (ESC) / Grading Permit No.	LOD (acres)
KH-3012	Bradshaw Road Overpass Reconstruction	18-SF-0074	2.80
KH-3015	Old Joppa Road Overpass Reconstruction	18-SF-0205	1.68
KH-3010	I-95 NB Auxiliary Lane MD 152 to MD 24 and MD 24 / MD 924 Ramps	18-SF-0070	23.18
KH-3009	I-95 NB Two-Lane ETL Extension to MD 152	18-SF-0098	111.30
KH-3014	Section 200 SB Noise Wall - New Forge Road to Big Gunpowder Falls	19-SF-0128	2.26
KH-3028	Carsins Run Stream Mitigation	19-SF-0196	2.53
KH-3033	MD 7 Fish Passage	20-SF-0140	1.89
KH-3023	MD 24 and MD 924 Park and Ride	19-SF-0125	8.17
KH-3027	MD 152 Park and Ride Relocation	20-SF-0019	6.66
KH-3022	Clayton Road Overpass Reconstruction	19-SF-0204	2.91
KH-3029	Abingdon Road Overpass	19-SF-0212	1.30
KH-3030	Noise Wall on SB I-95 at MD 24 / Woodsdale	20-SF-0111	3.83
KH-3019	MD 152 Interchange	19-SF-0187	101.98
KH-3020	I-95 NB ETL Extension to Bynum Run Noise Wall NB I-95 N. of Abingdon Rd.	20-SF-0143	46.14
KH-3031	Noise Wall on SB I-95 South of Calvary Road	20-SF-0170	4.8
KH-3021	MD 24 Interchange	20-SF-0157	144.34
KH-3040	MD 24 NB toward Singer Road	-	16.1
KH-3038	Eccelston Mitigation	-	42.17
KH-3032	Old Mountain Road Advance Utility Bore	-	0.11
MR-3018/ MR-3027	DMS Relocation from Clayton Road to Bynum Run	20-SF-0176	0.10
15-DI-KH-018	I-95 Median MP 104.8 Storm Drain Replacement	20-SF-0101	0.11

17-DI-HT-001	BHT Toll Facility Pipe Replacements	21-SF-0097	0.31
18-DI-KH-004	I-95 Baltimore Harbor Tunnel Throughway - Median MP 1.40	20-SF-0059	0.19
18-DI-IC-002	ICC Beaver Dam Removal	19-SF-0144	0.30
18-DI-KH-006	I-95 SB MP 67.10 Roadside Ditch Sinkhole Remediation	19-SF-0201	0.27
18-DI-HT-003	I-895 MM 4.44 Slope Erosion and Exposed Electrical	21-SF-0103	0.21
20-DI-KH-002	I-695 Median MP 0.85 Pipe Deterioration Guardrail Post Through	22-SF-0033	0.83
20-DI-KH-004	Existing 30" CMP I-95 at Red Toad Road	21-SF-0144	0.21
20-FACL-HT-001	Moravia Salt Barn	20-SF-0036	0.53
21-DI-KB-001	Ponding at Outfall of 42" CMP (CIPP Lined) Culvert	22-SF-0188	0.43
21-DI-KH-003	I-95 NB Noise Barrier No. B X645W - Sinkholes along Front/Back of Alignment - Baltimore County	22-SF-100	0.37
21-DI-KH-004	MA-3015 Failed 42" CMP Sinkhole	22-SF-0108	0.42
BB-3017	William Preston Lane Jr. Memorial Bridge SWM Work for EB Bay Bridge Rehabilitation Phase-1 Package A	18-SF-0075	0.48
BB-3004	William Preston Memorial Bridge Construction Maintenance Office and Maintenance Equipment Storage Garage at Bay Bridge	20-SF-0187	1.79
BB-3012	Bay Bridge CCTV Installation on Eastern Shore	21-SF-0178	0.03
BB-3014	All Electronic Tolling Conversion US 50/301	20-SF-0027	12.05
FT-3019	Ft. McHenry Tunnel - AET Conversion	20-SF-0058	3.47
FT-3020	Ft. McHenry Tunnel - Underpass and Low-Level Lighting Upgrades and Fiber Improvements	21-SF-0186	1.20
HT-2709	Envelope and Switch Gear Replacements at BHT Vent Buildings	20-SF-0177	1.15
KB-3005	I-695 Repairs and Subgrade Rehabilitation on Sparrows Point near Bear Creek	21-SF-0113	5.30
KB-3013	Police Training Facility Site Development	21-SF-0029	4.60
KH-3041	Interim High Speed AET Conversion Toll Plaza Demolition	21-SF-0051	3.56

MA-3015	Small Drainage Rehabilitation	19-SF-0012	2.65
MA-3018	Drainage Outfall Rehabilitation	20-SF-0181	5.70
MR-3019	ICC East - Facility Underdrainage Repairs - Water Line Relocation and DEF Tank	20-SF-0124	0.18
TO-2030-1951-R1	I-895 Zbridge SB at Herring Run - Scour Remediation	20-SF-0152	0.60
		Total:	**571.19**

2.D.6 Ensure that construction site inspections and enforcement procedures are performed in accordance with COMAR. This will require ongoing communication and collaboration with MDE to ensure that any violations are properly addressed.

