



PHASE II STORM WATER MANAGEMENT PROGRAM ANNUAL REPORT

for January 1, 2006 - December 31, 2006

Permit No. MI0057364

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April 1, 2007



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Acronyms

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

BMP – Best Management Practice

BOH IM – Bureau of Highway Instructional Memorandum

CSS – Context Sensitive Solutions

DIT – Department of Information Technology

IDEP – Illicit Discharge Elimination Program

MDEQ – Michigan Department of Environmental Quality

MDOT – Michigan Department of Transportation

MEA – Municipal Enforcing Agency

MEP – Maximum Extent Practicable

MPO – Metropolitan Planning Organization

MS4 – Municipal Separate Storm Sewer System

NPDES – National Pollutant Discharge Elimination System

PIPP – Pollution Incident Prevention Plan

SESC – Soil Erosion and Sedimentation Control

SWMP – Storm Water Management Plan

TMDL – Total Maximum Daily Load

TSC – Transportation Service Center

UA – Urbanized Area

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Appendix G	Soil Erosion & Sedimentation Control

IMPLEMENTATION TEAMS/TASKS	2006	Status	Schedule
MDOT Sponsored Education and Outreach			
1. Training attendance tracking		☉	☀
2. Training review and updates		☉	☀
3. Conference participation		●	☀
4. Article publication		●	☀
5. Annual progress report		●	☀
6. Storm water awareness survey		●	☀
7. Lansing Information Center		●	☀
8. General public education		●	☺
9. Public Web site administration		●	☀
Public Involvement & Participation			
1. Project early coordination process		●	☀
2. Total Maximum Daily Load (TMDL) review		●	☀
Illicit Discharge Elimination Program			
1. Illicit discharge reporting database		●	☀
2. Monitor illicit discharges and follow up		●	☀
3. Illicit discharge notification and reporting training		●	☀
4. Dry weather screening at priority outfalls		☉	☺
5. Legal authority for illicit discharge removal		●	☀
6. Dry weather screening outfall mapping		☉	☺
7. Statewide outfall mapping		●	☺
8. Tap-in/Discharge permits tracking		●	☀
Post Construction Storm Water Management			
1. Post-construction BMP maintenance guidelines		☉	☀
2. Post-construction BMP field maintenance tracking (MARS)		☉	⊕
3. Post-construction BMP selection, design, and maintenance procedures		☉	⊕
4. Drainage Manual update		●	☀
5. Existing flow control structure review		☉	⊕
Pollution Prevention & Good Housekeeping			
1. PIPP audits		●	☀
2. Maintenance training		●	☀
3. Contract agency coordination (salt storage, winter maintenance)		☉	⊕
4. Pesticide Applicator Program and fertilizer training		●	☺
5. Adopt-a-Highway Program		●	☺
Soil Erosion & Sedimentation Control			
1. SESC Program		●	☀
2. SESC Program review		●	☀
3. Part 91 and Part 31 training		●	☀
4. Outfall labeling		●	☀

Status: Procedure/Program in Development = ☉ Being Implemented = ●

Schedule: Ahead = ☺ On Schedule = ☀ Behind = ⊕

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Overview

Introduction

This Annual Report describes storm water pollution control activities implemented by MDOT over the past reporting period of January 1, 2006–December 31, 2006 to comply with reporting requirements described in the National Pollutant Discharge Elimination System (NPDES) Permit (No. MI0057364, hereinafter referred to as the Permit) issued by the Michigan Department of Environmental Quality (MDEQ). The Permit, which expires on April 1, 2009, is expected to be reissued in five year cycles thereafter.

The Permit directs MDOT to develop and implement a comprehensive Storm Water Management Program (SWMP) designed to reduce the discharge of pollutants from the MDOT drainage systems to the maximum extent practicable (MEP), protect the designated uses of the waters of the state, increase awareness of storm water as a potential source of pollutants, and satisfy the applicable state and federal water quality requirements.

Report Objectives

The objectives for this report are as follows:

- ◆ To inform MDOT Staff about SWMP activity accomplishments.
- ◆ To satisfy MDOT's annual reporting requirement of the Permit.
- ◆ To evaluate and assess the appropriateness and effectiveness of MDOT's SWMP.
- ◆ To present information about new programs, changes to current programs and procedures developed by MDOT.
- ◆ To document changes to MDOT's fiscal analysis and to summarize annual expenditures and budget information.

Report Organization

The annual report highlights actions MDOT completed or is working on to fulfill the Permit requirements during 2006 and also what activities it will focus on in 2007. The reported information is organized by the six implementation teams responsible for the completion of storm water-related activities. The activities of the teams closely follow the requirements of the six minimum

measures of the Permit. The implementation teams include the following:

- ◆ MDOT-Sponsored Education and Outreach
- ◆ Public Involvement and Participation
- ◆ Illicit Discharge Elimination Program (IDEP)
- ◆ Post Construction Storm Water Management
- ◆ Pollution Prevention/Good Housekeeping
- ◆ Soil Erosion and Sedimentation Control (SESC)

MS4 Committee

MDOT's Municipal Separate Storm Sewer System (MS4) Committee continues to meet on a quarterly basis to discuss progress of the program. Members of the MS4 Committee also serve as chairs of the implementation teams.

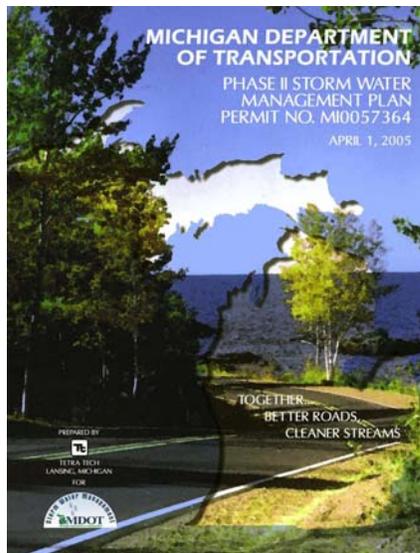
Program Assessment

Program assessment is primarily determined by the Storm Water Management Program's adherence to the activities and measurable goals committed to in the SWMP as well as regular evaluation of storm water-related procedures, training, and programs.

