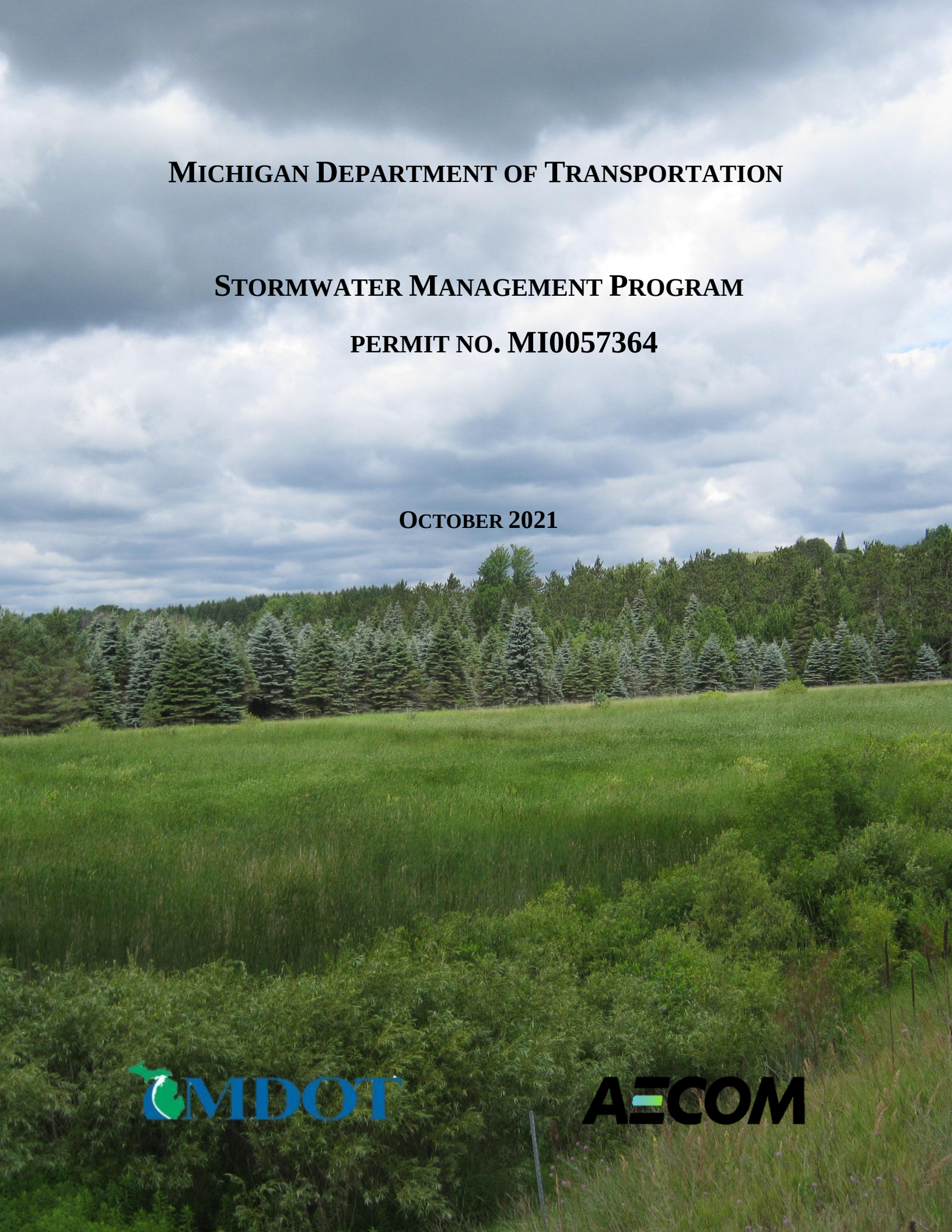

# MICHIGAN DEPARTMENT OF TRANSPORTATION

# STORMWATER MANAGEMENT PROGRAM

## PERMIT NO. MI0057364

**OCTOBER 2021**

# MICHIGAN DEPARTMENT OF TRANSPORTATION

## PHASE II

## STORMWATER MANAGEMENT PROGRAM

## PERMIT NO. MI0057364

**PREPARED BY:**

AECOM

**FOR:**

MDOT
Michigan Department of Transportation

**October 2021**

## Certification Statement

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

Signature

_____

Date

_____

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Title: Stormwater Program Manager, Michigan Department of Transportation

Phone: 517-335-2171

## List of Acronyms

The following acronym list is provided as a comprehensive resource for those reading this plan.

APA – Authorized Public Agency
BMP – Best Management Practice
CEA – County Enforcing Agency
CFR – Code of Federal Regulations
CP – Channel Protection
CWA – Clean Water Act
CPM – Capital Preventative Maintenance
EPA – Environmental Protection Agency
GIS – Geographic Information System
IDEP – Illicit Discharge Elimination Program
MARS – Maintenance Activity Reporting System
MCL – Michigan Compiled Laws
EGLE – Michigan Department of Environment, Great Lakes, and Energy
MDOT – Michigan Department of Transportation
MEA – Municipal Enforcing Agency
MEP – Maximum Extent Practicable
MPO – Metropolitan Planning Organization
MS4 – Municipal Separate Storm Sewer System
NA – Not Applicable
NPDES – National Pollutant Discharge Elimination System
NREPA – Natural Resources and Environmental Protection Act
O&M – Operation and Maintenance
PA – Public Act
PC-BMP – Post-Construction Best Management Practice
PEAS - Pollution Emergency Alerting System
PEP – Public Education Plan
PIPP – Pollution Incidence Prevention Plan
PSD – Point Source Discharge
ROW – Right-of-Way
SESC – Soil Erosion and Sedimentation Control
SEMCOG – Southeast Michigan Council of Governments
SMP – Stormwater Management Program
SPPI – Stormwater Pollution Prevention Initiative
TMDL – Total Maximum Daily Load
TSC – Transportation Service Center
UA – Urbanized Area
USEPA – United States Environmental Protection Agency
WQ – Water Quality
QA/QC – Quality Assurance/Quality Control

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H. Environmental Emergency Spill Response Guidance Document

# 1. Overview of the Stormwater Management Program

## 1.1 Purpose

The mission of the Michigan Department of Transportation (MDOT) is to "Provide the highest quality integrated transportation services for economic benefit and improved quality of life." This mission involves planning, designing, constructing, and maintaining large-scale transportation facilities (e.g., freeways, highways, interchanges, bridges, and tunnels). MDOT has the responsibility to accomplish this mission in compliance with public policy and applicable regulations.

A National Pollutant Discharge Elimination System (NPDES) Permit (No. **MI0057364**, hereinafter referred to as the Permit) issued by Michigan Department of Environment, Great Lakes, and Energy (EGLE) to the department for MDOT operated separate stormwater drainage systems throughout the State of Michigan took effect on November 1, 2021. The statewide permit supersedes individual stormwater permits for cities in the state of Michigan. The Permit will expire on October 1, 2026 and is expected to be reissued in five-year cycles thereafter. This document describes the specific actions that MDOT is taking to comply with the Permit. A copy of the current Permit is included in **Appendix A**.

The Permit directs MDOT to develop and implement a stormwater management program designed to reduce the discharge of pollutants from the MDOT drainage systems to the maximum extent practicable (MEP), to protect the designated uses of the waters of the state, to protect water quality, and to satisfy the applicable state and federal water quality requirements. This Stormwater Management Program (SMP) establishes the foundation on which MDOT will continue to build as best management practices are identified and implemented. The Department will assess and report annually on the effectiveness of the program activities, recommend enhancements to the program and implement changes as necessary to ensure continued permit compliance.

All Permit-related correspondence from the EGLE is to be directed to the MDOT Stormwater Program Manager. The Region Stormwater Coordinator for the region in which the correspondence applies must be copied. The MDOT Stormwater Program Manager will ensure that other interested parties within MDOT are copied with pertinent information. In the same fashion, correspondence related to the Permit from the Region Stormwater Coordinators will be directed to the EGLE District contact person as noted in the Permit with a copy sent to the MDOT Stormwater Program Manager. Under no circumstance should correspondence pertaining to the Permit be sent directly to a contractor, contract agency or consultant working for MDOT in any capacity related to the Permit.

## 1.2 Scope

This SMP describes the procedures and practices MDOT currently uses throughout the planning, design, construction, operation, and maintenance process to limit the discharge of pollutants from its stormwater drainage systems. It also documents the commitment by MDOT to develop and implement additional stormwater management procedures and practices to comply with each of the six minimum measures stated in the Permit (hereinafter referred to as measures). Newly developed procedures will be available for EGLE review as part of the annual reporting process. The six measures are:

- Education and outreach on stormwater impacts- public education program (PEP)
- Public involvement/participation
- Illicit discharge elimination program (IDEP)
- Post construction stormwater management program for new development and redevelopment projects
- Construction stormwater runoff control
- Pollution prevention/good housekeeping for MDOT operations

This plan presents a discussion of each of these measures supported by multiple activities currently taking place or to be implemented during the five-year permit cycle. Due to the similarities in application of the first two measures, they are combined under a single Public Education, Outreach and Participation discussion.

It should be noted that although MDOT is only required to adhere to the permit conditions in urban areas, the department has made a commitment to apply the conditions of the permit on a statewide basis. This will allow MDOT and those working within its jurisdiction, to apply consistent stormwater objectives throughout our projects while providing an enhanced environmental benefit to the residents of the state.

Specific information on each activity such as overall objective, specific actions, timeframe for implementation, and the expected measurable goals can be found in **Section 3** and **Appendix B**. Some activities are tailored to meet the requirements of a single plan element while others play a role in multiple plan elements. As part of MDOT's previous permit several activities are ongoing or are continuous in nature. These activities/tasks will continue and are therefore incorporated into the activities discussed in this SMP.

## 1.3 MDOT Facilities and Separate Stormwater Systems

MDOT's facilities are located in diverse settings, ranging from highly urbanized to very rural, including Great Lakes coastal areas, forests, and farmland. Urbanized areas are defined by the U.S. Census Bureau as areas of 50,000 or more people, while urban clusters have between 2,500 and 50,000 people. The urban areas and clusters in the state of Michigan are shown in **Figure 1-1**.

Across the state of Michigan, MDOT operates and maintains approximately 9,700 miles of state trunkline, 5,892 highway, railroad, and pedestrian bridges, 4 state-owned airports, 7 region offices; 83 rest areas, 14 of which are welcome centers; 109 roadside parks; 21 transportation service centers; and 45 maintenance facilities, some of which house special crews and repair facilities in support of maintenance operations. Drainage systems that serve MDOT properties and facilities ultimately discharge stormwater and permitted or exempt non-stormwater to waters of the state**. Figure 1-2** shows MDOT Regions, rest areas, welcome centers, TSC and Region office locations, maintenance facilities and other miscellaneous MDOT owned facilities including roadside parks, scenic turnouts, public parking lots, salt storage, and storage buildings. Maintenance facilities are the location of MDOT's salt storage, vehicle storage and maintenance yards in addition to bus stations and garages.

To protect public safety and prevent property damage, MDOT designs and operates its stormwater drainage systems to prevent standing water on traveled areas. Highways in urban settings typically have curbs and gutters that direct stormwater runoff to enclosed drainage systems, whereas stormwater from rural freeways and highways typically flow to drainage ditches and swales.

Where stormwater runoff drains from off-site areas onto MDOT's right-of-way or MDOT facility sites, the MDOT-operated drainage systems are designed to convey this additional stormwater. In urban areas, some drainage systems outlet directly to receiving waters, while others discharge to municipal storm drainage systems. In many locations, waters of the state pass through or under MDOT property or facilities. These waters may contain pollutants at the point at which they enter MDOT property or facilities. In these circumstances, MDOT is not responsible for pollutants that enter onto MDOT's properties.

MDOT is the sole operator of its stormwater drainage system. MDOT contracts out many routine maintenance operations to County Road Commissions and local municipalities and may rely on those contracts for certain maintenance services. Information is currently available for all work done by MDOT forces and work performed by a contractor or vendor.