At MDTA, engineering design and construction of projects is overseen by Office of Engineering and Construction. Under this office, the Environmental Engineering Division applies for and acquires permits during a project's design development. The construction management and inspection (CMI) team, typically consisting of a project engineer and several inspectors, manages the construction phase activities. This team reports to Engineering divisions when inspections are done by MDE or, as quality assurance/quality control (QA/QC), by MDTA staff, reveal work is not meeting permit requirements. As applicant, the Environmental Engineering division coordinates with the CMI staff, and MDE on corrective measures. Minor issues are resolved with a direct coordination between the CMI team and MDE compliance inspectors.

Periodic site inspections by MDE and regular inspections by MDTA personnel are performed at all MDTA construction sites to ensure safety, adherence to regulations, and the success and quality of the project. MDTA uses the State Highway Administration's evaluation system for construction site ESC ratings and appoints quality assurance (QA) inspectors to assess permitted construction sites with this system. This process requires follow-up inspections for projects with ratings of C, D, or F to ensure corrective measures have been taken. MDTA encourages certification of construction inspectors, contractors, engineering designers, and maintenance staff in MDE's Responsible Personnel ESC Certification.

When MDE issues a Notice of Violation (NOV), MDTA addresses the NOV within the time frame specified on the NOV and puts in place a preventative measure to ensure the violation is not reissued. MDTA did not receive NOVs during FY21/22. If an NOV is received and resolved by MDTA, coordination is typically done through emails, but CMI teams also directly call MDE compliance inspectors. After corrective measures are taken, MDTA QA inspector, CMI staff representative and MDE inspectors conduct a field visit to ensure the measures are satisfactory.

For each project, inspection records are kept on inspection frequency, findings, and contractor notifications and resulting actions. MDTA ensures that design and construction activities are performed in accordance with ESC laws and regulations. Permits and approvals are obtained prior to construction, and permit conditions are met through and after project completion.

For megaprojects such as the I-95 Section 100 Express Toll Lanes project, additional oversight may include an Environmental Compliance Team (ECT). An ECT comprises managers, inspectors, and independent environmental monitors who administer the ESC QA program and the NPDES General Permit for Construction Activities. An ECT performs routine environmental inspections, monitoring, and oversight during construction to evaluate compliance with the permits issued by MDE and the U.S. Army Corps of Engineers, as well as other environmental laws and regulations.

2.D.7 Incorporate procedures within property operations to effectively abate sediment pollution and comply with all applicable State and federal laws pertaining to erosion and sediment control practices.

SHA standard specification for construction and materials, which is maintained online, with special provisions for MDTA, serves as standard policy document guiding pollution abatement and prevention on construction projects. It references and adopts applicable MDE issued manuals and guidelines.

2.D.8 Ensure staff is adequately trained on proper procedures and actions to address potential discharge of pollutants into the MS4 as a result of any construction activity. The Responsible Personnel Certification on-line training course through MDE must be made available to appropriate staff.

As noted above, MDTA staff are trained on IDDE, pollution prevention, and spill response in their annual training. This training covers the impacts of construction activity on stormwater pollution prevention. As of FY22, 23 employees at MDTA have received MDE's Responsible Personnel Certification (RPC). A list of OEC personnel with MDE's RPCs is provided in **Appendix D**.

2.D.9 Coordination with Other Entities

Complaints and notices on erosion issues and illicit discharge typically go through each facility's operations and maintenance office. Reporting typically doesn't identify between project related concerns or discharges from O&M activities. This necessitates coordination on reporting, documenting, and resolving such issues with IDDE program.

As noted in description of processes to address NOV's, MDTA coordinates with MDE on plan approvals and modifications, including the construction general permit, and construction compliance. MDTA also coordinates with Anne Arundel County Soil Conservation District and the Chesapeake Bay Critical Area Commission, who have regulatory authority on construction activities in defined zones within the State. MDTA also coordinates with other TBUs.

2.D.10 Cost of Implementation

Based on spending in prior years of the permit, MDTA anticipates spending approximately $10,667,000 over the course of the permit term implementing this MCM.