As MDOT's Storm Water Management Program undergoes development and implementation, care is taken to ensure that MDOT's commitments, as written in the SWMP, are fulfilled; however, as the program flourishes, it sometimes becomes evident that modifications need to be made to the original activity, the measurable goal, or both. For more detail regarding activities and schedules committed to in the SWMP, see Appendix A, *SWMP Activity Sheets*. Appendix A contains all of the activity sheets from Chapter 3, Plan Elements and Activities, of the SWMP. Each activity sheet denotes modifications to the activity's interim

milestones and measurable goals and also indicates which interim milestones and measurable goals have been completed.

Overall, MDOT is on schedule for fulfilling their commitments and the intent of their commitments by the end of the 5-year permit cycle on April 1, 2009. MDOT's vision is to have its Storm Water Management Program be incorporated into the daily activities of the Department with the storm water-related procedures compiled into a



Storm Water Management Manual. Once the original measurable goals are completed, program assessment will be based on evaluation mechanisms built into each of the procedures, trainings, and programs.

Revised Fiscal Analysis

No revisions were made to the fiscal analysis for this reporting period.

Annual Budget

Table 1 provides a summary of MDOT's past annual expenditures and estimated expenditures for fiscal year 2007. The fiscal year is from October 1st through September 30th of each year. Finalized budget information is also provided for FY 2006. The FY 2006 estimated budget will be updated in the next Annual Report.

Table 1 Annual Storm Water Management Program Expenditure and Budget

Fiscal Year	Annual Expenditure
FY 1999	\$142,111
FY 2000	\$1,017,346
FY 2001	\$764,142
FY 2002	\$638,881
FY 2003	\$508,123
FY 2004	\$395,837
FY 2005	\$372,372
FY 2006	\$477,000
FY 2007*	\$575,000

* *Budgeted amount for FY 2007.*



MDOT-Sponsored Education and Outreach

Objective

To spread awareness of MDOT's Storm Water Management Program to MDOT staff, contractors, and the traveling public and to train MDOT staff and contractors on job-related expectations.

Training

The MDOT storm water training program for 2006 focused on MDOT's Illicit Discharge Elimination Program (IDEP). IDEP Coordinators were designated for each region and were charged with 1) taking illicit discharge complaints, 2) following up on complaints and any confirmed illicit discharges, 3) training applicable field staff, and 4) recording information related to the complaints. Training materials were developed including an updated IDEP training module for field staff and a comprehensive training binder for IDEP Coordinators. The IDEP Coordinators were trained by an outside consultant on their responsibilities and on the new IDEP Reporting Database on April 27, 2006. All region IDEP Coordinators were in attendance, among others (12 attendees).

In addition to the targeted IDEP training, several other trainings were held on soil erosion and sedimentation control, pesticide application, and permanent storm water best management practices. The following details these trainings.

- ◆ SESC Training
 - Concrete Pavers Association of Michigan
September 14, 2006, Grand Rapids; October 4, 2006, Detroit; October 11, 2006, Lansing (112 attendees)
 - MITA Superconferences
January 27, 2006, Metro; February 10, 2006, Grand Rapids; February 24, 2006, Lansing (114 attendees)
 - Michigan Local Technical Assistance Program (LTAP)
September 14, 2006; October 4, 2006; October 11, 2006 (104 attendees)
- ◆ MDOT Pesticide/Certification Training
April 25-26, 2006 (67 attendees)
- ◆ NHI Course # 142047 Water Quality Management of Highway Runoff
December 6-7, 2006 (23 attendees)

- ◆ Izaak Walton League of America Highway Stormwater Management Webcast
May 18, 2006; June 15, 2006; October 26, 2006; February 2, 2007
- ◆ Federal Highway Administration, Great Lakes Storm Water Workshop
August 10, 2006 (2 attendees from MDOT)

Conference Presentations

In addition to the formal training sessions, MDOT spoke at several conferences internal to MDOT and at outside conferences regarding storm water-related topics. MDOT also provided storm water educational materials and applicable display boards as handouts and exhibits, respectively, at various conferences and public events. The following summarizes these opportunities: (For more information see Appendix B, *MDOT-Sponsored Education and Outreach*.)

Oral Presentations

- ◆ MDOT/American Council of Engineering Companies (ACEC) Partnering Conference
February 2, 2006
- ◆ MDOT Construction Conference
March 7-9, 2006
- ◆ MDOT Career Day
April 27, 2006, May 2-3, 2006
- ◆ MDOT Design Conference
June 27, 2006
- ◆ Michigan Association of County Drain Commissioners
February 15-17, 2006

Display Exhibits & Handouts

- ◆ AWWA & MWEA Joint Expo
February 6-7, 2006
- ◆ Michigan Stormwater-Floodplain Association Conference, February 13-14, 2006
- ◆ Michigan Association of County Drain Commissioners
February 15-17, 2006; June 7, 2006; June 8, 2006; June 26, 2006; June 28, 2006
- ◆ Kalamazoo Home Expo
March 8-11, 2006
- ◆ MDOT Shadow Day
April 27, 2006

- ◆ MDOT Operation CARE
April 26-29, 2006; July 1-4, 2006;
September 1-4, 2006
- ◆ “Galesburg Days”, Galesburg, Michigan
Summer 2006
- ◆ “UP Fair”, Upper Peninsula, Michigan
Summer 2006
- ◆ Kalamazoo County Fair
August 7-11, 2006
- ◆ MDOT Maintenance Conference
August 22, 2006
- ◆ Texas Township, Kalamazoo Co. Fire
Department Open House, October 1, 2006
- ◆ MDOT Real Estate Conference
October 12-13, 2006
- ◆ Metropolitan Detroit Science Teachers Assoc.
October 21, 2006
- ◆ Kalamazoo River Storm Water Management
Plan Public Meeting, October 26, 2006
- ◆ Community Expo: Watersheds, Water Quality,
Lakes, Rivers, Land Use Issues, Lawrence,
Michigan, October 31, 2006
- ◆ Sodus Township, Michigan
November 8, 2006
- ◆ MDOT Utilities Conference
December 5-7, 2006
- ◆ Michigan Infrastructure and Transportation
Association (MITA) Cross-Section publication,
“MDOT’s Storm Water Management Program
Findings – Soil Erosion and Sedimentation
Control”, Spring 2006
- ◆ Illicit Discharge Elimination Program Display
and Brochure, August 2006
- ◆ MITA Cross-Section publication, “MDOT’s
Storm Water Management Program – Illicit
Discharge Elimination Program”, Summer 2006
- ◆ LTAP, The Bridge publication, “MDOT’s
Maintenance Performance Guides Updated for
Phase II Storm Water Permit Compliance”,
September 2006
- ◆ MITA Cross-Section publication, “MDOT’s
Storm Water Management Program – Pollution
Prevention and Good Housekeeping on
Construction Sites”, Fall 2006