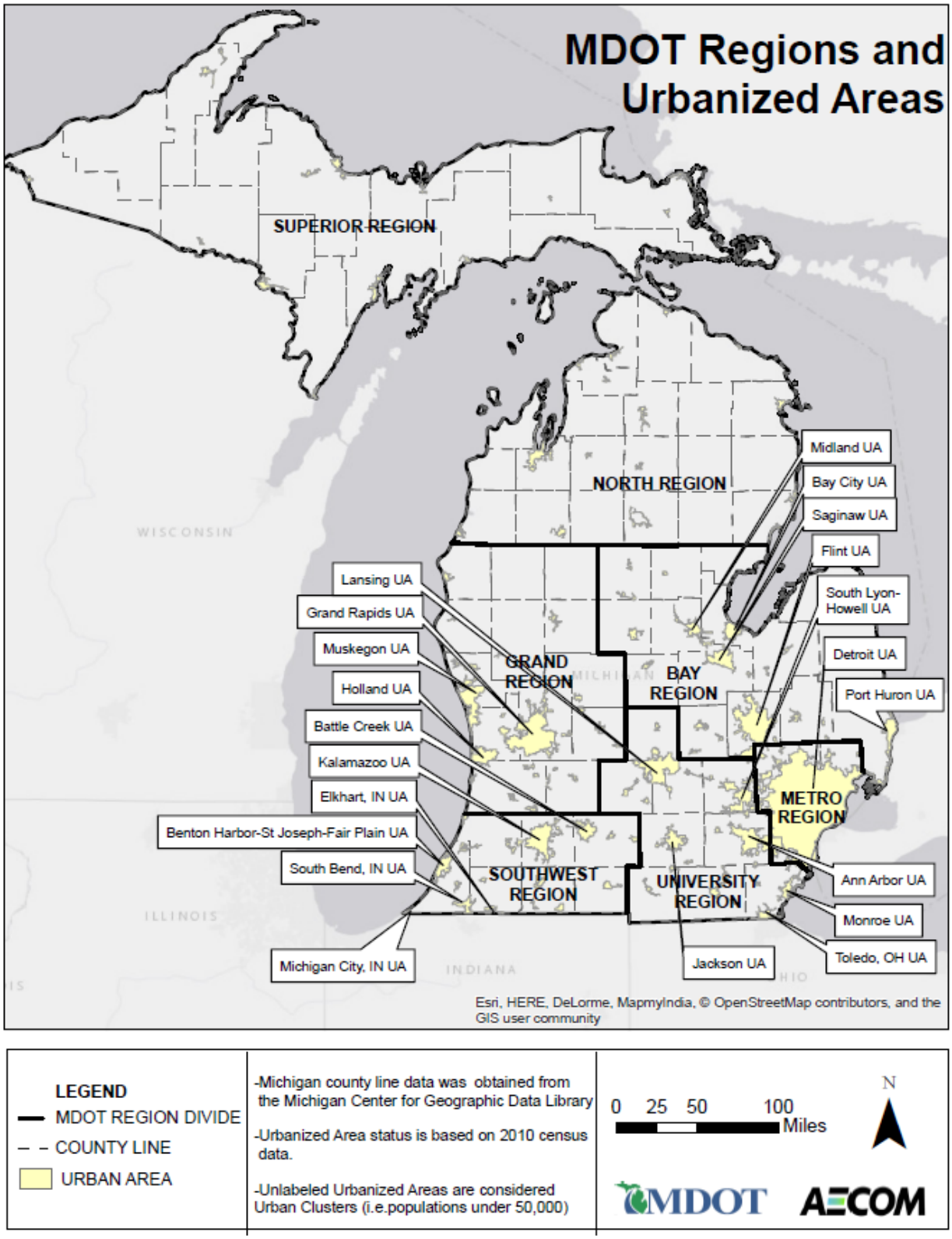


**Figure 1-1 MDOT Regions and Urbanized Areas**

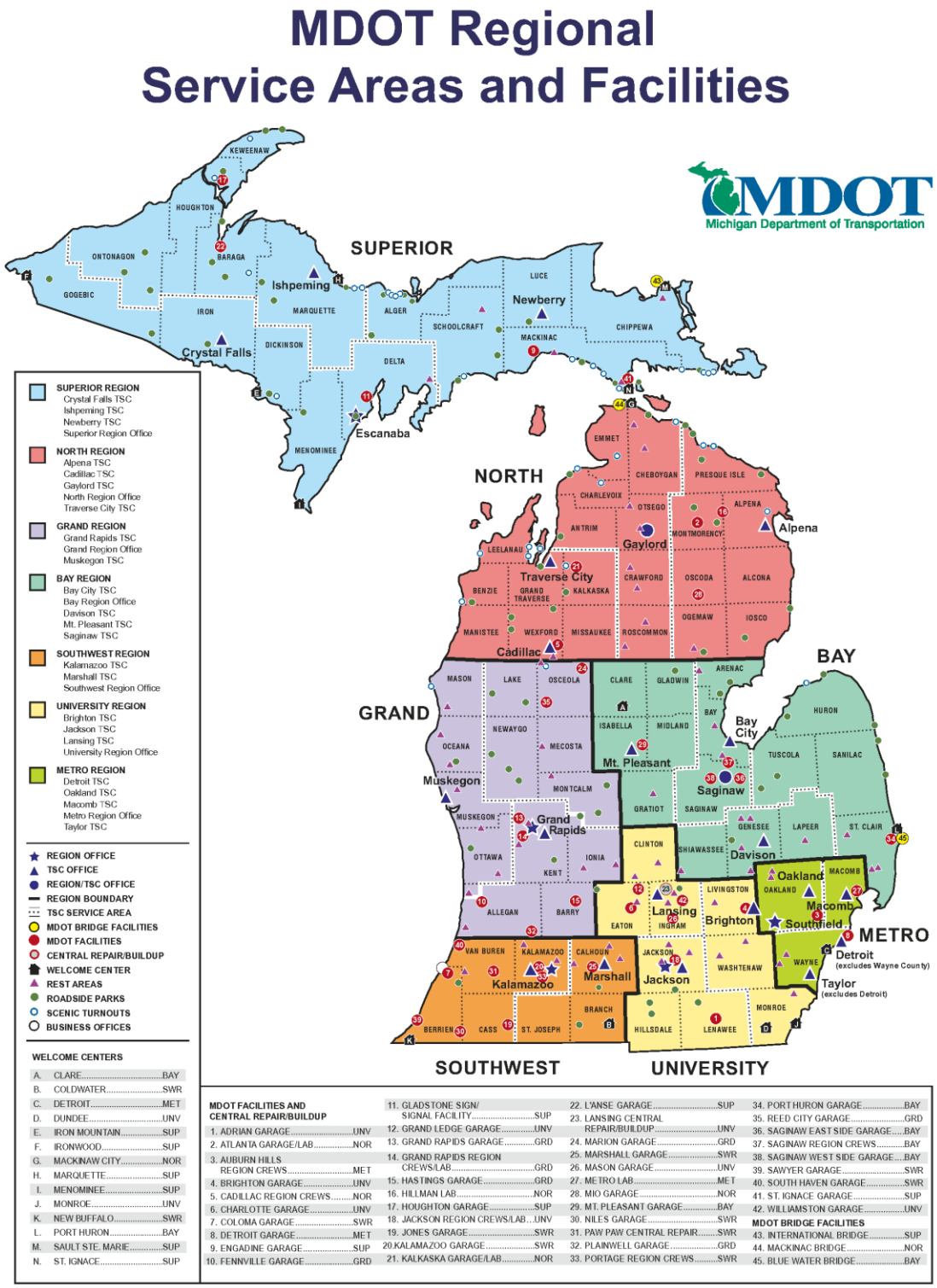


**Figure 1-2 MDOT Service Areas and Facilities**

## 1.4 MDOT Staff Responsibilities for Stormwater Management

The Environmental Committee is MDOT's principal body approving statewide guidance on environmental issues, actions, and related matters. The Environmental Committee's mission is to ensure that MDOT complies with environmental laws in a focused, effective fashion and to foster an environmental ethic throughout the Department. As necessary, the Environmental Committee will take policy and technical issues impacting transportation engineering to the MDOT Engineering Operations Committee for discussion and action. Sub committees and teams have been established, by focus area, to provide environmental analysis and to recommend a course of action for Environmental Committee consideration. The Stormwater Steering Committee (SSC), chaired by the Environmental Field Services Engineer, is one such technical committee. The Environmental Field Services Engineer functions as the Department's environmental advocate for all highway operations, is a member of the Environmental Committee, and is the liaison between all environmental technical teams and Environmental Committee. Additionally, the Environmental Field Services Engineer is the project manager for the stormwater management program.

The SSC will provide continuing oversight for the stormwater program and will participate in the annual analysis of program effectiveness and continued enhancement to the program. The committee consists of members from MDOT regions and central office representing all major operational and planning groups within the Department. This team provides technical input for MDOT stormwater management issues, while the Region Stormwater Coordinators serve as educators and resources to their region. SSC Team makeup is shown in **Table 1**.

**Table 1 MDOT SSC Organization**

| Title or Position | Section or Unit | Organization |
|---|---|---|
| Stormwater Program Manager | Environmental Services | Bureau of Development |
| Compliance & Mitigation Unit Supervisor | Environmental Services Section | Bureau of Development |
| Hydraulics Unit Supervisor | Environmental Services | Bureau of Development |
| Maintenance Services Section Supervisor | Transportation Systems Management Operations | Bureau of Field Services |
| Grading and Drainage Engineer | Construction Operations | Bureau of Field Services |
| Region Development Engineer | Region | Representing All Regions |
| Region Delivery Engineer | Region | Representing All Regions |
| Region Resource Staff | Region | Representing All Regions |
| TSC Manager | Region | Representing All Regions |
| Bridge representative | Bridge Design | Bureau of Bridges and Structures |

Additionally, the MDOT Stormwater Program Manager must receive all Permit-related correspondence from the EGLE. The Region Stormwater Coordinator for the region in which the correspondence applies must be copied. The MDOT Stormwater Program Manager will ensure that other interested parties within MDOT are copied with pertinent information. In the same fashion, correspondence related to the Permit from the Region

Stormwater Coordinators will be directed to the EGLE District contact person as noted in the Permit with a copy sent to the MDOT Stormwater Program Manager. Under no circumstance should correspondence pertaining to the Permit be sent directly to a contractor, contract agency, or consultant working for MDOT in any capacity related to the Permit.

## 1.5 Legal Authority

MDOT derives its legal authority to regulate and/or prohibit direct discharges from Michigan statute Act 51 of 1951. Penalties MDOT may invoke are stated in Section 2, Section 4, and Section 9 of Michigan statute MCL 247.172. Rule 247.224(f) allows altered natural drainage to the highway right of way under certain conditions.

MDOT's legal authority extends only to the limits of the right-of-way (ROW) owned by MDOT. Section 1506.21 of the Construction Permit Manual, *Drainage Systems*, provides the process for controlling connections to the MDOT storm sewer system. To receive a drainage connection permit to access the MDOT drainage system, the applicant must certify that:

- The release rate from the proposed drainage system is discharged at a flow rate equal to or less than the existing flow rate.
- The velocity of the discharge is properly dissipated prior to entering the MDOT system.
- There exists sufficient storage on the permit applicant's property for the range of flows required to be analyzed, so that no harmful interference to MDOT ROW or adjacent properties will occur.
- The design includes any control measures necessary to prevent discharge to MDOT's stormwater system of any substances that are not allowed in the system under MDOT's NPDES permit.

Section 1512.71 of the Construction Permit Manual, *Illicit Discharge Elimination Program*, relies on PA 368 of 1925, Highway Obstructions and Encroachments, for the legal authority to remove illicit connections and discharges within the MDOT ROW. Upon notification or discovery of a possible illicit connection, MDOT will coordinate with local and state agencies, which have legal enforcement authority to eliminate illicit discharges originating from outside of the MDOT owned ROW. Refer to Section 3.5 for a description of MDOT's illicit discharge reporting and notification procedure.

MDOT budgets are legislatively approved on an annual basis. MDOT relies heavily on federal funds in budgeting monies for proposed projects, however these funds cannot be used for maintenance. Therefore, full implementation of the SMP within projected timeframes is highly dependent on budget approval and funding appropriations by the Michigan and federal legislatures.

## 1.6 Related MDOT Documents

An important function of the SMP and MDOT's overall Stormwater Management Program is to ensure that those who direct and perform activities that may affect the quality of stormwater system discharges are aware of their respective roles and responsibilities. Detailed guidance and requirements needed by personnel whose daily activities may have an impact on stormwater quality are found in a variety of other MDOT documents.

If information, direction, or procedures related to stormwater management contained in these related documents is less restrictive than the Permit, then the requirements of the Permit will prevail.

Due to the volume of information necessary for MDOT to carry out its mission and the need to stay current with changing laws, rules and engineering technology, no attempt is made to reproduce all related MDOT documents in this manual. Where reference is made to related MDOT procedures and publications, the portion of those documents that address stormwater management are included as if they were repeated here in their totality. Where practical, cross references are specifically listed in this plan.

Current versions of the referenced documents are available to the public for viewing and downloading at the addresses below. Copies of related internal guidance documents will be provided upon request.

Printed copies of the following material may be available for purchase from the MDOT Publications Office (517-636-0650 or MDOT-Publications@michigan.gov) and most can be viewed and downloaded from the MDOT Website. These documents are updated as new standards and procedures are developed.

At a minimum, the following MDOT documents contain specifications, standards and/or practices related to the stormwater management program and are referenced herein.

**MDOT Standard Specifications for Construction** - Contains the current written directions, provisions & requirements pertaining to performance of work on MDOT projects. It is the base document controlling a project. The standard specifications may be modified by supplemental specifications and special provisions contained in the contract documents.

- Section 107 Legal Relations and Responsibilities to the Public
- Section 208 Soil Erosion and Sedimentation Control
- Division 4 Drainage Features
- Section 813 Slope Protection
- Section 816 Turf Establishment
- Section 916 Erosion Control Materials
- Section 917 Turf and Landscape Materials

**Road Design Manual** - Provides criteria for the design of roads and for the preparation of road plans.

- Subsection 2.02.03 F Erosion Control
- Chapter 4 Drainage
- Subsection 5.08 Types of ROW easements for Conveyance for Drainage
- Subsection 10.04 Environmental Design Considerations

**Drainage Manual** - Gives the design engineer a basic working knowledge of hydrology, hydraulics, and stormwater management. The manual addresses stormwater quantity as well as quality. While this entire manual is germane to the issue of stormwater management, the following chapters have direct relationship to the department's stormwater management program.