2.E MCM No. 5 - Post Construction Stormwater Management

According to Part IV. E of the Phase II Permit *"Permittees are required to maintain an acceptable stormwater management program in accordance with Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland and State stormwater management regulations under COMAR 26.17.02. The statute and COMAR require that stormwater management must be addressed for new development and redevelopment for any proposed project that disturbs 5,000 square feet or more of land area. MDE considers compliance with the State statute to be compliance with this MCM of the general permit, and 40 CFR § 122.34(b)(5)."*

2.E.1 Submit stormwater management plans to MDE (or other authority when applicable) for review and approval in accordance with COMAR and with the Maryland Stormwater Management Erosion and Sediment Control Guidelines for State and Federal Projects (February 2015) for compliance with State stormwater management requirements.

Plans from MDTA projects with stormwater management requirements are submitted to MDE for review and approval.

2.E.2 Implement the principals, methods, and practices found in the latest version of the 2000 Maryland Stormwater Design Manual, Volume I & II (Manual), and the latest version of MDE's Maryland Stormwater Management Guidelines for State and Federal Projects. This includes that environmental site design (ESD) be implemented to the maximum extent practicable (MEP).

For MDTA development and redevelopment projects, stormwater design activities follow MDE's *Maryland Stormwater Management and Erosion and Sediment Control Guidelines for State and Federal Projects*, dated February 2015, and include stormwater management design that complies with the *2000 Maryland Stormwater Design Manual, Volumes I and II*, including the updated Chapter 5 of the manual. MDTA incorporates ESD requirements to the maximum extent practicable.

2.E.3 Maintain stormwater program implementation information and provide updates in accordance with the MS4 Progress Report that include: a) total number of plans submitted to MDE for review and approval; b) total number of as-built plans submitted to MDE and approved and c) verification that BMPs are maintained in accordance with MDE requirements outlined on approved plans.

During FY21/22, no design plans were submitted to MDE. Twenty as-built plans were submitted to MDE and 9 were approved.

BMPs

Once approved by MDE, as-built plans are kept by MDTA as the official record for a BMP. Relevant data from the plans are populated in the MDE-required Urban BMP Database. MDTA maintains an internal NPDES geodatabase to track BMP inventory and maintains BMPs through regular inspections and remedial maintenance.

- **Inventory -** MDTA maintains a comprehensive inventory of stormwater BMPs and drainage systems. MDTA continually updates stormwater infrastructure data as new stormwater features are constructed or existing assets are enhanced as part of MDTA projects. MDTA also tracks proposed BMPs scheduled for construction, such as those for development projects and for stormwater retrofits that address Chesapeake Bay TMDL restoration requirements. Inventory data are based on design documents, construction plans, and as-built plans, and on aerial imagery and field inspections as-needed. These data are stored in MDTA's NPDES geodatabase, which includes spatial and attribute data and connectivity between stormwater features. The BMP inventory is linked with design documents, impervious area treatment and drainage areas, and Chesapeake Bay tributaries. The BMP inventory expands annually, based on:
    - continual review and update of BMPs based on property boundaries that would identify BMP ownership; and
    - preliminary evaluation of MDTA-owned stormwater pond embankments to confirm dam hazard class.

Table 6 lists the inventory of constructed ("active") BMPs by major BMP type and MDTA facility. During FY21/22, eleven BMPs were added to the inventory.

Table 6: BMP Inventory as of FY22

Facility	Pond	Filtering	Infiltration	Other	Total
FMT	5	2	-	-	**7**
BHT	3	32	-	10	**45**
TJH	-	-	1	-	**1**
ICC	40	139	42	24	**245**
JFK	37	185	23	28	**273**
FSK	3	20	-	7	**30**
WPL	-	4	2	14	**20**
HWN	-	2	1	-	**3**
Point Breeze	-	3	-	-	**3**
Grand Total	**88**	**387**	**69**	**83**	**627**

MDTA continued to inventory impervious areas MDTA-wide in the NPDES geodatabase. This database tracks information such as impervious area type (e.g., building versus roadway) and MDE site development designation (redevelopment or new development). In addition, MDTA tracks stormwater features by watersheds of Chesapeake Bay tributaries. This is a proactive approach to tracking stormwater retrofit efforts that addresses Chesapeake Bay TMDL requirements.

- **Inspection –** BMPs are inspected at regular intervals. These inspection records are available in digital form at each MDTA facility.
    - BMPs – triennial inspections are performed using MDTA's inspection protocol described in *Stormwater Best Management Practices Field Inspection Manual* (January 2017). The inspections evaluate performance and overall stability of BMPs. Overall ratings of A through E are assigned, where:
        - A – BMP is performing as designed, with no signs of impending deterioration.
        - B – BMP is functioning and has minor issues and is a potential candidate for maintenance.
        - C – BMP is operational but has moderate problems. Remedial action may be needed to restore performance and/or stability.
        - D – BMP is not functioning properly and has major problems. Key parameters are compromised and may require remedial action(s). The BMP may be a potential candidate for major repair or rehabilitation.
        - E - BMP is not functional and has significant problems. BMP deterioration may require temporary stabilization or comprehensive remedial action(s), or both. The BMP may require emergency action, restoration, enhancement, or replacement.