Other Agencies Borrowing MDOT Material

With many of the educational materials being posted on the MDOT Storm Water Public Web Page, MDOT has received several requests from other public agencies to use MDOT educational materials for their own reprinting and distribution. MDOT encourages usage of these materials and supplies the native graphic files when requested. The following is a list of agencies requesting to use MDOT materials:

- ◆ Watertown Township, Michigan
Storm Water Tip Sheets
- ◆ Universal City, Texas
Received all native graphic files
- ◆ Arizona Department of Transportation
*Storm Water Flyer for Kids and Storm Water
Jeopardy-style Game*
- ◆ Village of Pinckney, Michigan
IDEP Brochure

Storm Water Educational Materials

New storm water educational materials were developed in 2006 to increase awareness of MDOT’s storm water program to MDOT staff, contractors, and the traveling public. As the targeted audiences become more aware of the program, it is MDOT’s goal to transition that awareness to knowledge of expected participation in the storm water program, and then to behavior that supports the storm water program. This transition is expected to occur over many years.

The following materials were created in 2006 and were distributed at conferences, public events, through existing MDOT media such as the Monday Memo, and through existing industry newsletters. (For more details see Appendix B.)

- ◆ Soil Erosion and Sedimentation Control Pocket
Guide, January 2006
- ◆ ‘Dot the Drop’ Soil Erosion and Pollution
Prevention animation, February 2006

MDOT Storm Water Public Web Page

<http://www.michigan.gov/stormwatermgmt>

The MDOT Storm Water Public Web Page is part of MDOT’s Public Web Site and is updated on a quarterly basis. The page is dedicated to Phase II storm water information and provides a means for MDOT staff, contractors, and the traveling public to view and download MDOT’s storm water materials, including reports and educational materials, and to link to other storm water-related Web sites. New information downloaded to the Web page this year includes the following:

- ◆ ‘Dot the Drop’ Soil Erosion and Pollution Prevention animation, February 2006
- ◆ Interactive storm water Jeopardy-style game September 2006
- ◆ MDOT Outfall Location Maps December 2006

Documentation of the number of Web page visits and downloads is located in Appendix B.

MDOT Library

The MDOT Library is located in the Murray D. Van Wagoner Building in downtown Lansing. The library participates in interlibrary loaning to other state agencies, approved consultants, other governmental agencies, and universities. A separate storm water section is included in the library with materials that are catalogued and can be checked out. In 2006, the storm water materials were not checked out of the library and new materials were not added to this section.

Due to the tremendous amount of storm water materials available on the Web and employee tendency to search for up-to-date materials on the Web, it is believed that keeping the latest storm water material in the library is no longer of value to the storm water management program. In the future, usage of the library materials will not be recorded in the annual report.

Storm Water Management Awareness Survey

In 2005, a storm water management awareness survey was distributed throughout MDOT. The storm water awareness survey results were compiled in 2006 and a report was developed to establish baseline data regarding storm water management. The executive summary of the report is included in Appendix B.

The survey helped identify trends in perceptions, knowledge, actions, and learning modes pertinent to storm water management awareness. The results of the survey are helping to target specific job-related audiences for training using preferred methods of learning.

Focus for 2007

The education/outreach focus for 2007 is to continue to broaden the storm water training effort through conference discussions and training, specifically targeting roadway designers on the early coordination procedure and post-construction storm water best management practice design and maintenance considerations.

Upcoming education and training activities:

- ◆ MITA Superconferences

- ◆ MDOT/ACEC Partnering Conference
- ◆ MDOT Design Conference
- ◆ Construction Site Soil Erosion and Pollution Prevention Pocket Guide
- ◆ IDEP Tap-in/Discharge Permit Flyer
- ◆ IDEP Residential Illicit Discharge Flyer
- ◆ Maintenance Garage Training Video
- ◆ MDOT Watershed Boundary Map
- ◆ NHI Course # 142047 Water Quality Management of Highway Runoff for MDOT highway design staff
- ◆ Early Coordination Training for applicable staff at the Transportation Service Centers
- ◆ Training Evaluations and Follow-Up Tests
- ◆ Incorporating pollution prevention practices in existing environmental training

Measurable Goals

See Appendix A, Activities E-1, E-2, E-3, E-4, E-6, T-1, T-2, T-3, and T-4 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Public Involvement and Participation

Objective

To coordinate early planning of MDOT projects with local watershed organizations (Context Sensitive Solutions) and the Michigan Department of Environmental Quality (MDEQ) on environmental aspects.

Early Coordination Procedure

Over the past two years, MDOT has been working with the Michigan Department of Environmental Quality (MDEQ) to formalize and expand on an existing practice which instructs MDOT Staff to consider storm water Best Management Practices (BMPs) early in the project planning process. Once the BMPs are recommended by MDOT Staff, they are submitted to the MDEQ for comment for selected projects. The Early Coordination Procedure was approved by the MDOT Environmental Committee in 2006 and is being implemented as of the 2007 Scoping process. Evaluation of the procedure will be conducted annually as written in the procedure by a workgroup of selected MDOT, MDEQ, and Michigan Department of Natural Resources (MDNR) Staff.

See Appendix C, *Public Involvement and Participation*, for a copy of the MDOT office memorandum and the procedure.

Early Coordination Database

The MDOT Bureau of Transportation Planning Environmental Section is working with the Department of Information Technology (DIT) to create a web-based platform to facilitate early coordination. Project information will be posted and the site will track how many projects were sent for review and how many concurrences or comments were received. As it could be two to four years before this database is functional, tracking in the interim will be conducted manually by the Aquatic Resource Specialist within the Bureau of Transportation Planning Environmental Section.

Projects Affecting Waterways with Total Maximum Daily Loads

Three projects were reviewed in 2006 for their affect on waterways with a promulgated Total Maximum Daily Load (TMDL). Two of these projects were reevaluations from 2005 and one was a review during preliminary scoping, which is completed at least five years prior to construction. In 2006, no construction projects affected TMDL waterways.