- Chapter 4 Natural Channel and Roadside Ditches

- Chapter 7 Road Storm Drainage Systems
- Chapter 8 Stormwater Storage Facilities
- Chapter 9 Stormwater Best Management Practices

**Post-Construction Stormwater BMP Design Guide**
This manual will supplement the information in Chapter 9 of the Drainage Manual for post construction BMPs. It is expected that this manual will be developed during the current permit cycle to provide design assistance and guidance on meeting the requirements of the permit.

**Soil Erosion and Sedimentation Control Manual** - Includes the procedures for establishing soil erosion and sedimentation controls for earth changing activities regulated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended, (NREPA) and Part 91, Soil Erosion and Sedimentation Control, of NREPA resulting from the construction and operation of the state transportation system. MDOT is committed to the careful consideration of these procedures during the planning, design and completion of all activities that involve earth change activities.

The Soil Erosion and Sedimentation Control (SESC) program is directly related to the MDOT Stormwater Management Program as one of the minimum measures required for compliance with the statewide permit issued to MDOT under Part 31 of NREPA, and Part 41, Sewer and Wastewater Systems, of NREPA.

**Construction Manual** - Guide detailing the authority and responsibility for project administration. The manual provides instructions on project management, construction surveying, construction inspection and materials sampling.

- Section 208 Soil Erosion and Sedimentation Control
- Section 402 Storm Sewers

**Construction Permit Manual** (Link is for internal MDOT use only) - Contains the procedures for administering the permit process for public utility or private party work on, or use of, the trunkline right of way within the provisions of federal and state laws. Section 1512.71 addresses the procedure for identifying and removing an illicit discharge/connection from the state right of way. Section 1506.21 addresses tap-in/discharge permit requirements and MDOT's legal obligation to address quantity and quality of stormwater runoff according to Administrative Rules Regulating Driveways, Banners and Parades on or Over Highways, Public Act 200 of 1969, and the Clean Water Act and Part 31 of NREPA, respectively.

- Section 1512.17 Illicit Discharge Elimination Program
- Section 1506.21 Drainage Systems

**Maintenance Activity Guides** (Link is for internal MDOT use only)- Describes the equipment, materials, and recommended work methods for various maintenance activities.

**Pollution Incident Prevention Plan (PIPP) for MDOT and County facilities** - Provides a plan for maintenance facility staff to follow regarding pollution incident prevention measures and emergency spill procedures. Each plan is specific to a given MDOT facility or county facility. Representative examples of

PIPPs prepared for a MDOT facility and for one of the counties under contract to provide maintenance services for the department are included in **Appendix D**.

**Bridge Design Manual** **-** Provides criteria for the design of bridges and the preparation of bridge plans.

**Bridge Design Guides** – Provides guidance for the designing and detailing of bridges in Michigan Standard drawings related to bridge design to be included in plans.

**Supplemental Specifications/Special Provisions** - Detailed specifications that add to or supersede the standard specifications.

## 1.7 Emergency Response and Discharge Notification Requirements

In accordance with Part 31 of Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA), MDOT will notify EGLE, verbally through the MDOT Region Stormwater Coordinator, within 24 hours of becoming aware of any discharges to the drainage system that MDOT suspects is likely to impact surface water or has already impacted surface water, including illegal spills and dumping. MDOT will make every attempt to notify a live person at the applicable EGLE District Office including pressing '0' for the EGLE operator.

Notification must include the name of the regulated discharger (if known), location of the discharge into the stormwater drainage system and location of the outfall from that portion of the system, nature of the discharge and pollutants, and clean-up and recovery measures taken or planned. If the notice is provided outside of regular working hours, MDOT will call the EGLE 24-hour Pollution Emergency Alerting System (PEAS) at **1-800-292-4706**. If the discharge does not pose imminent danger to health or the environment, MDOT will report either verbally or in writing within five days of the time MDOT becomes aware of the discharge. The elimination of an illicit discharge will be coordinated in accordance with the approved work plan. A work plan will be begun within two weeks of the illicit discovery and sent to EGLE for approval upon completion. Estimated time for eliminating illicit connections and discharges range from 30-180 days, depending on the complexity of the situation.

# 2. Stormwater Best Management Practices

## 2.1 Introduction

MDOT's stormwater management program includes implementation of best management practices (BMPs) to comply with each of the minimum measures. BMPs include organizational/administrative processes; nonstructural practices and structural controls that are applied to the design, construction, operation, and maintenance of MDOT's transportation infrastructure. This chapter discusses how the state of the science has evolved with each of these three categories of best management practices.

### 2.1.1 Stormwater Quality Issues

It is important to acknowledge why stormwater management is necessary state of Michigan. Surface waters of the state are utilized for a variety of purposes and many of these uses contribute to water body impairments. Best management practices help mitigate impairments by reducing the pollutant loads which ultimately reach water bodies.

**Designated Uses –** Waters of the state are protected for certain designated uses as set forth in Part 31 of NREPA. Specifically, R323.1100 of the Michigan Administrative Code states that all surface water bodies shall be protected for the following minimum designated uses:

- Agriculture
- Navigation
- Industrial water supply
- Public water supply at the point of intake
- Warm water fishery
- Other indigenous aquatic life and wildlife
- Partial body contact recreation
- Total body contact recreation between May 1 and October 31

Certain waterways are additionally designated and, therefore, protected for use as a cold-water fishery.

**Impaired Uses -** Impaired uses occur where water bodies are not meeting state water quality standards. These water bodies are considered to have non-attainment status and are listed in the state of Michigan's EGLE website for Michigan's list of impaired water bodies. State and federal law require the development of Total Maximum Daily Load (TMDL) allocations for 303(d)-listed water bodies**.** Development of a TMDL by EGLE requires that a plan be developed to mitigate the specific pollutants which cause the listing and non-attainment of water quality standards at the source. **Figure 2-1** displays the extent of impaired water bodies in the state of Michigan.

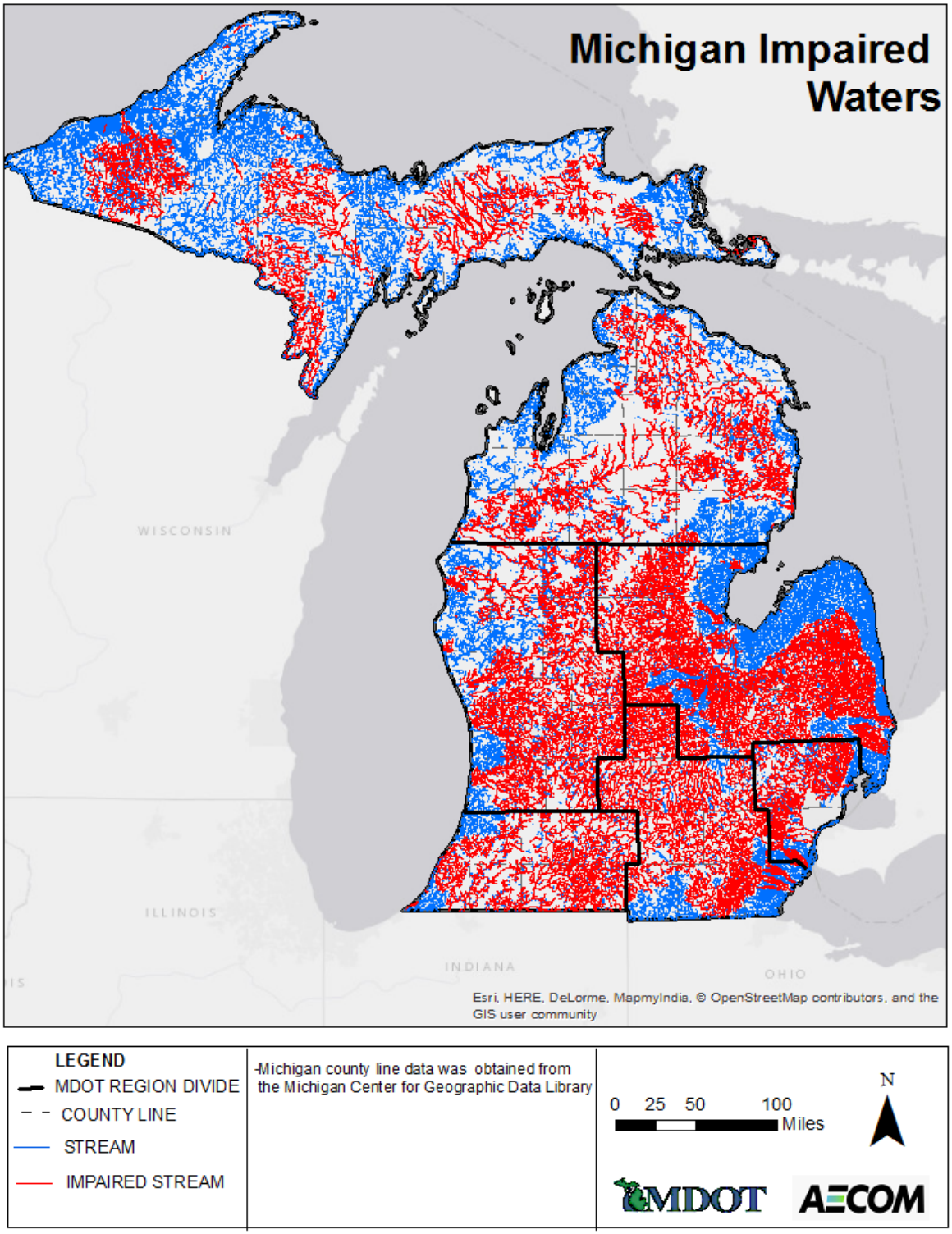


**Figure 2-1 Impaired waters of the state**

## 2.2 State of the Science

The engineering and science supporting stormwater management is evolving to meet stricter and more robust water quality and quantity goals. Along with these changes, new terminology has been introduced and adopted by the stormwater management community. Best management practices, Low Impact Development (LID), Green Infrastructure and Alternative Stormwater Management are all terms used to express approaches to stormwater management. They are components of a broader community of watershed-based efforts.

The term best management practices can be further divided between structural, non-structural, and organizational practices. Structural BMPs are physically constructed controls that may remove pollutants from runoff, limit the rate of runoff, prevent contact between runoff and pollutants, and stabilize pollutants. Structural BMPs include temporary and permanent BMPs. Nonstructural BMPs are preventative actions that involve managerial planning and source controls. For example, street sweeping, and pesticide management are examples of nonstructural BMPs that reduce pollutant loads entering water bodies. Organizational BMPs include processes and procedures, such as, audits and approvals that result in a reduction in pollutant loads to water bodies. An example of an organizational BMP would be an inspection or audit program that monitored activities or structural BMPs for condition and level of service.

Organizational BMPs include actions taken by MDOT to provide leadership support and resources needed to meet the goals of this plan. Providing continued support for staff involvement on the SSC Committee; establishing consultant contracts to provide technical resources where necessary; maintaining the Environmental Field Services Engineer position within the Bureau of Development with primary responsibility for the Stormwater Management Program; and the management level Environmental Committee with its associated technical groups are examples of organizational BMPs. MDOT will continue to evaluate and adopt Organizational BMPs.

## 2.3 Preparation and Ongoing Planning

The first phase of the stormwater management program cycle is identifying what changes are required within the MDOT organization, including revisions to MDOT manuals, contracts, operating procedures, and other legal documents, to ensure compliance with the Permit. MDOT has established several internal workgroups responsible for developing and implementing the program changes required to comply with the Permit.

<u>Environmental Operations Committee (EOC)</u>
Provides design guidance for the department.

<u>Environmental Committee (EC)</u>
Principal body for approving statewide guidance on environmental issues.

<u>Stormwater Steering Committee (SSC)</u>
Addresses issues with Stormwater Program Management.

<u>Construction Environmental Team (CET)</u>
Addresses environmental issues related to construction.

<u>Hazardous Materials/Environmental Safety Team (HMEST)</u>
Addresses issues regarding the storage and use of hazardous materials and environmental safety practices.

Maintenance Environmental Team (MET)
Addresses environmental issues related to maintenance.

Joint Agency Transportation Committee (JATC)
Addresses interdepartmental issues on transportation related issues.

Roadside Committee (RC)
Addresses issues related to roadside activities.

## 2.4 Program Implementation

The second phase of the stormwater management program cycle consists of initiating the SMP activities developed or updated during the program planning phase. Lessons learned and measurable results of the SMP are compiled during the program implementation phase.

## 2.5 Assessment of Effectiveness

The third phase of the stormwater management program cycle involves an assessment of the plan and the overall program, including a discussion of strengths and weaknesses of BMPs, examination of survey results from training modules, and analysis of operating procedures. All BMPs and related objectives and goals from Chapter 3 will be reviewed annually. The results of the annual assessment will be presented in the progress reports required by the Permit.

The reports will describe the status of compliance with Permit requirements including a report of illicit discharges and illicit connections removed, an assessment of the appropriateness of BMPs, and a report of the progress of achieving the identified interim milestones, and measurable goals established for the cycle.

Updates to MDOT's SMP may be distributed annually to MDOT SMP holders as necessary. Modifications to the SMP may include updated measurable goals and interim milestones, activities, and procedures. A revised version of the entire SMP may be drafted every three to five years.

### 2.5.1 Program Enhancement

The results of the effectiveness assessment will be used to identify opportunities for enhancing the program and to better define interim milestones and measurable goals. As new tools are developed for managing stormwater discharges in accordance with the Permit, they will be incorporated into this plan, added to job-related training materials and implemented across the organization. Program enhancement details will be included in the reporting process providing a mechanism to monitor and document results of the adopted process.