    As necessary remedial actions are identified, then work orders are executed, and inspections are performed afterwards to track the improved condition. MDTA also has identified BMPs for enhancement to improve SWM to current standards. Where warranted, MDTA performs detailed assessments after inspections to further evaluate individual BMPs or a specific BMP type. Inspections are tracked in the NPDES geodatabase, which includes field photos. Inspection dates are also updated in the Urban BMP Database submitted to MDE.

    Applicable BMPs are inspected triennially in accordance with the Dam Inspection Checklist in Maryland Pond Code 378. **Table 7** summarizes the most recent ratings from BMP inspections, including ratings from inspections conducted during FY21/22. During FY23, 234 BMPs are scheduled for inspection.

Table 7: BMP Inspection Ratings Including the Inspections Conducted in FY21/22

BMP Type	A	B	C	D	E	Total
Pond	12	23	12	1	-	48
Filtering	61	167	75	12	4	319
Infiltration	3	15	2	-	-	20
Other	9	14	2	5	1	31

BMP Type	A	B	C	D	E	Total
Grand Total	**85**	**219**	**91**	**18**	**5**	**418**

Drainage

Drainage features were inspected using MDTA's inspection protocol. This protocol is used when screening outfalls for illicit discharges (see section 2.C, Illicit Discharge Detection and Elimination) and also as part of the drainage system preservation and site investigation program. These investigations are initiated by MDTA staff or citizen complaints. As-needed assessment reports are prepared to characterize the drainage issues and provide remedial recommendations. When corrective actions are required, remedial work orders are prepared. MDTA tracks the inspection and remedial action in the internal NPDES geodatabase.

The Outfall Rehabilitation Inspection Protocols were used during FY21/22 to identify, inspect, evaluate, and prioritize for construction of degraded outfalls within the MDTA right-of-way. The process involves combining data from the IDDE inspection, the Drainage Inspection Program, and the GIS asset inventory to identify outfalls in need of inspection for remediation. Inspectors measured the condition of the drainage structure, the level of erosion in the downstream channel, as well as the vegetative cover to assess the overall condition of the outfall. To do this, inspectors used Survey123 for ArcGIS, a customizable, off-the-shelf software for data entry that reduces redundancy in work and eliminates transcription errors. A special feature of the software makes use of the capabilities built into phone or tablet hardware for data entry using the voice-to-text attribute.

- **Maintenance -** MDTA continually conducts maintenance for BMPs requiring action. Work orders (WOs) for major maintenance and rehabilitation include remedial action lists, site maps annotated with remedial actions, photographs identifying defects, and details and specifications. In addition, enhancement WOs are issued for poorly performing BMPs. BMP maintenance and repair is tracked in the internal NPDES geodatabase to manage activities for progress and cost as well as to aid in forecasting future remediation. Maintenance checklists are available to MDE during field review if requested. **Table 8** summarizes the remedial activities performed during the past two reporting years.

Table 8: BMP Maintenance in FY21/22

Maintenance Type	Pond	Infiltration	Filtering	Other	Total
Preventative	74	-	550	-	624
Minor Repair	35	5	50	9	99
Major Repair	-	-	3	-	3
Rehabilitation	-	-	-	-	-
Enhancement	-	-	-	-	-
Total	**109**	**5**	**603**	**9**	**726**

- Preventative BMP Maintenance – Engineering staff work closely with maintenance staff in coordinating preventative (routine) BMP maintenance. MDTA continually updates stormwater BMP maintenance manuals for each facility and the GIS enterprise. This provides maintenance staff with the current inventory of BMPs for their facility and the typical maintenance activities by BMP type. A sample maintenance manual is provided in **Appendix E**. Maintenance is also performed in accordance with the procedures detailed on MDE-approved plans. Proper techniques will prolong the service life of BMPs, minimize damage, maintain access to critical components (e.g., risers, inflow structures), and reduce the opportunity for invasive or noxious vegetative growth.
- BMP Repair – Minor repairs include phragmites management and WOs for maintenance staff to address minor issues observed during inspections. Major repair and rehabilitation require more significant WOs typically performed by stormwater contractors. Several BMP repairs WOs were prepared in FY22. In FY21/22, inspections revealed a variety of defects requiring action, including
    - 60 BMPs needed phragmites management. These BMPs were sprayed, and the phragmites were mechanically removed.
    - 8 BMPs required vegetation management, such as removing woody vegetation surrounding control structures, trimming unwanted vegetation, and maintaining access to each BMP.
    - 13 BMPs required sediment and debris removal, specifically within their footprints, stone windows, and control structures.
    - 30 BMPs required stabilization, specifically of check dams and side slopes.
    - 20 BMPs required low-flow pipes or underdrains to be cleaned and/or repaired.