Watershed Group Meetings

To help facilitate project coordination between MDOT and local watershed and environmental groups, region staff attend local watershed/environmental group meetings when appropriate and when possible. In addition, the MDOT Storm Water Program Manager receives and reviews meetings minutes from 15 to 20 watershed groups to ensure proper MDOT coordination when possible. In 2006 the following meetings were attended:

- ◆ Kalamazoo River Mainstem 3 (4 meetings)
- ◆ Macatawa Area Coordinating Council and the Macatawa Watershed Project - Great Lakes Basin Grant to address soil erosion (3 meetings)
- ◆ Muskegon River Watershed Assembly (2 meetings)
- ◆ Portage River Watershed Management Plan Meetings (2 meetings)

Alliance of Rouge Communities Meetings

The Alliance of Rouge Communities (ARC) is a voluntary public watershed entity currently comprised of 39 municipal governments and two counties (i.e., Wayne, and Washtenaw). The ARC members represent public agencies with water management responsibilities whose jurisdictional boundaries are totally or in part located within the Rouge River watershed located in southeast Michigan. As a stakeholder in the Rouge River watershed, MDOT attends the biannual Full Alliance meetings to keep updated on watershed happenings and to ensure appropriate coordination of MDOT and ARC activities.

Focus for 2007

- ◆ To implement the early coordination procedure.
- ◆ Continue attending watershed meetings

Measurable Goals

See Appendix A, Activities C-2, C-4 and C-5, to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Illicit Discharge Elimination Program

Objective

To effectively implement MDOT's approved Illicit Discharge Elimination Program including dry weather screening of priority outfalls and a procedure for accepting and following through with reported illicit discharges/connections.

Dry Weather Screening

Initial dry weather screening of 128 priority road-stream crossings over impaired water bodies, as set forth in the SWMP, was completed in 2006. Three hundred and ninety-three (393) outfalls were identified at these crossings and 361 of them were ruled as having no apparent illicit connections. The thirty-two (32) remaining outfalls are pending further investigation as follows: (See Appendix D, *Illicit Discharge Elimination Program*, for investigation maps saved on a CD-ROM.)

- ◆ 1 needs to be cleared of sediment with work scheduled for early spring 2007 (Bay Region)
- ◆ 1 needs to be televised with work scheduled for early spring 2007 (Bay Region)
- ◆ 1 letter was sent to property owner, follow-up investigation was conducted and no sign of discharge remaining (Bay Region) (See Appendix D for a copy of the letter)
- ◆ 2 letters were sent to appropriate local agencies to continue illicit confirmation work as illicit connections are located outside of the MDOT right-of-way (ROW) (Metro Region) (See Appendix D for copies of letters)
- ◆ 27 need to be tracked further upstream

More details regarding dry weather screening investigations, such as sample analysis results and

upstream tracking, are located in MDOT's dry weather screening database.

Reported Illicit Discharges

In addition to illicit discharges found during dry weather screening, illicit discharges were found by MDOT staff or outside sources and reported to MDOT. The status of these reports is as follows: (See Appendix D for reported discharges.)

- ◆ February 3, 2006 – Secondary containment lagoon discharge into MDOT's system – *Resolved* (Southwest Region)
- ◆ July 26, 2006 – Concrete-laden runoff into storm drain at M-14 construction site – *Resolved* (Metro Region)
- ◆ August 21, 2006 – Pipes entering ROW with dark water - *Resolved* (Southwest Region)
- ◆ September 5, 2006 – Pipe entering ditch with black discharge and odor. Letter has been sent to suspected source. – *Unresolved* (Southwest Region)
- ◆ November 2, 2006 – Concrete slurry/dust entering ditch. Source is reconstructing driveway to prevent discharge. MDOT will follow-up. – *Monitoring* (Southwest Region)

IDEP Reporting System

For tracking purposes, the reported illicit discharges are recorded in the IDEP Reporting System database. The database was developed in 2005 using *Microsoft Access*. Each region maintains its own database and is responsible for tracking its reported illicit discharges in the database. The database allows the user to input pertinent information regarding illicit discharges and helps track communications concerning the discharge.

Figure 1 MDOT IDEP Reporting System

The screenshot shows a Microsoft Access form titled "Initial Complaint" within a window named "COMPLAINT". The form is divided into several sections for data entry:

- Complaint Data:** Includes fields for AutoNumber (10792006), PSD#, Region (Metro), County, City, Mile Point Begin, Mile Point End, and Nearest cross street (i.e. NB, 30 ft from intersection).
- Source Unknown:** A checkbox labeled "Check here if you don't know source of pollution".
- Source Name:** Fields for Name, Address, City, State (MI), and Zipcode.
- Observation Date:** A date field set to 9/25/2006.
- Nature of Problem:** A text field for describing the issue.
- Complaint made by:** Fields for Name, Address, City, State (MI), Zipcode, and Phone.
- Complaint Received by:** Fields for Name (Administrator), Address, City, State (MI), Zipcode, and Phone.
- Region Manager:** Fields for Name, Address, City, State (MI), Zipcode, and Phone.

At the bottom, there are buttons for "Save and Proceed to Initial Investigation", "Save and Return to Existing Complaint Menu", "Save and Completion Report", "Save and Main Menu", and "Main Menu".

Training for the use of the database was conducted at the spring region resource specialist conference on April 27, 2006 as detailed in the *MDOT-Sponsored Education and Outreach* section of this report. See Figure 1 for a screenshot of the database.

Legal Authority for Illicit Discharge/Connection Removal

There has been no change to MDOT's legal authority requiring illicit discharges/connections be removed from its drainage system.

IDEP Construction Advisory

In September 2006, a Construction Advisory (CA 2006-12), *Reporting Illicit Discharges and Illicit Connections*, was issued to the Department reminding construction staff to follow Bureau of Highway – Instructional Memorandum 2004-10, *Illicit Discharge Elimination Program Procedure*, when an illicit discharge/connection is encountered. The procedure is summarized in the Construction Advisory and also contains the name of the IDEP Coordinator for each region. See Appendix D for a copy of CA 2006-12.

Statewide Outfall Mapping

As required by MDOT's Storm Water Phase II NPDES Permit, MDOT has developed a statewide outfall map, using Geographic Information System (GIS) software, showing the locations of known MDOT outfalls. The outfalls were located based on 1) design-survey data and 2) GPS coordinates from the dry weather screening effort. The map is posted on the MDOT Storm Water Public Web Page and is organized by region and county. The map link is located on the "illicit discharge" page. The maps will be updated annually with the latest information and will continue to be posted on the Web site. It is the intent of MDOT to expand on (or keep maps current) these maps in coordination with the MDOT Asset Management group, which has an interest in the attributes of the outfalls as well. See Appendix D for copies of the maps saved on a CD-ROM.