## 2.6 Structural and Nonstructural BMP Adoption Procedure

Structural, nonstructural, and operational BMPs that have been in use by MDOT for many years are detailed in the Maintenance Activity Guides, the Drainage Manual and the SESC Manual. These publications include guidance on the specific application, design, and implementation of the BMPs.

In 1999, the department undertook an investigation of best management practices implemented by other departments of transportation to develop a benchmark against which to evaluate current and recommended BMPs at MDOT. The result was the development of a process by which MDOT will continue to assess

appropriate best management practices, determine which may be applicable to each of the minimum measures required by the Permit; and to document the overall effectiveness or environmental benefit for each practice within the constraints of the Permit.

The first step in the approval process is to determine what changes are needed and conduct the necessary research on the subject. Any MDOT employee may request that the SSC Team evaluate a BMP. The SSC Team will determine the appropriate area of responsibility within MDOT to evaluate the feasibility and effectiveness of the measure in meeting the goals of the stormwater management program. The SSC Team will assist with identifying the appropriate area of responsibility and will be responsible for advancing any BMP submitted from an outside agency.

Once submitted, the practice will be reviewed by the appropriate environmental technical team and/or individual(s) with technical expertise in the area of responsibility. Field evaluation may be required, and a pilot project may be undertaken to assist in the evaluation. If the practice is found to represent a feasible BMP for meeting the goals of the SMP, the stormwater program manager will request approval by the EC. The EC will advance the proposed BMP to the EOC for consideration and approval. As necessary, the various MDOT manuals, guides and specifications will be revised to incorporate newly adopted BMPs following the established schedule for review and update.

Once approved for implementation, selection of specific structural and nonstructural BMPs to cost-effectively reduce pollutant loadings on individual projects will follow procedures established in the appropriate MDOT manual.

# 3. Plan Elements and Activities

## 3.1 Overview

This chapter describes actions MDOT will take to fulfill the Permit requirements that are intended to be implemented over the 5-year permit cycle. The activities are organized into groups based on the minimal control measures: Public Education/Outreach (Education), Public Involvement and Participation (Public Involvement), Illicit Discharge Elimination Program (IDEP), Post Construction Stormwater Management Program for New Development and Redevelopment Projects (Post-Construction), Construction Stormwater Runoff Control (Construction), Pollution Prevention/Good Housekeeping for Municipal Operations (Pollution Prevention). One activity applies to the reporting of all other activities and has been given its own group (Administration). Several of the activities fulfill more than one of the Permit requirements.

Detailed descriptions of each activity including measurable goals, schedules, and measures of assessments are provided in **Appendix B**.

## 3.2 Administration

All activities outlined in the Stormwater Management Program will be documented in the reports required by the Permit.

### 3.2.1 Activity Administration 1: Biennial Reporting

This activity addresses the stormwater reporting requirements of the Permit. Biennial reports will be reviewed as part of the comprehensive evaluation of the stormwater management program.

## 3.3 Public Education Program

The Permit defines “Public” as all persons who could potentially affect the quality of stormwater discharges including, but not limited to, residents, visitors to the area, public employees, businesses, industries, and construction contractors and developers. MDOT will strive to participate in 2 public outreach opportunities annually and promote stormwater management on its website and social media platforms.

Stormwater-related public involvement issues can be addressed on a project specific basis through MDOT’s public involvement process and project planning stages.

The Permit defines "Job-Related Public" as MDOT employees and contractors in design, construction, and maintenance activities, who potentially could affect the quality of stormwater discharges through their job-related activities.

MDOT participates in five Public Education, Outreach and Participation (PEP) topics, as described in the Permit. The following list is presented in order of priority ranking (i.e. 1= highest priority). MDOT’s participation in these topics are described in Sections 3.3.1-3.3.4.

1. Promote public responsibility and watershed stewardship
2. Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state
3. Educate the public on illicit discharges and promote public reporting of illicit discharges and improper

disposal of materials into the MS4
4. Educate the public on, and promote the benefits of, green infrastructure and Low Impact Development
5. Identify and educate commercial, industrial, and institutional entities likely to contribute pollutants to stormwater runoff

MDOT will encourage the job-related public to be good stewards of their watersheds and understand the ultimate outfall and discharge points and potential impacts of stormwater. Although not specific activities, MDOT will continue to encourage participation in the Adopt-A-Highway litter pick-up program and Adopt-A-Landscape program.

Refer to **Appendix B** for further details on activities related to the PEP.

### 3.3.1 Activity Education 1: Stormwater Intranet Site Development

MDOT has established a stormwater intranet site for internal staff to use. The site provides information on procedures and design criteria that employees working within the parameters of the Permit can use. Changes to the site will be promoted to the job-related public on various MDOT platforms.

### 3.3.2 Activity Education 2: Stormwater Management Website

The MDOT Stormwater Management Website provides a host of useful information on stormwater and watershed stewardship for the job-related and general public. The information on the website will be maintained and updated on an ongoing basis. Changes to the website will be promoted to both job-related and the general public at various conferences and transportation events.

### 3.3.3 Activity Education 3: Stormwater Management Educational Brochures

Stormwater management brochures are currently distributed at various events MDOT participates in. Brochures include information on illicit discharge reporting and watershed stewardship. These materials will be updated and distributed. Copies of the latest version of the brochures will be available on the MDOT stormwater website.

### 3.3.4 Activity Education 4: Educational Materials for Tap-In Discharge Permits

Any individual, organization, business, or local agency constructing a driveway or tapping into the existing MDOT separate stormwater drainage system is required to obtain a permit from MDOT prior to beginning work. MDOT requires that drainage conveyed to its system not exceed pre-project runoff rates. MDOT provides pollution prevention and good housekeeping information to persons applying to use MDOT drainage systems but will not evaluate this contributed runoff for water quality. Authorizations to utilize MDOT drainage systems specifically forbid any discharge that is in violation of its NPDES permit.

MDOT has developed educational materials that are being provided to applicants seeking tap-in/discharge permits for accessing MDOT's drainage system. This includes Form 3718 that is given to applicants with approved hydraulic connection permits. The checklist for accessing state trunklines, Form 2484, contains a link to the MDOT stormwater site. This material focuses on prohibiting the occurrence of illicit connections into MDOT's system and includes information describing an illicit discharge/connection and reporting/contact information.

Section 1506.21 of the Construction Permit Manual (CPM) details requirements for issuing a tap-in/discharge permit. According to Section 1506.21 of the CPM, the applicant is responsible for ensuring that any discharge

to MDOT's drainage system will not cause a violation of MDOT's NPDES stormwater discharge permit. MDOT has the legal authority to inspect within their ROW according to Section 1512.71 of the Construction Permit Manual if an illicit discharge/connection is suspected.

### 3.3.5 Activity Education 5: Training Modules

MDOT keeps the job-related public informed through training. Initial training on MDOT's MS4 program is provided for new staff as part of the on-boarding experience. Refresher training is provided to appropriate staff every three years. Training refreshers will also be required when policies and procedures are updated or in response to program evaluation findings. Appropriate staff includes, but is not limited to, staff or a representative that may have the opportunity to identify illicit discharges and connections in day-to-day activities, staff or a representative that have the opportunity to identify cross connections and drainage issues in processes such as plan review, design engineers, and municipal officials who oversee IDEP related work.

Training is presented to relevant employees in the form of modules. Each module is 15 minutes in length with a 15-minute question and answer session following. The number of sessions presented, dates, employees in attendance, and their work area are recorded. All new employees are required to take this training and all appropriate employees must take a refresher course every three years. The existing training modules are:

- MS4: An overview of MDOT's MS4 program, NPDES permit, and introduction of the 6 minimum measures.
- Module One: Introduction to Stormwater Management, a basic introductory session which includes an overview of green infrastructure and Low Impact Development.
- Module Two: Best Management Practices, educates employees about the approved MDOT BMP List (see **Appendix C**).
- Module Three: Maintenance Considerations, presents BMP maintenance requirements.
- Module Four: Illicit Discharge Elimination Program (IDEP), introduces the IDEP, discusses the impacts of illicit discharges to surface waters and provides procedures to follow should employees suspect they have located an illicit discharge.

These training modules will be updated as needed to reflect changes in stormwater management and illicit discharges since their development.

Training Module Four addresses many requirements of the Permit associated with illicit discharges, improper waste disposal and reporting procedures and is comprised of:

- The definition of illicit discharges and connections
- Techniques for finding illicit discharges, including field screening, source identification, and recognizing illicit discharges and connections
- Methods for eliminating illicit discharges and the proper enforcement response
- IDEP activities to find the eliminate illicit discharges and connections
- Spill response and response to emergency IDEP situations
- Ordinance/regulatory mechanism enforcement

This module targets employees most likely to encounter illicit discharges or improper waste disposal during the course of their daily activities, especially while conducting field work. These areas include Planning, Design, Real Estate, Construction Field Services, and Region TSC/Maintenance Staff. Employees are

instructed to follow MDOT reporting procedures if a discovery is made.

### 3.3.6 Activity Education 6: Pesticide/Fertilizer Applicator Certification

Training of the job-related public in pesticide and fertilizer application is an ongoing activity and will continue and be documented in the Stormwater Annual Report.

Staff members to be trained include staff or representatives that will participate in the application of these chemicals. Training will be completed annually and follow requirements as dictated by the Michigan Department of Agriculture requirements.

Pesticides are applied on MDOT right of way in accordance with Public Act 451, Regulations 636 and 637 and all other applicable state and federal regulations. These regulations require that all applicators must be registered or certified to apply pesticides in the State of Michigan. MDOT requires all applicators to be certified if making roadside, guardrail, and brush pesticide applications on MDOT right of way. These applicators consist of MDOT, County and /or contractor personnel.

MDOT conducts a two-day training session each year to keep all certified MDOT applicators up to date on new regulations, procedures, and equipment and product changes. This training is approved and sanctioned as well as attended by the Michigan Department of Agriculture and Rural Development (MDARD) and a MDARD inspector presents at the training session. MDARD issues recertification credits for this training, which are required to maintain/renew the applicators certification every three years.

Additionally, MDOT has compiled and produced an extensive pesticide applicators manual and vegetation management website (internal to MDOT) as reference tools. This manual list all pertinent information as it relates to MDOT spray operations/procedures (i.e. Laws/regulations, drift control plan, calibration, mixing/loading/storage operations, application rates/timing, limitations when working in protected areas/stream crossings/wildflower preservation areas, product labels and MSDS sheets, etc.). Each certified applicator has a copy of the manual.

MDOT utilizes an Integrated Roadside Vegetation Management (IRVM) approach to managing roadside vegetation. By doing so, MDOT achieves efficient and economical results with the least disruption to the environment. MDOT certified applicators are extremely well trained and perform their spraying duties with the utmost sensitivity to the environment.

For all lands that fertilizers are applied to, soil testing for nutrients including nitrogen, phosphorous, and potassium, is done to determine if use is appropriate. If soil test results indicate fertilizers are necessary, application is completed in accordance with MDOT's 2012 Standard Specifications for Construction manual, Section 816 and Section 917. The application of fertilizer on MDOT right-of-way is typically done on construction projects. There are very limited fertilizer applications made by MDOT Maintenance staff.

### 3.3.7 Activity Education 7: Staff Training for Part 91 and Stormwater Operators

Training of the job-related public in the administration of Part 91 and those having decision making authority for SESC development or review, inspections, or enforcement currently receive NPDES training, and will continue to do so. MDOT staff responsible for administering Part 91 and those having decision making

authority for SESC plan development or review, inspections, or enforcement are, and will continue to be certified as stormwater operators.

## 3.4 Public Involvement and Participation

This section describes MDOT's strategy to encourage public input in the Stormwater Management Program and strengthen relationships with other agencies interested in the better management of stormwater.

### 3.4.1 Activity Public Involvement 1: Public Comment on SMP

General public commenting on the SMP is encouraged. The approved Stormwater Management Program will be posted on MDOT's public stormwater website. Public comments on all aspects of the program will be accepted through a stormwater mailbox and compiled and addressed accordingly.

MDOT will notify the job-related public of the stormwater management program and specifically target local stream or watershed protection groups, environmental protection organizations, and municipal planning organizations (**Appendix E**). These organizations will be invited to review and comment on the stormwater management program as it is implemented. Notification will provide this audience with information on the content of the SWMP, the stated goals, and how the SMP will affect their job.

MDOT will follow state and federal public notice requirements when notifying the public that a stormwater management program must be implemented. The final SMP will be posted after the EGLE public comment period is complete and the Permit has been issued.

### 3.4.2 Activity Public Involvement 2: Stormwater Offset Program

MDOT will consider partnerships with other state agencies, drain commissioners, and municipalities when mutually beneficial opportunities to treat stormwater are discovered. If such partnerships are created, the stormwater treatment could be used to offset projects that could not meet water quality or channel protection permit goals.

### 3.4.3 Activity Public Involvement 3: Identify and Coordinate with MPOs Having SMPs

MDOT notifies MPOs annually when the 5-year transportation plan is available for review. This collaboration effort will inform regional MPOs of MDOT projects and allow for compliance with local planning efforts and watershed goals of existing, regional stormwater quality control programs. Project outreach begins early in the design process and includes public meetings, press releases, and informational project websites. All projects, except for the most basic, utilize at least one of these methods and allow public comment on all aspects of the project. Stakeholder comments are address/resolved as part of the outreach process. Participation in regional or local efforts will be noted in required reports.