The vegetation management, sediment/debris removal, stabilization, and low-flow cleaning and repair work were performed by maintenance staff.

- Drainage Remedial – MDTA identifies, assesses, and mitigates drainage and slope stability issues MDTA-wide. Remedial WOs are prepared to repair or rehabilitate drainage features, and they include an actions list, site maps annotated with defects, site photos of defects, and details/specifications. The NPDES geodatabase tracks remedial activities.

2.E.4 Provide training to stormwater program staff and to staff responsible for proper BMP design, performance, inspection, and routine maintenance. Report the number of trainings offered, topic covered, and number of attendees.

MDTA provides annual or semi-annual training for staff on BMP design, inspections, and maintenance. These trainings were offered on 12/15/2020, 03/04/2021, 04/14/2021, 10/07/2021, 10/28/2021, 11/17/2021, and 12/2/2021. Inspections teams are trained annually. In FY21/22, 43 employees were trained. Additionally, the Drainage Remediation Team also provides WOs to MDTA maintenance staff on smaller, lower priority issues to develop the construction expertise of facility crews.

2.E.5 Maintain and submit the Urban BMP Database in accordance with the database structure in Appendix B, Tables B.1.a, b, and c. This information shall be submitted to MDE with annual reports.

MDTA submitted an Urban BMP Database as part of the impervious area reporting requirements to MDE. This database is derived from MDTA's NPDES geodatabase that includes BMPs, storm drain systems, drainage areas, impervious surfaces, natural resources, asset inspections, and remedial actions to meet MDE's database requirements. MDTA manages spatial and attribute data related to inventory, inspections, remediation, and illicit discharge screening. The geodatabase has tables which link supporting information, such as site photos, defect photos, design documents, and remedial WOs to features. The Drainage Remediation Team uses digital field tools to spot-check and update the database while inspecting drainage investigation sites.

The stormwater data is readily accessible to staff via an enterprise GIS system. This helps information sharing, eliminates multiple versions of the same data, facilitates the decision-making process, and allows additional quality control (QC) procedures to be applied to the data input in the enterprise geodatabase.

MDTA is also using Environmental Systems Research Institute (ESRI)'s ArcGIS Online platform to share data among stormwater-specific staff. This platform offers a user interface, data visualization, and data management. BMP inspection ratings are located on a dashboard. To improve data integrity and efficiency in field collection of data, MDTA uses ESRI's ArcGIS Collector application for BMP inspections and IDDE investigations and Survey123 for SWPPP inspections.

2.E.6 Cost of implementation and summary of activities planned for the next reporting cycle.

MDTA anticipates spending $1,962,000 over the five-year permit term implementing this MCM. Over the next reporting cycle, MDTA will use program funding to continue BMP inspections and maintenance, to update the MDE-required Urban BMP Database, and to train employees in inspections and maintenance.

2.F MCM No. 6 - Pollution Prevention and Good Housekeeping

According to Part IV.F of the Phase II Permit *"Permittees are required to develop and implement an operations and maintenance program that includes a training component to prevent and reduce pollutant runoff from municipal operations in accordance with 40 CFR § 122.34(b)(6)."*

2.F.1 Ensure that appropriate staff and contractors receive training at least annually. Topics must include spill prevention and response, proper disposal of waste, and periodic visual inspections to detect and correct potential discharges at properties owned or operated by the permittee.

MDTA employees are trained annually in spill prevention and response, proper waste disposal, and inspection of discharges during SWPPP training. Committee members and staff at maintenance facilities are trained annually on the SWPPP contents and the procedures for good housekeeping and for routine inspections of their facility. As part of good housekeeping training, MDTA employees learn how to use the EMS and the Enterprise Environmental Information Management System (EEIMS), developed by OEC and OESRM. The compliance-focused EMS was developed as a tracking tool. The EMS manages environmental performance and compliance with environmental regulations. OESRM oversees the EMS program and the EMS compliance audits at maintenance facilities. The EEIMS was created to track and document compliance progress.

The SWPPP training sessions held are shown in **Table 9**. For FY21, 252 completed the training. For FY22, 230 completed the training. Sample training materials used during FY21/22 are provided in **Appendix A**, as they are part of the comprehensive environmental block training discussed in Section **Error! Reference source not found.**. Some training sessions were held a fter the end of each FY but were conducted as part of the prior FY's training cycle.