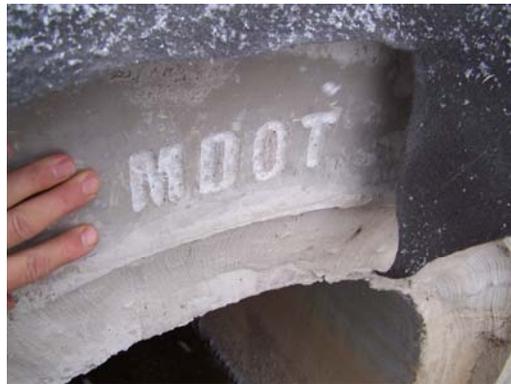
Tap-in/Discharge Permit

MDOT distributes storm water educational material with its tap-in/discharge permit application. Entities requesting to tap-in/discharge to MDOT's drainage system are required to obtain a permit. In 2006, 25 permit applications with educational information were distributed. In 2007, new storm water educational information, focusing on illicit discharge prevention, will be distributed with the permit applications.

Outfall Labeling

As reported last year, MDOT requires all work which includes culvert end sections, headwalls or other locations such as wing walls, retaining walls, etc. where storm water will discharge directly from the MDOT drainage system to the waters of the state be labeled with 'MDOT'. See Figure 2 for a photograph of a labeled outfall. For outfalls labeled in 2006, see Appendix D. Note that in the future, these outfalls will be included on the statewide outfall map once the procedure for doing so is established.

Figure 2 Labeled MDOT Outfall, 2006



Focus for 2007

The IDEP focus for 2007 is to continue to train field staff on their role in identifying and reporting illicit discharges/connections and to continue to accept and follow-up on reported illicit discharges/connections. Reported illicit discharge complaints will be recorded in the IDEP Reporting Database within each region.

Upcoming IDEP activities:

- ◆ Section 9.13, *Illicit Discharges into MDOT Storm Water Drainage Systems*, of the Construction Permit Manual will be revised and reissued.
- ◆ In coordination with MDOT's asset management efforts, a procedure will be developed to streamline the process for compiling new outfall locations and updating outfall maps annually.

Measurable Goals

See Appendix A, Activities I-1, I-2, I-3, I-4, I-5, C-10, C-12 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Post Construction Storm Water Management

Objective

To determine and implement the procedure for choosing post construction storm water BMPs, which may be structural, vegetative, or operational, as appropriate. The procedure includes coordination between environmental, design, construction, and maintenance staff early in project planning.

Drainage Manual

Revisions of the MDOT Drainage Manual were distributed to MDOT staff and appropriate construction and consulting staff. The Revised Drainage Manual is located on the MDOT Public Web Site.

Native Planting Demonstration Projects

MDOT is planning three native planting/water quality demonstration projects along three Michigan roads. The projects will be incorporated into 2008 construction projects as vegetated swales and will include an assortment of native plants.

Research suggests that one benefit of using native plants versus traditional roadside vegetation is that the native plants in combination with uncompacted soil will reduce storm water runoff to the waters of the state. The native plants reduce discharge through their extensive root system, which promotes infiltration and evapotranspiration, and through their adaptability to the Michigan environment. MDOT will also be looking at maintenance requirements associated with these projects.

Funding for the projects has been requested through Transportation Enhancement funds and is included below under the sub-heading *Transportation Enhancement Fund Projects*.

Post Construction BMP Recommendations

Although the formalized procedure for selecting, applying, and maintaining post construction BMPs will not be approved until 2007, a considerable effort has been in place for many years to review all projects for their affect on water quality. In 2006, 295 categorical exclusion projects and 2 major action projects [those requiring an Environmental Assessment (EA) or an Environmental Impact Statement (EIS)] were reviewed. It was determined that neither of the major action projects will have an adverse impact on water quality associated with storm water runoff. Table 2 shows a breakdown of

the number of categorical exclusion projects reviewed in each region in 2006.

Table 2 Reviewed Categorical Exclusion Projects

Region	No. of Projects	% of Total Projects
Grand	69	23
Bay	55	19
University	43	15
Metro	38	13
Southwest	38	13
North	31	11
Superior	21	7
Total	295¹	100

¹ The total number of projects reviewed only includes those reviewed from March through December 2006.

The major action projects include the following:

- ◆ US-2 EA (Lake Michigan and the Brevoort River) (creating roadside ditches)
- ◆ I-75 Bay Region EA (Dutch Creek, Squaconning River, Zeigler Drain, Goetz Drain, Davis Drain, and Kochville Drain) (enclosing median)

Most project reviews result in general water quality mitigation recommendations such as retaining existing open drainage where possible, avoiding tree removals within 25 feet of water bodies, and reducing runoff velocities where possible. In some cases, project reviews result in specific water quality mitigation recommendations. A sample of projects receiving specific recommendations is included below:

M-52, City of Manchester, Washtenaw County: River Raisin

Extensive new curb and gutter were proposed. Alternatives to curb and gutter were discussed but none were feasible given the location. Mitigation for increased water quantity was not feasible, so hydrodynamic separator units were recommended to remove sediments and gross solids from the runoff prior to discharge to the River Raisin.

Reconstruct M-99 through Hillsdale, Hillsdale County: St. Joseph Tributary

Reconstruction and realignment of road includes upgrade to storm sewer outlets. Widening of riprapped ditch was recommended to slow water and allow more sediment to settle out prior to discharge to Wolf Creek. This was the only feasible solution to reduce sediment and water velocities at this location.

US-31, Manistee County: unnamed stream and adjacent wetland

Catch basins and storm sewer will be adjusted to correct drainage problems. This project is anticipated to have a positive impact on water quality in the area of this project and be an improvement over the current drainage situation. Recommendations include distributing runoff, using riprap, using drop structures or baffles, and requiring additional maintenance.

Drainage corrections along M-44 west of Belding, Ionia County: Flat River

Curb and gutter must be installed to correct drainage conditions. This project will result in an increased volume of water being discharged, although at a decreased rate, to the Flat River, the majority of which is listed by the State as a designated natural river. The potential exists for water quality to be impacted unless mitigation measures are provided. Runoff from this road discharges from a culvert under Wells Road and enters the Flat River via a 400-foot riprapped ditch containing established vegetation. Recommendations include not disturbing the 400-foot ditch, using drop structures, inspecting for erosion problems after construction, and requiring additional maintenance.