## 3.5 Illicit Discharge Elimination Plan

This section describes the strategy that MDOT will follow to implement Permit requirements for an Illicit Discharge Elimination Plan (IDEP) as it applies to MDOT's drainage system and facilities. Refer to **Appendix B** for a list of activities MDOT will implement to fulfill Permit requirements for the IDEP.

An **illicit discharge** is the discharge or seepage of water that is not composed entirely of stormwater or uncontaminated groundwater into the drainage system, except for the following discharges:

Water line flushing

Landscape Irrigation
Diverted stream flows
Rising ground waters
Uncontaminated groundwater seepage
Uncontaminated pumped groundwater, excluding groundwater cleanups
Discharges from potable water sources
Foundation drains
Air conditioning condensate
Irrigation water
Springs
Water from crawl space pumps
Footing drains
Lawn watering
Water from non-commercial car washing
Flows from riparian habitats or wetlands
Residential swimming pool discharges
Street wash water
Discharges for flows from emergency firefighting activities

Illicit discharges include dumping of motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, domestic animal wastes, litter or unauthorized discharges of sewage, industrial waste, restaurant wastes, or any other non-stormwater waste into the drainage system.

An **illicit connection** is a physical connection to the MDOT drainage system that 1) primarily conveys illicit discharges into the drainage system and/or 2) is not authorized or permitted by MDOT (where MDOT requires such authorization or permit).

Illicit discharges occur by one of two methods 1) discharge directly from the end of a pipe or other conduit regardless of whether the pipe is an illicit connection or not and 2) non end-of-pipe discharge including overland flow or a release from a waste container. These two transmission mechanisms will be addressed separately in this plan as they will generally require different types of response.

The MDOT construction process looks for illicit connections. They can be found during storm sewer videotaping or during construction if no videotaping occurred. Contractors are trained to identify signs of a potential illicit and will alert the construction manager (and PEAS hotline if considered an immediate threat) of their suspicions. The Region Stormwater Coordinator will then follow the established procedures for addressing the potential illicit connection/discharge.

MDOT's legal authority to regulate and/or prohibit direct discharges to and from its drainage system is described in Chapter 1 of this plan. Additionally, the Environmental Licensing Agreement process may be used as another mechanism for addressing illicit discharges of contaminated groundwater. This process is to be used when environmental contamination is proposed to remain in place on MDOT controlled property.

Refer to Appendix B for further details on IDEP activities.

### 3.5.1 Activity IDEP 1: Maintain List of Construction Projects and Maintenance Activities

MDOT constructs, operates, and maintains its streets, roads, highways, parking lots and other large, paved surfaces in a manner to reduce the discharge of pollutants into the drainage system. A list of construction projects is available on the MDOT website.

MDOT conducts maintenance activities that help prevent stormwater pollution, such as street sweeping, catch basin maintenance programs, ditch clean out, culvert and underdrain maintenance, Adopt-a-Highway litter collection, mowing, brush control, and bank stabilization. Road maintenance activities depend upon annual budgets and winter operations costs. The MDOT Statewide Maintenance and Operations Alignment Team addresses all issues relative to statewide maintenance and operations management of the transportation program. The team meets monthly to develop, recommend, and implement processes, practices, policies, and procedures relating to statewide maintenance and operations management. Maintenance activities that address known safety issues are given the highest priority. Stormwater maintenance activities will be included in the required stormwater reporting.

### 3.5.2 Activity IDEP 2: Outfall Mapping

Outfall mapping is divided into two categories: 1) outfall mapping in urbanized areas under MDOT's IDEP, and 2) known outfall mapping statewide.

**Urbanized Area Outfall Mapping -** As part of IDEP, MDOT has identified the location of state roads crossing 305(b)-listed water bodies, within the urbanized areas of the state, based on the 2010 Census. The crossing locations, broken out by region, are available here.

**Statewide Known Outfall Mapping –** MDOT is in the initial phase of collecting information on outfall locations for a GIS layer. Some locations have been collected during a pilot project for dry weather screening. MDOT will determine the best mechanism for the continued mapping of all known outfalls. Until this effort is complete, project plans are available at the region/TSC offices.

MDOT requires permanent identification of all outfall structures that are installed or constructed. This requirement will be specified in all construction proposals that include outfalls to the waters of the state by including the Special Provision for Labeling Stormwater Outfalls in the project documentation.

### 3.5.3 Activity IDEP 3: Dry Weather Screening

As part of MDOT's Illicit Discharge Elimination Program (IDEP), dry weather screenings are conducted by MDOT field staff as a method of testing and inspecting stormwater drainages areas to located and identify harmful and illegal discharges to MS4's. **Appendix G** is to be used as a guide for dry weather screenings.

If flow is observed and it is obvious that an illicit discharge is present and the source is obvious, MDOT will document the observations and source for follow-up. If flow is observed and the source is not obvious, MDOT will conduct a field assessment of the dry-weather flow to analyze at a minimum: pH, ammonia, surfactant, and temperature. Field observations will be conducted at a minimum of two times within two-weeks of the initial observation. The goal will be to sample within 24-48 hours of observing dry-weather flow. Ideally, the sample would be collected the same day as the initial observation MDOT will notify EGLE in writing within 30 days of detection and given all applicable field information. Within two weeks of discovery, a work plan

for the removal of the illicit connection or discharge shall be started. Once completed, this shall be sent to EGLE.

Results of the dry weather screening will be used to identify, investigate, and eliminate any illicit discharges found. Potential non-stormwater discharges will be prioritized based on areas with past illicit discharges, areas with older infrastructure, commercial, and industrial areas.

### 3.5.4 Activity IDEP 4: Review Procedure for Receiving and Notifying EGLE of Illicit Discharges

When MDOT receives reports of illicit connections/discharge, including illegal spills or dumping, from the job-related or general public, the following steps will be taken to identify the source, and to abate and/or eliminate the discharge. Discharges emanating from the end of a pipe or other conduit into either an enclosed storm sewer or into an open ditch will be treated as described in the Emergency Response and Discharge Notification procedure, found in Section 1.7.

Discharges that do not emanate from the end of a pipe will be investigated to determine the probable source and character of the discharge; extent of the discharge in relation to the nearest stormwater inlet or outfall; and potential for release to the waters of the state. The MDOT Region Stormwater Coordinator utilize the process outlined in the Environmental Spill Response Flowchart for spills on or into the MDOT ROW and will assist the incident commander as requested

For suspected illicit discharges/connections outside of the MDOT ROW, MDOT will seek permission to investigate from the owner of the suspected illicit discharge/connection. If an illicit discharge/connection is confirmed, MDOT will send up to two escalated "Notice and Order to Remove Encroachment" letters to the non-complying owner before referring enforcement to the local municipality, health department, and the EGLE Water Division District Supervisor. If the owner does not allow MDOT to investigate outside of the MDOT ROW, MDOT will request EGLE assistance in gaining access to the necessary properties for investigation.

Further details for removing illicit connections and discharges are addressed in Section 1512.71 of the Construction Permit Manual (CPM), including documentation needed for corrective actions taken by the owner, examples of encroachment notices, and responsibility assignments within MDOT. See **Figure 3-1** for a flowchart of the Illicit Discharge Removal Process according to Section 1512.71 of the CPM.

The procedures for receiving and notifying EGLE of illicit discharges and actions taken will be reviewed and updated, as necessary.

### 3.5.5 Activity IDEP 5: Determining Effectiveness of IDEP

MDOT has a process which effectively identifies and eliminates illicit discharges. The IDEP process is reviewed annually by the SSC to maintain its effectiveness.

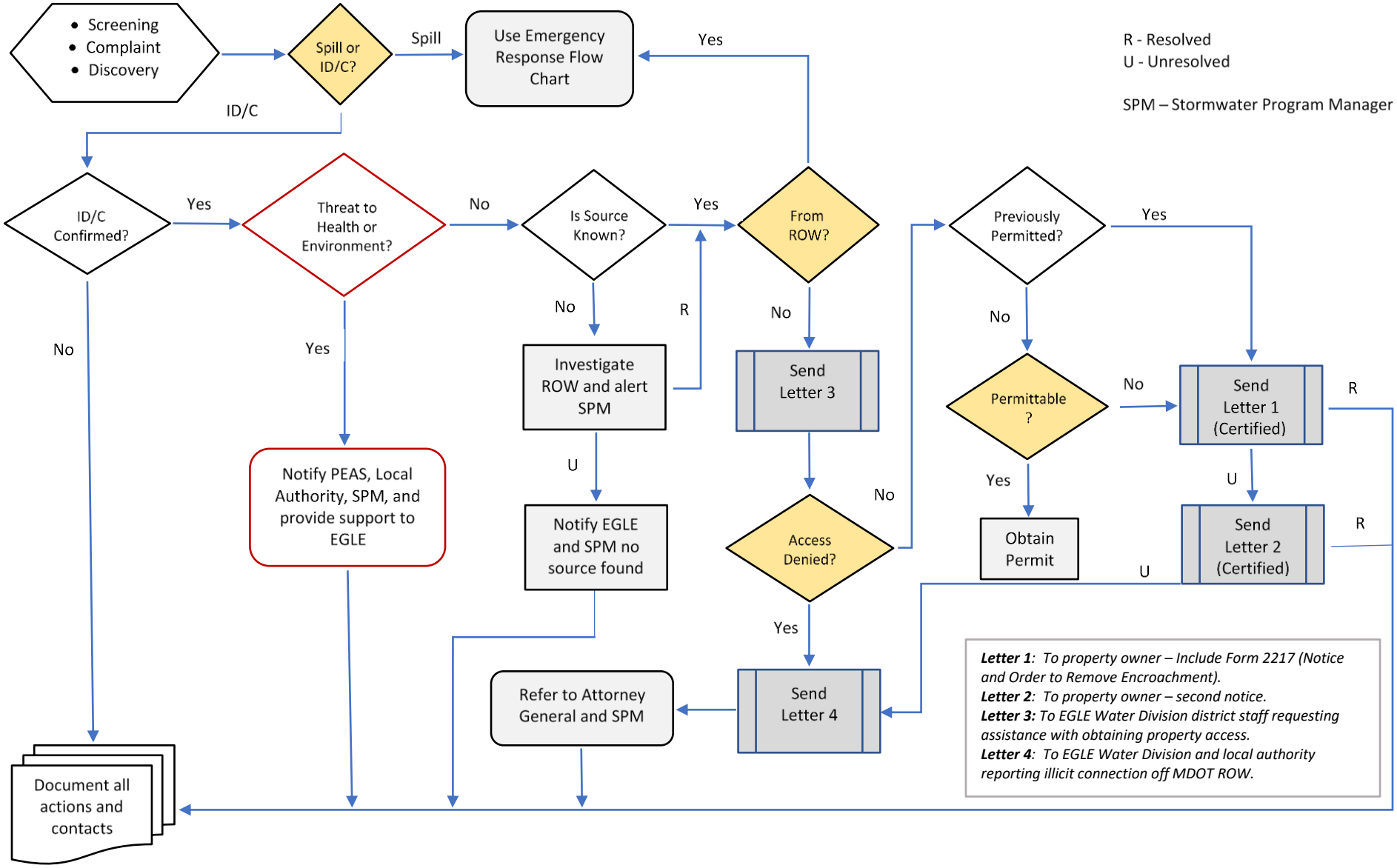


**Figure 3-1General illicit discharge elimination procedure (IDEP)**

## 3.6 Post Construction Stormwater Management for New Development and Redevelopment Projects

Typical transportation development and redevelopment projects may include construction of new roads, widening of existing roads and road improvements, such as resurfacing where the drainage system is adjusted. MDOT may also permit new drainage conveyance from developments outside of the MDOT right-of-way. Post construction impacts from transportation land use may include increased sedimentation, pollutant loading, and hydrologic flow regime changes. This section describes how MDOT will fulfill Permit requirements to implement a program to address post construction stormwater runoff from MDOT projects and procedures for addressing post construction runoff from projects outside of the MDOT right-of-way.

Post construction stormwater management is achieved through structural BMPs which are physical controls designed to remove pollutants from runoff and may limit the rate of runoff from MDOT right-of-way and other facilities. MDOT performed an extensive review of BMPs and developed an approved list of structural BMPs for use on projects (**Appendix C**). Post construction treatment requirements apply to projects that disturb an area one acre or greater in size or are part of a larger plan that would disturb more than an acre or for waterbodies that have an established TMDL for sediment, dissolved oxygen, phosphorus, biota, or nutrients.

There are many different structural control options to use during and after construction to address water quality and quantity issues. Therefore, it is important that planning and construction goals are established to ensure that the appropriate structural controls are being used and that adequate funding sources are available for the BMPs.

Refer to **Appendix B** for a summary of activities MDOT will carry out to fulfill the Permit requirements.

### 3.6.1 Activity Post Construction 1: Structural BMP Mapping

Regular inspection and maintenance of BMPs maintains the effectiveness and structural integrity of the BMPs. The inspection and maintenance requirements of each BMP is determined in accordance with guidelines contained in the Drainage Manual and as described in the Maintenance Activity Guides. In effort to maintain structural BMPs, an updated map of current structural BMPs will be developed. To document the construction of new structural BMPs, a new means of communication between TSC Region Offices, Design Teams and the Stormwater Program Manager will be developed, as well. The goal of these efforts will be to properly maintain all BMPs.