Table 9: Pollution Prevention and Good Housekeeping Training Sessions during FY21/22

FY21 Training Dates			
5/4/2021	5/7/2021	5/12/2021	5/19/2021
5/27/2021	10/28/2021	11/1/2021	11/2/2021
11/3/2021	11/10/2021 (2 sessions)	11/16/2021	11/18/2021
12/2/2021	12/8/2021	**Total Sessions: 15**	
FY22 Training Dates			
6/3/2022	6/8/2022	6/21/2022	6/28/2022 (2 sessions)
6/30/2022	7/27/2022	8/9/2022	8/10/2022
8/15/2022	8/16/2022	8/18/2022	9/20/2022
9/21/2022 (2 sessions)	**Total Sessions: 15**		

2.F.2 Develop, implement, and maintain a good housekeeping plan for permittee owned or operated properties where any of the following activities is performed: maintenance of vehicles or heavy equipment, and handling of any of the following materials: deicers, anti-icers, fertilizers, pesticides, road maintenance materials such as gravel and sand, or hazardous materials. A standard plan may be created to address multiple properties where similar activities are conducted, provided the below items are addressed. The plan must include a) description of site activities; b) list of potential pollutants including their sources and locations on the site. The plan must consider conveyance of stormwater entering, flowing across, and leaving the site; c) written good housekeeping procedures designed to prevent discharge of pollutants off site that include regular visual inspections to detect potential discharges; d) written procedures for corrective actions to address any release, spill or leak on site and e) documentation for any discharge, release, leak, or spill, including date, findings, and response actions.

Stormwater Pollution Prevention Plans were developed by MDTA for the 11 maintenance facilities covered under the General Permit for Discharges of Stormwater Associated with Industrial Activity (12-SW-A permit). Each plan documents the prevention activities and provides a list of potential pollutants; a map of the storm drainage system, including outfalls; descriptions of the existing BMPs; and recommended good housekeeping activities. The SWPPPs also provide site-specific information such as operating procedures, list pollution prevention committee members and their roles, and provide schedules for site inspections and outfall testing. The SWPPPs are updated annually to reflect changes in the site or operations. In 2016, SWPPP-related documents also were created for the I-95 Chesapeake House and Maryland House travel plazas, although MDTA is not required to have permit coverage for these two sites.

MDTA also conducts routine inspections every quarter and conducts annual comprehensive SWPPP inspections at all maintenance facilities to review the potential pollutant-generating activities, site conditions, and effectiveness of the BMPs. Findings from each quarter's SWPPP inspections are summarized and remedial actions are identified as needed. With the quarterly inspections, issues can be quickly identified and remediated before a larger issue arises. As required by the 12-SW-A Permit, MDTA also performs quarterly visual monitoring at outfalls of the maintenance facilities during a rain event or snowmelt. Examples of a quarterly site assessment form and a quarterly outfall visual monitoring form are provided in Appendix F. These forms are also uploaded to EEIMS. Copies of inspection forms as well as a paper copy of the SWPPP are kept in or near the office of the Chief Facility Maintenance Officer at each facility. These records are also maintained by the Environmental Engineering Division and are readily available in case of a field review by MDE.

MDTA maintains a record of all spills, leaks, discharges, and releases via EEIMS as part of the SWPPP. These spills are also documented on the SWPPP maps. **Table 10** summarizes all accidental releases recorded during FY21/22.

Table 10: Accidental Releases during FY21/22

Property Name	Date	Observations	Response
JFK	8/2/2020	Approximately 900 gallons of gasoline spilled near exit 109 northbound (NB) when a tanker truck overturned.	A plastic cover was placed over the spill site and an absorbent sock was placed around the nearest catch basin. Absorbent socks and mats were placed in the stream on the south side of the spill.
JFK I	10/23/2020	Approximately 40 gallons of diesel was released when a car ran into the side of a tractor in Maryland House parking lot.	The Abingdon Fire Department and Harford County Hazardous Material Management (HAZMAT) responded. Peat moss was placed and later swept up.
JFK I	11/16/2020	Approximately 50 gallons of diesel was released when a box truck leaked onto the roadway at the 43 southbound (SB) off ramp shoulder.	Absorbent was placed to protect the adjacent grass.
JFK	11/22/2020	Approximately 200 gallons of diesel was released when a tractor trailer saddle tank ruptured at the Route 22 exit.	Harford County HAZMAT used sphag-sorb, then MDOT used sand a sweeper truck to secure the spill.
JFK I	2/6/2021	Diesel and oil were released around the NB 85.3- mile marker shoulder on the when a moving truck went through the guard rail.	Booms and absorbent pads were used to soak up the spill. Both MDE and the local fire department/HAZMAT responded.
JFK II	2/9/2021	Approximately 50 gallons of diesel was released into a ditch and the nearby soil when a diesel tank was punctured around mile marker 106.2 shoulder SB.	The remaining fuel was pumped off and absorbent socks/pads were used. Cecil County HAZMAT was deployed.
JFK II	10/4/2021	Approximately 20-30 gallons of diesel were released when a saddle tank leaked onto the roadway and nearby grass swale.	MDE responded to the scene and responders placed sand on the roadway.
JFK I	10/16/2021	Approximately 100 gallons of diesel were released when a tractor trailer overturned, and the tank was punctured.	MDE and HAZMAT responders arrived at the spill. Absorbent barriers and dry absorbent were placed. Affected soil was removed.
JFK I	1/10/2022	Approximately 40 gallons of diesel fuel were released when a vehicle collided with another vehicle and crashed over the guardrail. No waterbodies were affected, though the soil and nearby trees were impacted.	MDE and HAZMAT responders arrived at the spill. Absorbent barriers were placed to prevent the spill from reaching the nearby stream. Saddle tanks were pumped out.
JFK I	3/3/2022	Approximately 30 gallons of diesel were released when a tanker truck	MDE responded and vacuumed up the diesel remaining in the saddle tank.