M-43 through Delton, Barry County: wetland adjacent to Crooked Lake

M-43 will be reconstructed with slight widening. Water from neighborhoods will be discharged at the same point as the road runoff. This project will result in an increase in the volume and flow rate of water being discharged to a wetland area adjacent to upper Crooked Lake. Minor impacts to water quality are anticipated; therefore, mitigation measures should be provided to the maximum extent practicable. Given the narrow ROW, location of underground utilities, and ownership of the outlet and other contributing drainage areas by the Barry County Drain Commissioner, options for storm water treatment by MDOT are limited. Recommendations included using a drop structure, using catch basin sumps, and requiring additional maintenance.

Also, a hydrodynamic separator will be included to treat commercial and residential runoff, retaining one of the existing drainage outlets near Bush Street. Placement of a sediment settling basin at the outlet is being coordinated with the MDEQ.

Culvert and major ditch reconstruct on I-196, Van Buren County: Deerlick Creek

MDOT has severe erosion problems in the roadside ditches. This project is not anticipated to have any long term, negative impacts to water quality or the fisheries resource but, in fact, will create a better situation for these resources. This project includes work in and around

Deerlick Creek, a coastal tributary to Lake Michigan and listed by MDNR as a designated trout stream, making it a sensitive water body. Recommendations included shade tree replacement, fish protection during bypass pumping, and restoring ditches to a vegetated condition. The project is currently being implemented and will include all recommendations except shade tree replacement. Shade tree replacement was determined to not be necessary.

Riverwalk to be built by the Detroit Riverfront Conservancy

This project is located adjacent to the Detroit River and impacts to water quality need to be considered. MDOT is a partner in the project and has agreed to help with the National Environmental Policy Act (NEPA) process. The feasibility of using Best Management Practices to protect water quality should be evaluated during the drainage analysis. The parking lot area is a logical location to use BMPs (e.g. rain gardens, oil/grease separators, catch basin inserts, etc.). Recommendations include providing for a vegetated buffer strip between the riverwalk and the river, considering local watershed plans, using proper precautions/procedures when constructing near/in contaminated areas, disposing of contaminated materials properly, and developing a risk management plan.

Bridge replacement on M-53, Lapeer County: Peter's Drain

Water quality in Peter's Drain is being impacted by high inputs of sediment, fertilizers, and pesticides from a highly agricultural area. Possible revisions to the design of the bridge approaches were discussed at the plan review meeting on May 9, 2006. As a result of the group's discussion, the 12-inch downspouts at the end of the curb and gutter approaches in all four quadrants of the bridge will be removed from the plans and replaced with shortened curb and gutter approaches which will terminate onto short spillways, then riprap.

Post Construction BMP Installations

Several post construction BMP installations were completed in 2006 as described below. Note that these BMP installations are considered non-typical and MDOT conducts storm water activities regularly that are not typically tracked for inclusion in the storm water annual report, such as on-the-job training for waste oil disposal and repairing failing slopes at road-stream crossings.

Grand Region

A number of storm water BMPs were installed at the I-96/36th Street Interchange in Kent County. These BMPs include use of riprap and drop structures to slow down water, basins, and permanent check dams and cobble ditches.

Metro Region

In 2007, an engineered rain garden will be constructed at the Robert Scott Correctional Facility at 5 Mile and Beck in Northville Township.

Southwest Region

In April 2006, MDOT's first rain garden was constructed at the Turkeyville Rest Area, I-69 southbound in Calhoun County. The 500 square foot rain garden is designed to collect parking lot runoff and is planted with a variety of perennial plants. The storm water BMP is working well so far and two additional rain gardens are planned at Adair Rest Area (I-94 Eastbound, Saint Clair County) and Belleville Rest Area (I-94 Westbound, Wayne County). Maintenance, including weeding, is the responsibility of the contractor for the first year and of the rest area maintenance staff thereafter.

Lovers Lane Dry Pond Detention Basin in Kalamazoo / Portage was constructed north of I-94 and west of Lovers Lane. Construction of five new detention basins, also in Kalamazoo/Portage, along I-94 to the east of Oakland Drive in Kalamazoo County is planned in 2007.

The Marshall TSC coordinated with the Barry County Drain Commission to have a hydrodynamic separator installed in conjunction with a 2007 construction project.

Superior Region

The Superior Region had the following BMP installations:

- ◆ Storm sewer installation with detention basin, Cemetery Road, City of Houghton.
- ◆ Drop structure at Mill Rd/US-41 intersection Houghton County near City of Houghton.

Post Construction BMP Maintenance

As new post construction storm water BMPs are evaluated and approved by MDOT for regular use, a Performance Maintenance Guide will be developed. Currently, there is a maintenance guideline written in the Drainage Manual for each approved post construction storm water BMP.

List of Post Construction BMPs

A list of post construction BMPs has been initiated to help track the location and purpose of each MDOT post construction storm water BMP. In 2007, MDOT will select several known storm water BMPs for field inspection and maintenance recommendations, and as part of this effort, each region will have the opportunity to review the current BMP list and add to it as they become aware of existing BMPs and as new BMPs are constructed. See Appendix E for a copy of the list to date.

Transportation Enhancement Fund Projects

MDOT manages the federal Transportation Enhancement funds for Michigan and encourages grant applicants to include a water quality benefit within their project. Planned Transportation Enhancement fund projects with a noted water quality benefit include the following:

- ◆ Ingham County Road Commission is installing a storm water treatment structure on Hagadorn Road in coordination with the Grand River bridge replacement project just south of M-43
- ◆ The City of Lansing is installing engineered rain gardens and an oil/grit separator on Michigan Avenue from Larch Street to Pennsylvania Avenue to collect runoff in an ultra-urban area.
- ◆ MDOT is planning three native planting/water quality demonstration projects along three Michigan roads.

Focus for 2007

The Post Construction Storm Water focus for 2007 is to train roadway design staff on their role in integrating cost-effective post construction storm water management BMPs into their design projects.

Upcoming Post Construction Storm Water activities:

- ◆ MDOT/American Council of Engineering Companies (ACEC) Partnering Conference – cost-effective storm water BMP breakout sessions, February 1, 2007
- ◆ MDOT Design Conference – cost-effective storm water BMP presentation, June 2007
- ◆ Updating the existing Post Construction Storm Water BMP Training Module
- ◆ Post construction storm water BMP inspections
- ◆ Updating procedures and guidance materials regarding design and maintenance of post construction storm water BMPs
- ◆ Coordination with West Grand Neighborhood Organization and Roosevelt Park Neighborhood Association (Grand Rapids) Turner Gateway rain garden project

Measurable Goals

See Appendix A, Activities C-1, C-3, C-6, C-8, and C-11 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Pollution Prevention/Good Housekeeping

Objective

To enhance current activities with the ultimate goal of preventing or reducing pollutant runoff from MDOT operations and properties.