Waste materials resulting from maintenance activities, such as accumulated sediments, floatables, and other debris that is removed from MDOT's drainage system will be disposed of at an appropriate site. Procedures are detailed in the MDOT Maintenance Activity Guides.

### 3.6.2 Activity Post Construction 2: BMP Maintenance Requirements

MDOT's Maintenance Activity Guides identify current operation and maintenance requirements. MDOT will review and update the Maintenance Activity Guides as appropriate for BMPs installed on MDOT projects. Maintenance considerations will be considered during BMP selection, and Maintenance staff will be advised of the installation of new BMPs.

### 3.6.3 Activity Post Construction 3: Selection and Application of BMPs

Post construction stormwater management applies to projects with an established TMDL, that disturb an area one acre or greater in size or are part of a larger plan that would disturb one acre or more and are not specifically exempted in statute.

MDOT's procedure for the selection, feasibility determination, design, construction, and long-term maintenance of PC-BMPs begins during the scoping process. At this time in the project life cycle, MDOT project managers will run a PC-BMP screening tool to determine what options are available for treating stormwater, what risks will be associated with BMPs that affect cost and feasibility, and include PC-BMP costs as part of the project's overall budget. The project manager will then take this information and begin field and design work to determine if any of the proposed BMPs are not feasible within site constraints. BMPs that clear this stage and fit within the project constraints will be included in the NEPA clearance process for the project.

MDOT has several project types that affect the feasibility of providing stormwater treatment based on the scope of work. For example, a road resurfacing project that does not replace the drainage system leaves little opportunity for stormwater treatment while a road reconstruction that includes reconstruction of the drainage system provides more opportunities for treatment. **Table 2** provides MDOT project types and the expectation for providing stormwater treatment.

**Table 2 MDOT Project Types and Stormwater Treatment Applicability**

| Project Type | Area Water Quality Applies | Area Channel Protection Applies |
|---|---|---|
| New road construction | Entire Project to MEP | Entire Project to MEP |
| Road reconstruction with no increase in impervious area (includes drainage reconstruction) | Entire Project to MEP | NA |
| Road reconstruction / resurfacing within existing paved area (excludes drainage work except for minor drainage adjustments) | NA | NA |
| Road reconstruction / resurfacing with additional impervious area added (excludes drainage work except for area of impervious change) | Provide treatment for area of increased imperviousness to MEP | Provide treatment for area of increased imperviousness to MEP |
| Road reconstruction with additional impervious area added (includes drainage reconstruction) | Entire project to MEP | Provide treatment for area of increased imperviousness to MEP |
| Crush and shape with no increase in impervious area or changes to drainage system | NA | NA |
| Stand-alone culvert replacement | NA | NA |
| Bridge replacement without a road project | NA | NA |
| Bridge replacement with corresponding road project | Provide treatment to MEP for bridge (see above for road requirements) | NA for bridge portion (see above for road requirements) |
| Capital Preventative Maintenance (CPM) work | NA | NA |
| Safety projects where increased imperviousness is contained within existing edge of shoulder and no work on the ditch slopes.* | NA | NA |
| Safety projects (combined with other funding templates) that increase imperviousness. | Provide treatment for area of increased imperviousness to MEP | Provide treatment for area of increased imperviousness to MEP |

*Project must be entirely funded within the safety template and not combined with other funding sources. If additional funding sources are used, treat water quality to the MEP.

Projects identified as appropriate for the inclusion of infiltration BMPs should review the Environmental Licensing Agreement process for identifying areas of contamination that would preclude the use infiltration BMPs.

### 3.6.4 Activity Post Construction 4: Compliance with Performance Standards

MDOT will achieve compliance with the performance standards for water quality and channel protection for new development and redevelopment construction projects set by the Environmental Protection Agency (EPA) to the maximum extent practicable (MEP). MDOT's water quality goal is to reduce post-development total suspended solids loading by 80% from the runoff generated from the 90% non-exceedance storm (based on EGLE's 2006 memo). The goal for channel protection is to maintain the pre-project rate and volume of discharge from areas of increased imperviousness for all storms up to the two-year, 24-hour storm.

All new facilities and structural stormwater controls must be designed and implemented in accordance with these goals. Currently, there are no plans for retrofitting facilities. The need for BMPs will be address as each facility is scheduled for rehabilitation.

Water quality goals apply to projects as listed in section 3.6.3 to the MEP. The process MDOT will use to determine if the water quality goal can be met on a project is found in **Figure 3-2**.

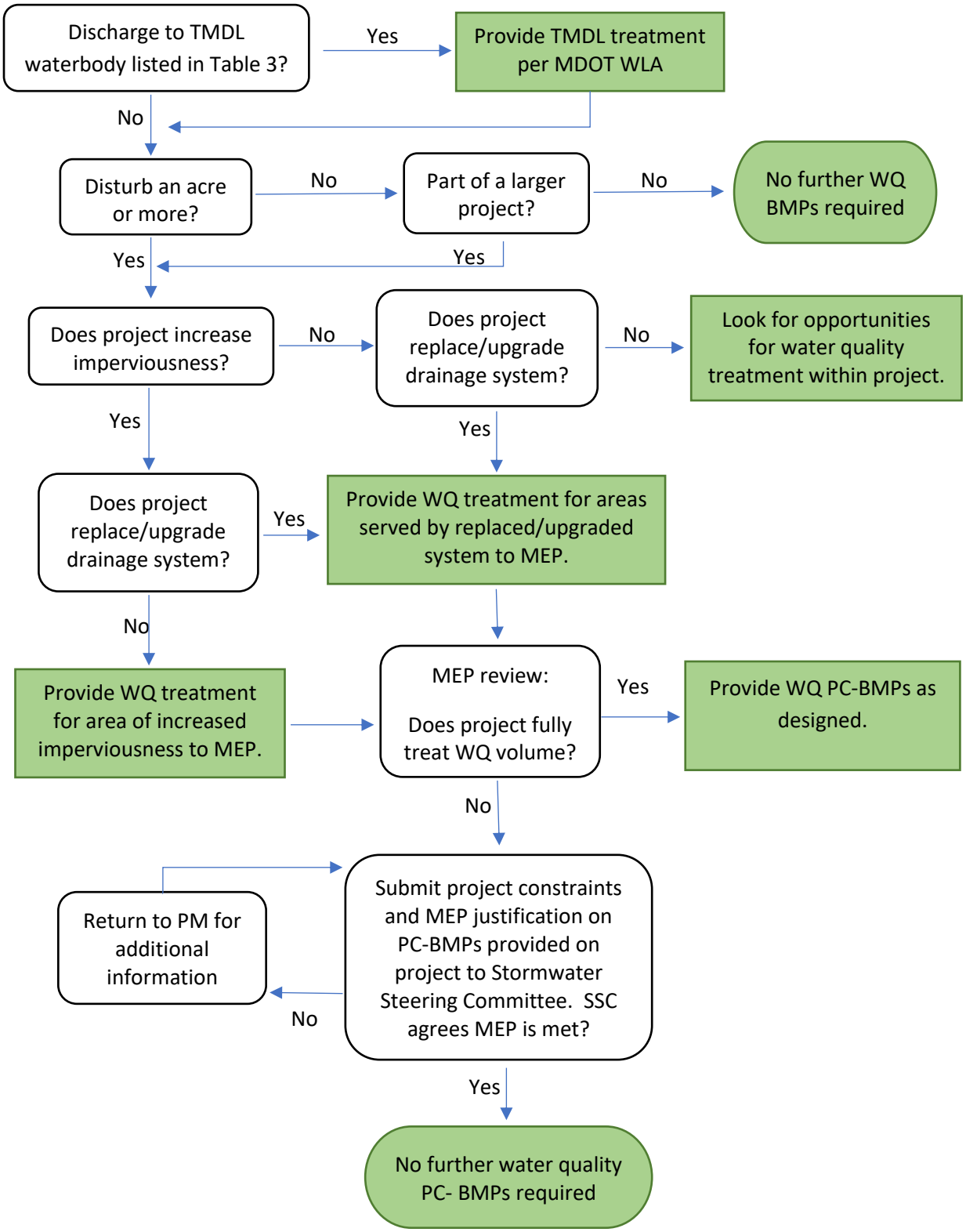


**Figure 3-2 Water Quality (WQ) PC-BMP process**

Channel protection goals apply to projects as listed in section 3.6.3 to the MEP. However, discharges to the following waterbodies are exempt from the channel protection goals:

- The Great Lakes or connecting channels of the Great Lakes
- The Rouge River downstream of the Turning Basin
- The Saginaw River
- Mona Lake and Muskegon Lake in Muskegon County
- Lake Macatawa and Spring Lake in Ottawa County

The process MDOT will use to determine if the channel protection goal can be met on a project is found in **Figure 3-3**.

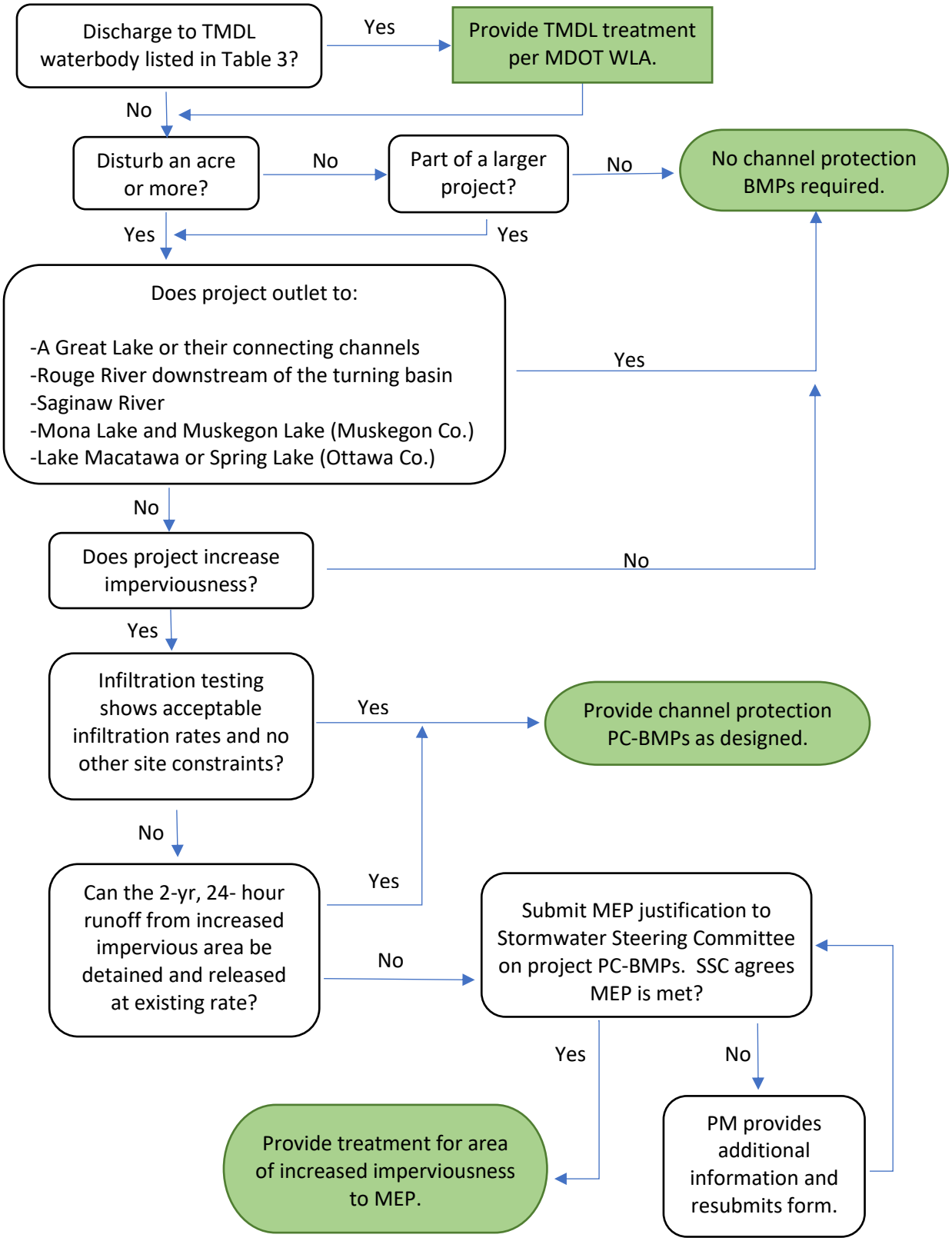


**Figure 3-3 Channel protection (CP) PC-BMP process**

As part of meeting water quality treatment and channel protection goals for new development and redevelopment projects, BMPs are required to address pollutants in potential hot spots. BMPs shall be designed such that contamination will not be exacerbated.

### 3.6.5 Activity Post Construction 5: TMDL Compliance

MDOT utilizes Geographic Information System (GIS) data to determine what projects intersect 303(d) listed water bodies. This tool is used during the environmental review of all new development and redevelopment projects to assess if stormwater discharges to an impaired waterbody. MDOT will examine projects located on impaired waterbodies to determine what BMPs are appropriate for consideration in planned construction project.

MDOT has been notified that several TMDLs have been established with a pollutant load allocation attributed to MDOT. See **Table 3** for a listing of the MDOT applicable TMDLs.