Property Name	Date	Observations	Response
		saddle tank leaked. There was minor damage to the guardrail.	
ICC E	4/1/2022	Approximately 3 gallons of hydraulic fluid leaked when a bucket truck overturned. No waterbodies, drains, grass or soil were affected. There was minor damage to the guardrail.	Three bags of absorbent were used to clean the spill.
JFK II	4/6/2022	Approximately 60 gallons of diesel and diesel exhaust fluid were released when a saddle tank was punctured after a driver crashed into a ditch. Nearby trees, an electrical pole, and a grass ditch were affected.	MDE and HAZMAT responders arrived at the spill. HAZMAT placed absorbent socks to stop the flow.
JFK II	5/5/2022	Approximately 5 gallons of motor oil were released when a bus oil line leaked into a nearby ditch.	Responders swept the highway and excavated affected soil.
JFK II	5/7/2022	An unknown quantity of diesel and paint were released when a tractor trailer caught fire and leaked.	MDE and HAZMAT responders arrived at the spill.
JFK I	5/9/2022	Approximately 40 gallons of diesel were released when a tractor trailer's saddle tank was punctured by roadway debris. Diesel spilled into a ditch and nearby stream.	MDE and HAZMAT responders arrived at the spill. MDE placed barriers to prevent contamination of surface water. Absorbent was placed and swept onto the contaminated soil for later removal.
JFK I	5/20/2022	Approximately 30 gallons of diesel were released when a dump truck saddle tank fell off as the result of a crash.	MDE and HAZMAT responders arrived at the spill. Absorbent barriers and sand were placed on the roadway. Contaminated material was transported to the Water Tower site and safely stored.

2.F.3 Quantify and report pollution prevention efforts related to the following activities: a) number of miles swept and pounds of material collected from street sweeping and inlet cleaning programs, as applicable; b) good housekeeping methods for pesticide application such as integrated pest management plans or alternative techniques; c) good housekeeping methods for fertilizer application such as chemical storage, landscaping with low maintenance/native species, and application procedures; d) good housekeeping methods for snow and ice control such as use of pretreatment, truck calibration and storage, and salt dome storage and containment; and e) other good housekeeping methods performed by the permittee not listed above.

MDTA has implemented a variety of pollution prevention efforts including:

- **Street Sweeping / Inlet Cleaning –** MDTA conducts street sweeping and inlet cleaning at maintenance facilities and along highways. These activities prevent pollutants from reaching nearby water bodies. Sweeping machines and vacuum

trucks systematically remove sediment and debris, which is then dewatered and temporarily stored at MDTA maintenance facilities before it is hauled off-site for proper disposal.

MDTA prioritizes street sweeping in areas that accumulate high volumes of pollutants such as intersections, exits, and roadway shoulders. Bridges are also given high priority due to the drains and accumulation around barrier walls. Other roadways and parking lots are also swept, though may be swept less frequently than high pollutant potential areas. Some MDTA facilities try to sweep in the evenings when traffic volumes are lower or there are road closures.

Records are kept on the total amount of waste removed. **Table 11** lists the weight of road sweeping debris collected in FY21 and FY22.

Table 11: Summary of Street Sweeping Sediment Disposal for FY21/22

	FY21			FY22		
Facility	**Miles Swept**	**Inlets Cleaned[1]**	**Tons removed[2]**	**Miles Swept**	**Inlets Cleaned[1]**	**Tons removed[2]**
JFK I / N Region	200	-	80	200	-	224
FMT	30	-	310	30	-	317
BHT	70	-	66	70	-	69
ICC	77	-	201	77	-	118
WPL	21	-	8	21	-	20
FSK	41	-	21	41	-	20
Totals:	**439**	**-**	**686**	**439**	**-**	**767**

[1]Inlets cleaned are not tracked separately from street sweeping of roadways. Total tons removed includes debris removed from inlets.