Existing Pollution Prevention Practices

Many of MDOT's pollution prevention and good housekeeping practices have been in place at MDOT for many years and are described in facility Pollution Incident Prevention Plans (PIPP), procedure manuals, and guides maintained by the Maintenance Division and the Construction & Technology Division.

Maintenance Performance Guide Updates

In 2006, the maintenance performance guides for Catch Basin Cleanout (Activity #12200) and Ditch Cleanout (Activity #12300) were updated for Phase II Storm Water Permit Compliance.

The Catch Basin Cleanout guide was revised to require that contract agencies provide landfill test results and waste disposal quantities to MDOT with every invoice.

The Ditch Cleanout guide now requires 1) a Notice of Coverage when five or more acres of earth are disturbed, 2) an inspection by a certified storm water operator when more than one acre of earth is disturbed, and 3) specific soil erosion and sedimentation control procedures.

Contract agencies should have received a copy of these updates. In addition, a summary of these changes was published in the September 2006 Michigan Local Technical Assistance Program (LTAP) newsletter, "The Bridge."

State Police Truck Inspections

Each year, the Michigan State Police (MSP) uses MDOT facilities (rest areas, weigh stations) to host their truck inspections. The truck inspections derive from federal safety requirements but also benefit water quality as some inspection protocols look for leaking fluids. There are several levels of inspections ranging from an extensive 30-point inspection to a simple driver certification check.

In 2006, 50,348 inspections were conducted across Michigan. See Table 3 for an approximate break down of these inspections by region.

Table 3 State Police Truck Inspections

MSP Districts	Equivalent MDOT Regions ¹	2006 Total Inspections
1	University	8,872
2North	Metro	9,558
2South	University	10,769
3	Bay	5,705
5	Southwest	7,319
6	Grand	3,132
7	North	1,210
8	Superior	3,783
TOTAL		50,348

¹ The MSP District boundaries and MDOT Regions do not match up exactly in the Bay, Grand, North, and University Regions. They differ by one or two boundary counties.

Maintenance Facility Pollution Prevention

MDOT performed/installed a number of pollution prevention mechanisms in 2006 including the following:

- ◆ Installed concrete containment and covers (leak and squirt proof) for brine tanks (Southwest Region)
- ◆ Removed the underground storage tanks (USTs) and installed concrete aboveground storage tanks (ASTs) with spill proof secondary containment (Bay Region)
- ◆ Installed a new chemical storage building to store fertilizers, pesticides, etc. (North Region)
- ◆ Implemented new mercury switch disposal procedure. Central Maintenance in Lansing will store switches until they are recycled.
- ◆ Conducted pit cleaning of two bascule bridges. The collected storm water was tested and disposed of properly. (Bay, Southwest Regions)
- ◆ USTs are being tested annually for line tightness and leak protection. (Statewide)

Pollution Incident Prevention Plan Audits

The Pollution Incident Prevention Plan (PIPP) audits conducted in 2005 revealed no major problems at MDOT's maintenance garages and there were no major spills at any MDOT facilities in 2006. The next round of audits is scheduled for 2008.

Based on the results of the PIPP audits, a 3-year cycle of maintenance training (safety, hazmat, environmental) is being discussed.

Pesticide Applicator Program

Pesticides are applied on MDOT right-of-way in accordance with Applicator Certification Regulation 636 and Pesticide Use Regulation 637 of Part 83, Pesticide Control, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended, (NREPA) and all other applicable state and federal regulations. These regulations require all applicators to 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.

No changes were made to the existing Pesticide Applicator Program in 2006 and training scheduled for April 2007 will follow the same format as past years. The training is approved and attended by the Michigan Department of Agriculture (MDA). MDA will also issue recertification credits for the certified applicators. Approximately 60 attendees are anticipated for the 2007 training.

Road Salt/Sand Application

MDOT tracks biweekly salt and sand usage from MDOT crews and contract agencies. A salt storage program is also in affect to assist contract agencies in updating their salt sheds. Salt and sand usage on state trunklines from October 2005 through April 2006 are shown in Table 4 and Table 5, respectively. It should be noted that it is difficult to make any year to year comparisons using the data due to variation in weather conditions and road conditions. See Appendix F, *Pollution Prevention/Good Housekeeping*, for more details regarding salt and sand application.

Table 4 Salt Usage

Region	Winter 2004-2005 Salt Tonnage per Lane Mile	Winter 2005-2006 Salt Tonnage per Lane Mile
Superior	24	23.9
North	23	25.3
Grand	24	25.1
Bay	19	16.1
Southwest	17	14.3
University	18	14.8
Metro	36	20.6
Average	23	20.0

Note: Lane mile totals per region are within 10% from year to year.

Table 5 Sand Usage

Region	Winter 2004-2005 Sand Tonnage per Lane Mile	Winter 2005-2006 Sand Tonnage per Lane Mile
Superior	13.2	9.4
North	8.2	7.3
Grand	3.7	4.1
Bay	0.0	0.0
Southwest	0.1	0.0
University	2.9	2.3
Metro	0.0	0.0
Average	4.1	3.3

Note: Lane mile totals per region are within 10% from year to year.

As discussed in the MITA Cross-Section, Winter 2007, MDOT is conscious of its salt and sand usage and tests new de-icing and anti-icing technologies to reduce salt and sand usage. These technologies include pre-wetting, surface overlay systems, and global positioning systems.

Roadside Maintenance Activities

MDOT's Maintenance Environmental Team is involved with maintenance activities that help prevent storm water pollution, such as street sweeping, catch basin maintenance, ditch clean out, culvert and underdrain maintenance, mowing, brush control, and bank stabilization. Depending on the location, MDOT's direct forces or local public agencies working under contract for MDOT will conduct these maintenance activities on a regular basis.

Catch basin cleaning, approach sweeping, and curb sweeping conducted by MDOT crews is tracked using the Maintenance Activity Reporting System (MARS). The Program Cost Accounting (PCA) details and costs are tabulated in Appendix F. Street sweeping and flushing, culvert/underdrain maintenance, and ditch clean-out activities for the contracted agencies are tracked using

Local Agency Payment System (LAPS) and are tabulated in Appendix F.