**Table 3 TMDLs with MDOT Pollutant Load Allocation**

| TMDL | TMDL Name |
|---|---|
| Biota | Bass River, Black Creek, Blakely Drain/Marsh Creek, Brownstown Creek, Carrier Creek, Ecorse River, Frank and Poet Drain, Grand River, Little Black Creek, Malletts Creek, Plaster Creek, Rouge River Watershed (including Bell Branch, Franklin Branch, and Evans Ditch), Sandy Creek Strawberry Creek, Swift Run Creek, Unnamed Tributary to the Grand River, and York Creek |
| Biota and Dissolved Oxygen | Paint Creek |
| Dissolved Oxygen | Belle River and North Branch Belle River, Berry Drain, Cass River, Grand River, Johnson Creek, Kawkawlin River (North Branch), Lapointe Drain, and Sycamore Creek Watershed |
| Dissolved Oxygen and Sediment | Norton Creek |
| Phosphorus | Bear Lake, Brighton Lake, Ford Lake/Belleville Lake (Huron River Impoundment), Goose Lake, Great Bear Lake Proper, Kent Lake, Lake Allegan (Kalamazoo River Impoundment), Lake Macatawa (Watershed), Maple River (Upper), Peet Creek and Lost Creek, Morrison Lake, Ore Lake, Pine Creek, and Strawberry Lake |
| Nutrient | Belleville Lake and Ford Lake |

To comply with established TMDLs, a project review procedure is in place for projects discharging to a waterbody with established TMDLs. The procedure includes:

- Projects to be reviewed by a Water Quality Specialist
- Review of surface waters that have established TMDLs during the project scoping and design phases using available GIS data layers
- Review of the scope of work and conduct site visits as needed

- Coordination with design staff on the selection and inclusion of BMPs, including maintenance needs
- Development of how TMDL treatment will be provided prior to the MDOT Water Quality Specialist signing off during the NEPA review process
- Review of final construction plans to confirm BMPs are included

MDOT will develop a procedure for determining BMP effectiveness at meeting the MDOT prescribed waste load allocation (WLA) during the first 2-years of the permit.

### 3.6.6 Activity Post Construction 6: Develop a Stormwater Manual

One of the ways that MDOT is providing information to the job-related public is through the development of a Stormwater Manual. This manual will provide stormwater management guidance to MDOT designers and design consultants with policies and procedures for designing post construction stormwater BMPs. The manual will be a tool for MDOT designers and a required resource for design consultants and contractors.

### 3.6.7 Activity Post Construction 7: Plan Review for Construction Projects

To ensure MDOT compliance with water quality and channel protection, a procedure for the submittal of MDOT project plans for internal review is in place for projects with post-construction stormwater requirements. The procedure includes:

- Review of surface waters, impaired water bodies, TMDLs, special designated waters (wild and scenic rivers, natural rivers, cold water lakes, trout streams, etc.) during the project scoping and design phases using GIS data layers
- Review of the scope of work and conduct site visits as needed
- Coordination with design staff on the selection and inclusion of stormwater PC-BMPs, including maintenance needs
- Development of how stormwater treatment will be provided (PC-BMPs) prior to the water quality specialist signing off during the NEPA review process
- Review of final construction plans to confirm BMPs are included
- Projects to be reviewed by water quality specialist.

## 3.7 Construction Stormwater Runoff Control

Control of soil erosion and sedimentation is an integral part of MDOT's construction and maintenance program. The soil erosion and sedimentation control program involves two major components:

- MDOT implements soil erosion and sedimentation control procedures as an Authorized Public Agency (APA) under Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended (NREPA).
- MDOT follows R 323.2101 - 323.2192, Wastewater Discharge Permits, of the Michigan Administrative Code as mandated by Part 31, Water Resources Protection, of NREPA.

Pursuant to Part 91 of NREPA, MDOT has established procedures for soil erosion and sedimentation

control, as detailed in the approved MDOT Soil Erosion and Sedimentation Control Manual. Targeted MDOT staff are trained and certified as required under Part 91 of NREPA. MDOT utilizes Certified Stormwater Operators as required under Part 31 of NREPA.

For non-MDOT work, a permit is required from all parties who propose work in or alter drainage to the ROW. This permit process involves a review by MDOT of the proposed drainage for the site and requires that the runoff from the site not exceed the pre-development peak discharge rate or discharge anything other than stormwater to the MDOT system. Soil erosion control permits for this work are obtained from the County Enforcing Agency (CEA) or Municipal Enforcing Agency (MEA).

In addition to subsection 107.15 "Compliance with Laws; Environmental Protection" in the MDOT Standard Specifications for Construction, MDOT used the pre-construction meeting as another opportunity to discuss the contractors' responsibility for obtaining all proper permits and meeting all of the appropriate soil erosion and sedimentation control requirements for their project both inside and outside of the MDOT ROW. Contractors are referred to the Soil Erosion and Sedimentation Control Manual, and applicable sections of the Construction Manual for more information. The MDOT Part 91 Inspector(s) assigned to the project are identified at the preconstruction meeting.

The approved MDOT Soil Erosion and Sedimentation Control (SESC) Manual, Chapter 4, includes procedures to receive and consider public complaints. The MDOT Public Website includes Region contact information. The general public may contact the EGLE or an MDOT Region Office or Transportation Service Center (TSC) with a complaint. Complaints are referred to the Delivery Engineer in charge of the construction activity. The Delivery Engineer, or appointed representative (generally the Part 91 Inspector or the Certified Stormwater Operator), keeps a log file of the complaints received. All complaints receive appropriate attention and consideration. Corrective actions are implemented as needed.

### 3.7.1 Activity Construction 1: Review of Stormwater Runoff QA/QC Protocol

The review of the QA/QC protocol for the SESC program is an ongoing process. It is anticipated that the SESC program will benefit from recommendations as a result of the QA/QC protocol.

## 3.8 Pollution Prevention/Good Housekeeping for MDOT Operations

The goal of the pollution prevention/good housekeeping program is to prevent or reduce pollutant runoff from MDOT operations and properties to the maximum extent practicable. MDOT has numerous facilities covered under this stormwater management program including: Region/TSC offices, business offices, bridge facilities, maintenance garages, vehicle repair facilities, welcome centers, rest areas, roadside parks, and scenic turnouts. MDOT considers all of its facilities as having low potential for discharging pollutants to surface waters of the state for the following reasons:

1. Maintenance garages and vehicle repair facilities where potentially hazardous material is stored have a well-established set of policies and procedures contained in each facility's environmental manual. The facilities are audited on a three-year cycle to ensure compliance and that any manual updates are completed, as described in Activity Pollution Prevention/Good Housekeeping 2.
2. Garages have weekly walk-through inspections to catch any issues, should they arise. MDOT utilizes many pollution prevention BMPs including secondary containment of materials, covered storage of salt, weekly facility inspections, etc.

3. The amount of hazardous material at any given garage is limited to small quantities such that they generally operate as conditionally exempt small quantity generators.
4. Garages have spill containment equipment available if spills occur.
5. The Garage environmental manual lists the staff responsible for following the provisions of the manual. Staff involved in pollution prevention are trained over a three-year cycle. Training covers a variety of environmental/ pollution prevention/hazardous waste/materials handling topics.
6. The Garage Environmental Manual is unique to the facility with emergency contacts (state, local, county, PEAS, etc.) provided. A sample PIPP plan is provided in **Appendix D**.
7. Regular fleet maintenance is performed to ensure equipment is running efficiently.
8. All buildings that don't have hazardous material undergo a safety inspection. Environmental issues are looked at and reported as part of the inspection.
9. All other MDOT facilities have limited exposure for pollutant runoff.

MDOT conducts environmental audits to verify Garage compliance with environmental requirements and department policies. The audits are conducted to meet a series of objectives which include reviewing environmental performance and compliance with past recommendations and requirements, improving awareness and education of personnel on these issues, and reviewing other possible environmental issues. These audits cover federal, state, and local environmental laws relevant to MDOT which are included in the following list:

- Part 31 of Act 451.
- The Federal Clean Water Act.
- Federal and State Clean Air Acts.
- Part 111 of Act 451 (known as the Michigan Hazardous Waste Management Act).
- The Resource Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Amendments (HSWA), and Superfund Amendments and Reauthorization Act (SARA).
- Michigan's Solid Waste Management Act.
- The Michigan Liquid Industrial Waste Haulers Act, Part 121 of Act 451.
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Part 201 of Act 451, regarding responsibility for uncontrolled release of a hazardous substance to the environment and necessary cleanup.
- OSHA/MIOSHA Flammable/Combustible Hazardous Materials Containment & Storage Regulations, or other Department of Labor regulations confined to dealing with hazardous chemicals, materials, substances, and wastes.
- The Federal Insecticide, Fungicide, Rodenticide Act (FIFRA).
- The Toxic Substance Control Act (TSCA) (PCB's, Asbestos, etc.), State Act 60 of 1976 (known as the PCB Act).
- State Fire Marshal Regulations (flammable/combustible hazardous materials, Underground Petroleum Storage Tanks).
- Other Federal, State, or Local requirements relating to hazardous or polluting materials, hazardous substances, hazardous wastes, etc., of relevance to an MDOT facility (or, as in the case of transit facilities, a bus or railroad facility on MDOT property).

Environmental impacts, including pollution and prevention of further pollution, must be considered prior to all land acquisitions. During an audit, the following factors should be considered:

- Amount of urban pollutants stored

- Identification of improperly stored materials
- The potential for polluting activities to be conducted outside
- Proximity of water bodies
- Poor housekeeping practices
- Discharge of pollutants of concern to impaired waters

All land acquisitions deemed a suspected contaminated property are subject to an environmental audit. Prior to the appraisal of any land that is to be acquired, including donated land, the sponsor should secure an environmental audit of suspected contaminated property and provide the results to the appraiser. The appraiser may not assume the property is free of contamination when conducting an appraisal.

Refer to **Appendix B** for a more detailed description of the activities MDOT will carry out to fulfill the Permit requirements related to pollution prevention.

### 3.8.1 Activity Pollution Prevention 1: BMP Inspections

The maintenance of structural BMPs is imperative for the continued and proper treatment of stormwater by these structures. The frequency of inspection will be highly dependent on the type of structure and problems that have been identified through BMP inspections. The maintenance of each structure is under the jurisdiction of the respective TSC and maintenance is the responsibility of respective TSC maintenance personnel. Newly constructed BMPs shall be reported to the Stormwater Program Manager on an annual basis for inclusion in the annual report.

MDOT will conduct routine inspections of structural BMPs to ensure proper maintenance. The inspection will include photographic documentation and the completion of a field inspection report for overall aesthetics, accessibility, piping systems, structures, and water quality.

Depending on the location around the state, local public transportation agencies working under contract for MDOT will inspect BMPs on a regular basis. At this time, MDOT tracks the number of hours worked and the route works on for a given maintenance task. Guidelines for the various maintenance guidelines, as applies to MDOT and hired contractors, are outlined in MDOT's Maintenance Activity Guides.

MDOT inspects its assets, including stormwater BMPs, on a set schedule. BMPs have been inspected since 2004 on a schedule that inspects approximately 20% of the BMPs annually so that all BMPs are inspected on a 5-year cycle. For this permit cycle, MDOT will increase the inspection frequency so that PC-BMPs are inspected on a biennial basis. MDOT will reevaluate the inspection frequency when the permit expires and determine if the increased inspection frequency uncovered more issues needing attention than the previous frequency discovered.