[2] MDTA tracks the mass of sweeper waste removed from both street sweeping and inlet cleaning collectively.

- **Waste Disposal –** MDTA staff deposit waste in the appropriate receptacle (recycling bin or trash can). Housekeeping personnel remove materials from interior receptacles and place them in vendor-provided containers located outside. A vendor collects material from the external containers on each campus. Hazardous waste disposal, including disposal of universal waste, follows the SOPs provided in **Appendix F**. Street sweeping waste is placed into piles or dumpsters at the facilities that store sweeper waste. MDTA's contractor collects a sample for testing from the sweeper waste before its removal. Once the lab data are received, the vendor takes the material to a facility where it is “cleaned” and then recycled or reused.
- **Pesticide and Fertilizer Application -** All MDTA facilities except for WPL and HWN have a current State of Maryland public agency permit to apply pesticides. WPL and HWN currently contract pesticide application services. MDTA has at least one individual who is certified in pesticide application at each of the facilities with a

pesticide permit. **Table 12** lists these employees, and a sample certification is provided in **Appendix F**.

Table 12: MDTA Employees with State of Maryland Pesticide Application Permits

MDTA Facility	Certified Employee
JFK II, W&I, TJH	Jim Grove and Charles Marcum (herbicides only)
JFK I	Ricky Gibson
FSK	John Monk
BHT	Robert Lowe
FMT	Sherri Michael
ICC	Amy Faulk

When applying pesticides, MDTA employs the following procedures:

- Follow instructions on pesticide packaging related to mixing, application, and storage.
- Keep spill kits nearby when transferring or mixing pesticides.
- Keep application equipment clean and free of chemical buildup.
- Apply pesticides only in dry weather.
- Never mix, apply, or store pesticides near a storm drain.

Similarly, MDOT MDTA follows good housekeeping practices when applying fertilizers. These procedures include:

- Follow instructions on fertilizer packaging related to mixing, application, and storage.
- Keep spill kits nearby when transferring or mixing fertilizers.
- Never apply fertilizers to frozen ground.
- Keep application equipment clean and free of chemical buildup.
- Apply fertilizers only in dry weather.
- Never mix, apply, or store fertilizers near a storm drain.

- **Snow and Ice Control** - MDTA follows good housekeeping practices when applying snow and ice control materials. These procedures include:
  - Minimize spills by not overloading salt spreading trucks and equipment.
  - Use the least amount of salt necessary to achieve safe walking/driving conditions.
  - Store salt in a covered dome with barriers blocking the exit to prevent migration of salt outside where it can come into contact with stormwater.

- Establish snow storage areas that are not located near storm drains. Ideal snow storage areas are located on pervious areas where snowmelt can infiltrate.
- Sweep excess salt and sand from paved areas after the last snow.

2.F.4 Submit in the NOI a list of properties owned and operated by the permittee where the activities listed in the MCM are performed and indicate which are covered under the Maryland General Permit for Stormwater Discharges Associated with Industrial Activity. Provide an update in annual reports if the status of industrial activity permit coverage changes for any property.

In December 2014, MDTA submitted an NOI for permit coverage under the reissued 12-SW-A Permit for 10 facilities with maintenance-related activities, except for the ICC West Maintenance Facility, which was submitted in November 2018. MDTA continues to update the SWPPPs for each facility required under this permit, as well as the procedures and processes designed to meet the permit requirements. **Table 13** lists the MDTA facilities with an industrial activity permit.

Table 13: MDTA Facilities with General Industrial Activity Permits (12-SW-A Permit)

Facility	Municipality
I-95 J.F. Kennedy Memorial Highway:	N/A
JFK Maintenance Facility #1	Harford Co.
JFK Maintenance Facility #2	Cecil Co.
Truck Weigh and Inspection Station	Cecil Co.
US-40 Thomas J. Hatem Memorial Bridge – Maintenance Facility	Cecil Co.
I-95 Fort McHenry Tunnel – Maintenance Facility	City of Baltimore
I-895 Baltimore Harbor Tunnel – Maintenance Facility	City of Baltimore
I-695 Francis Scott Key Bridge – Maintenance Facility	Baltimore Co.
US-50 W.P. Lane Memorial (Bay) Bridge – Maintenance Facility	Anne Arundel Co.
US-301 Gov. Harry W. Nice Memorial Bridge – Maintenance Facility	Charles Co.
Intercounty Connector/ MD 200 – East Operations	Prince George's Co.
Intercounty Connector/ MD 200 – West Operations	Montgomery Co.

2.F.5 Cost of implementation

MDTA anticipates spending approximately $857,000 implementing this MCM. MDTA will continue to fund this program in future reporting cycles to provide training to staff, perform good housekeeping practices, and update the SWPPPs.