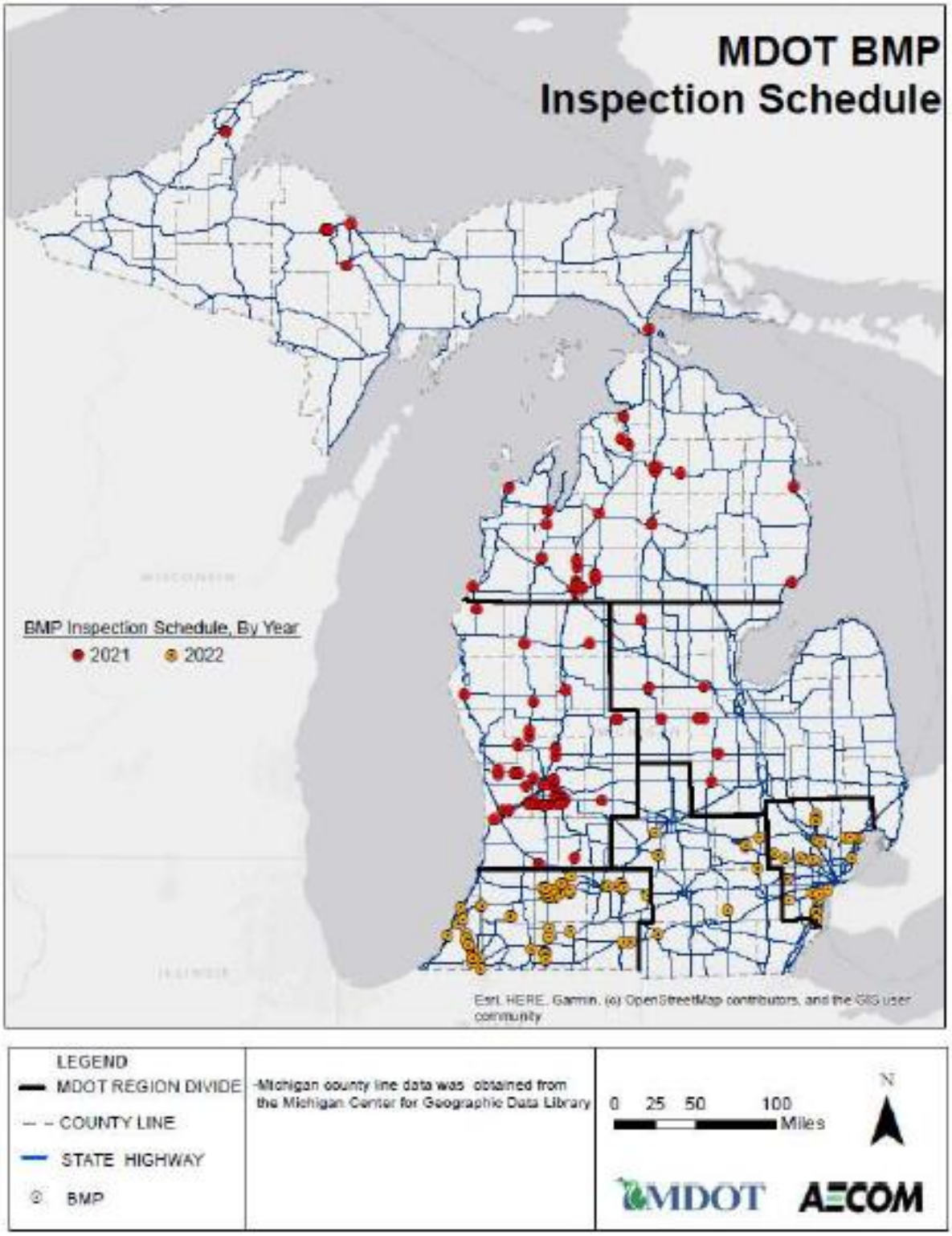


**Figure 3-4 BMP Inspection Schedule Figure**

### 3.8.2 Activity Pollution Prevention 2: PIPP Audits

MDOT ensures that proper precautions are taken so that vehicle maintenance activities do not impact stormwater runoff quality. Pollution Incidence Prevention Plans (PIPP) have been prepared and implemented for all MDOT facilities that conduct vehicle maintenance activities and/or provide storage. Pollution prevention planning is required by Michigan administrative rules of Part 5, Spillage of Oil and Polluting Materials, pursuant to Part 31 of NREPA. Furthermore, many of MDOT's contract agencies participate in the Pollution Incident Prevention Plan (PIPP) program as a requirement to seek reimbursement for environmental remediation projects at their facilities. To help prevent MDOT's vehicles from leaking fluids, an annual maintenance tune-up is conducted.

All garage wastes are disposed of through licensed haulers at a licensed disposal facility. Copies of manifests and bills of loading are kept on site for a minimum of three years.

Internal auditing of the Pollution Incident Prevention Plan (PIPP) will be conducted every three years to assure vehicle maintenance activities do not pollute stormwater runoff to the maximum extent practicable.

### 3.8.3 Activity Pollution Prevention 3: Maintenance Facility Inspections

Regular maintenance garage inspections are an important part of MDOT's stormwater management. Garage inspections are to be completed by a consultant. The consultant will provide a memorandum to MDOT in which conclusions and recommendations for the management of stormwater onsite will be discussed.

The inspection of a garage includes photographic documentation, the mapping of storm sewers, floor drains, garage drainage pits, onsite drainage ditches and any other storm sewer conveyance structures or systems identified. The main purpose of the inspection is to ensure no cross-connections of sanitary sewer and storm sewer are found. Furthermore, salt and sand storage facilities are not to contain drains.

Fleet maintenance and vehicle washing will also be inspected to ensure proper management of waste from these practices.

The 37 MDOT maintenance garages undergo multiple inspections. The inspections include weekly walkthroughs, environmental audits every 3-years, and an additional inspection for stormwater every 5 years. **Figure 3-5** displays this schedule. Due to the location considerations, there are an unequal number of garage inspections planned between years.

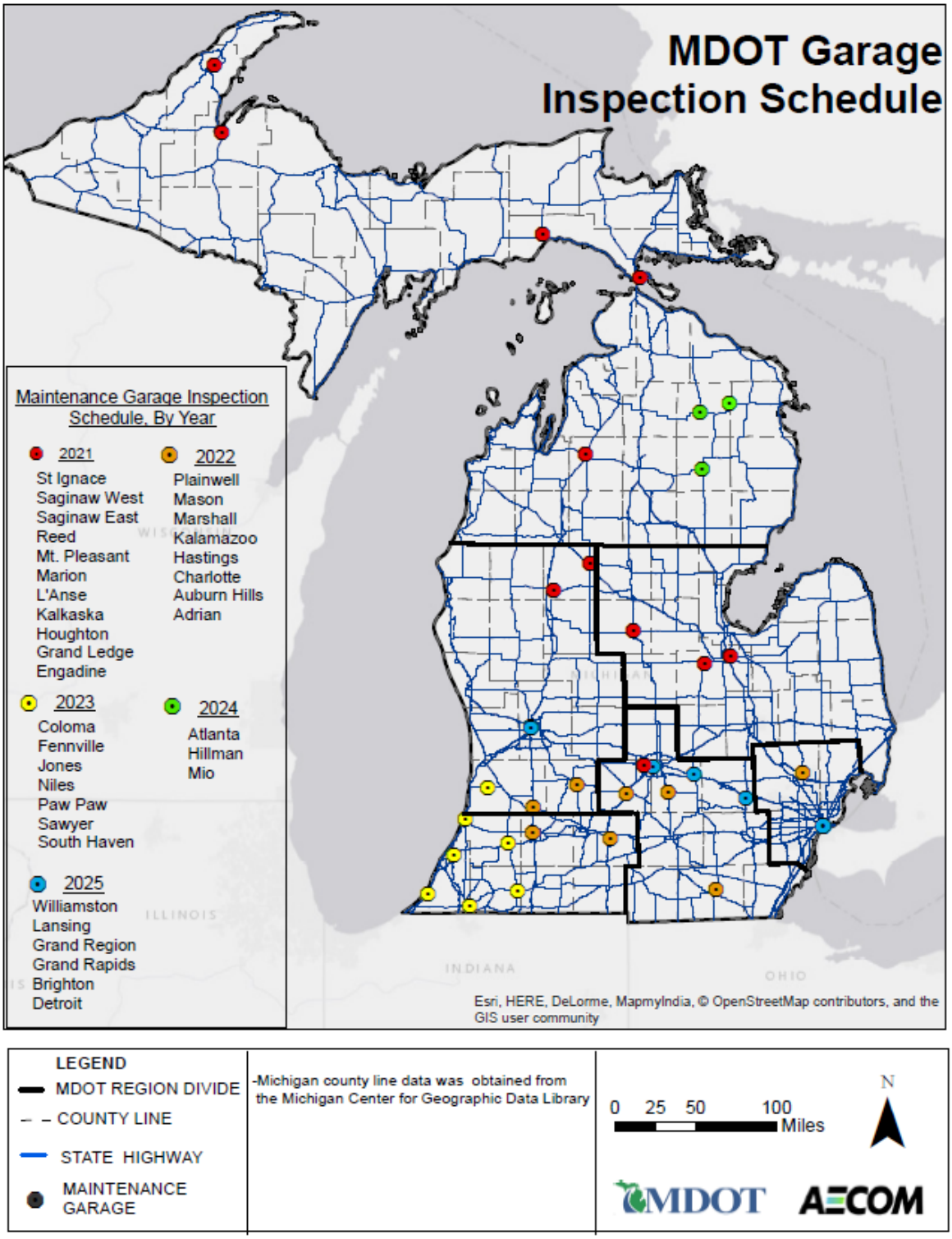


**Figure 3-5 MDOT Garage Inspection Schedule**

### 3.8.4 Activity Pollution Prevention 4: Documentation of Road Maintenance Activities

MDOT participates in many maintenance activities to keep roads, sidewalks, bridges, etc. so they last long and function properly. For the purposes of this plan, maintenance activities will be highlighted which contribute to the prevention of stormwater pollution. Specific guidelines for all maintenance activities are described in MDOT's Maintenance Activity Guide.

Wastes from maintenance activities shall be discharged in a manner that does not violate water quality standards.

The following pollutants are typically found on roadways and could discharge to water bodies during storm events: sediments, hydrocarbons, metals, and nutrients.

Road Maintenance

Maintenance activities related to road maintenance include joint and crack filling, removal and replacement of pavements, pavement spall and pothole repair, bituminous maintenance and repair, bump removal, routine blading, gravel shoulder maintenance, and paved shoulder maintenance.

Street Sweeping

Keeping MDOT's streets clean includes using a street sweeper to clean and pick up debris from streets. Wastes from street sweeping must be placed in either a type II landfill (for solid waste phase) or may be evaporated using drying beds, decanting systems or similar systems to remove water and solids disposed of in a Type II landfill. Street sweeping priority shall be given to areas discharging to waterbodies within a biota or dissolved oxygen Total Maximum Daily Load (TMDL) watersheds.

Curb and gutter sections, barrier wall, intersections, and bridge decks over water will be swept annually. Sweeping will occur in early spring. Additional sweepings may be scheduled at the discretion of Region staff on an as needed basis provided there are maintenance funds available. Any additional sweeping would prioritize problem and high priority areas.

Catch Basin Cleanout

Catch basins interiors are cleaned by removing accumulated dirt and debris which helps ensure proper drainage. The recommended criterion for cleaning is a 2-6" accumulation of dirt and debris of. Prioritization of maintenance is determined by region staff based on experience and any safety issues caused by standing water. Catch basins are cleaned according to region maintenance contracts, usually every other year. Catch basin wastes are placed in a Type II landfill.

Bridge Maintenance

Maintenance for bridges includes bridge structural repair (railings, abutments, piers, beams, or pier caps) and bridge deck repair (sidewalks, joints, and decks). This maintenance includes removal and replacement of existing concrete with new concrete or other materials. Sidewalk maintenance activities are also covered within bridge maintenance activity within the Maintenance Activity Guide.

Right of Way Maintenance

Maintenance activities in the right of way include fence repair, vegetation control, tree planting, litter pickup, area mowing, brush control, expressway patrol, and grass planting – hydroseed or drill method.

Culvert, Underdrain, and Edge Drain Cleaning

The cleaning of pipe culvert, box culverts, headwalls, underdrain tiles, and edge drains to keep culverts and tiles in a serviceable condition is important to ensure proper drainage. Periodic inspection of drainage facilities should be made immediately following periods of heavy rainfall. The methods and procedure for cleaning will vary depending on the type of cleaning performed.

Facility and Truck Washing

Facilities, vehicles, and other equipment are properly cleaned for effective operation to prevent impacts on stormwater quality. Maintenance vehicles and equipment are washed in designated garage wash bays that discharge to a sanitary sewer or to an enclosed holding tank. Wastewater from vehicles and maintenance equipment washed with detergents or the undercarriage rinsed is discharged to sanitary sewer. Wastewater from vehicles or maintenance equipment rinsed using a portable power washer with no additives is discharged to the ground in accordance with the Part 22 Groundwater Quality Rules or to a sanitary sewer. Holding tanks are pumped as needed and disposed of by a licensed liquid industrial byproduct hauler.

Deicing

MDOT uses deicing salts when conditions warrant, employing a system of calibrated salt dispensers to minimize the amount of salt applied. MDOT promotes a number of best practices to boost salt use efficiency during winter maintenance including having maintenance vehicles drive slower so more salt stays on the road, setting salt application guidelines that are weather dependent, using weather stations for efficient targeting of areas for salting, and pre-wetting salt. Calibration is performed annually and after any work to the truck's hydraulic system. Salting guidelines are distributed to contract agencies as well as MDOT employees.

It should be noted that sand left on the road due to winter operations is swept up and disposed of in a Type II landfill in areas where this is practicable.

Salt and sand are applied according to the MDOT Winter Maintenance Application Rate (solids) and Maintenance Activity Guide 1410. Additionally, MDOT began installing automatic vehicle location (AVL) devices on its winter road maintenance equipment in 2013. These systems report truck location as well as data from road sensors and feed the information into the maintenance decision support system (MDSS). AVL and MDSS have helped reduce salt usage by adjusting application timing and placement efficiency.

Newly constructed salt sheds are built so that all loading and dumping of salt is done inside the shed. The few remaining older sheds that do not have the capability of loading inside have sloped approaches and secondary containment to prevent salt from leaching into the stormwater. The older sheds will be replaced with the newer style as they meet the end of their service life.

Cold Weather Operations

Winter maintenance not covered in the above subsections includes:

- Clean shoulders within the bounds of the white shoulder policy
- Ensure that drainage systems are operating properly
- Clean ice and snow away from attenuators
- Clear sight distance areas at intersections and ramp gore areas
- Snow removal and cut backs
- Snow removal and/or hauling (municipal streets, intersections, snow storage areas, bridges, carpool lots, attenuator sites, etc.)
- Erection and removal of snow guides.
- Replace/repair mailboxes damaged by MDOT equipment during winter operations
- Read frost tubes
- Maintain frost tubes
- Stockpiling and cleanup of salt, sand and mixtures for winter maintenance
- Constructing salt hopper racks or tailgate hangers not covered by a work order
- Installing and removing hopper boxes or plows
- Calibrating chemical spreading equipment
- Transferring winter equipment due to a major winter storm or strike
- Salt storage shed painting, repair or other maintenance