The culvert/underdrain maintenance activities include repair, removal, or replacement of catch basins, pipe culverts, pipe boxes, pipe headwalls, and underdrain tiles to culverts in a clean and serviceable condition. \$1,297,112 were spent for roadside and general maintenance activities conducted by MDOT, including cleaning catch basins and sweeping approaches and curbs. \$4,628,214 were spent for approximately 55,826 hours of activities conducted by local agencies, including street sweeping and flushing of approximately 21,680 lane miles, maintaining approximately 17,294 lane miles of culverts and underdrains, and cleaning out approximately 16,576 lane miles of ditches.

Litter Pick-Up Programs

MDOT continues to work with external groups for litter pick-up along their roadways. These groups include Adopt-A-Highway Program, Youth Corps, and cooperation with the Department of Corrections. MDOT also conducts litter pick-up using MDOT maintenance crews. Additionally, mowing contracts require contractors to pick up litter before mowing. It is difficult to get an accurate quantity of litter removal as landfill receipts are not necessary for these programs. However, public feedback for these programs has been very positive.

Fertilizer Application

Fertilizer application is not currently regulated by the government. The application of fertilizer on MDOT right-of-way is typically done on construction projects. These fertilizer applications are completed in accordance with MDOT's Standard Specifications for Construction, Section 816 and Section 917. There are very limited fertilizer applications made by MDOT Maintenance staff. No changes were made to the fertilizer specifications in 2006.

Focus for 2007

The primary focus in 2007 will be to work with the Post Construction Storm Water Management Implementation Team to update procedures and guidance materials regarding maintenance of post construction storm water BMPs. In addition, the following is planned:

- ◆ Working with a contract agency, for demonstration purposes, to better track sediment removal from the MDOT drainage system.
- ◆ New contracts for pesticide work at tourist facilities (rest areas) in the Bay Region will include language that pesticide and fertilizer materials may not be left on impervious surfaces.

All regions are encouraged to use similar language in contracts for this work.

- ◆ The capital outlay fund (\$500,000) for environmental remediation continues to fund new projects at MDOT facilities such as aboveground storage tanks and chemical storage buildings.
- ◆ Incorporating pollution prevention on construction sites, such as bridge cleaning and concrete truck washout, into appropriate trainings.

Measurable Goals

See Appendix A, Activities C-9 and C-12 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Soil Erosion & Sedimentation Control

Objective

To enhance the current activities to effectively reduce accelerated soil erosion and resulting sedimentation on MDOT construction and maintenance projects.

Existing SESC Practices

Many of MDOT's soil erosion and sedimentation control procedures have been in place at MDOT for many years and are described in the MDOT SESC Manual and Standard Specifications for Construction maintained by the Construction & Technology Division.

MDOT SESC Manual

A revised SESC Manual was approved by MDEQ in July 2006. Since its approval, the manual has been distributed statewide and is now available to download from the MDOT Public Web Site at www.michigan.gov/mdot/. The manual was developed in cooperation with MDEQ to qualify MDOT as an Authorized Public Agency (APA). An APA is exempt from obtaining a Part 91 permit from a county or local enforcing agency but must still notify the agency of each proposed earth change.

SESC Quality Assurance/Quality Control (QA/QC) Reviews

MDOT is proceeding with the SESC QA/QC review process. From now until the end of the permit cycle (April 1, 2009), each Transportation Service Center will be reviewed twice per the QA/QC Plan. The reviews will be triggered by the Engineer Certification Program (ECP). The recent change in the ECP from a three-year cycle to a four-year cycle will require revisiting the SESC QA/QC process to determine if changes are necessary.

In 2006, over 50 SESC QA/QC reviews were conducted at construction sites statewide following the SESC Program Review Process which was approved by the Environmental Committee in 2006. See Appendix G, *Soil Erosion & Sedimentation Control*, for review locations and a copy of the SESC Program Review Process. Overall, MDOT was pleased with the outcome of the reviews but noted a few key deficiencies which were immediately addressed with the applicable parties at the time of the QA/QC reviews. These deficiencies will also be addressed in the upcoming construction season through additional advisories and discussions and include the following:

- ◆ An Earth Change Plan is required for work outside of the grading limits but within the MDOT Right-of-Way per R 323.1703.

- ◆ Silt fence must be trenched in.
- ◆ Inlet protection must be maintained and in cooperation with pavement sweeping.

Training: Part 91 and Part 31 of Act 451

Pursuant to Part 91 of Act 451, MDOT has established procedures for soil erosion and sedimentation control, as detailed in the MDOT SESC Manual. Targeted MDOT staff are trained and certified as required under Part 91. MDOT utilizes Certified Storm Water Operators as required under Part 31 of Act 451. Table 6 lists the number of staff in each region that are SESC trained and certified. Additionally, 435 MDOT staff are certified as Storm Water Operators.

Table 6 MDOT Staff SESC Trained and Certified

Region	Number of Staff SESC Certified
Lansing Central Office	16
Bay	74
Grand	75
Metro	119
North	86
Southwest	77
Superior	74
University	67
Total	588

The number of MDOT Staff trained and certified in Part 91 and Part 31 of Act 451 in 2006 increased substantially from 2005. In 2005, 171 MDOT Staff were certified as Storm Water Operators and 164 MDOT Staff were certified in Part 91.

Slope Restoration Construction Advisory

In October 2006, a Construction Advisory (CA 2006-15), *Slope Restoration*, was issued reminding those involved with MDOT construction to conduct timely slope restoration during the construction phase to minimize soil erosion and subsequent off-site sedimentation. The primary components of slope restoration include topsoil, fertilizer, seed and mulch. See Appendix G for a copy of CA 2006-15.

Focus for 2007

A SESC pocket guide will be developed for distribution at the 2007 MITA Superconferences and to the job-related public. This pocket guide will include an increased number of SESC details and photographs of

both acceptable and not acceptable construction site BMPs.

Upcoming SESC Activities:

- ◆ MDOT is currently working with industry to develop a Construction Quality Partnership (CQP). MDOT has selected five projects to pilot the CQP for the 2007 construction season. For these projects, MDOT staff will provide training for key Department and Contractor personnel involved with the projects. Each project will include four specific work items to improve construction quality. One of the work items will be SESC. This training is intended to enhance communication, decision-making skills and team building. The desired outcome will be improved project quality and regulatory compliance.

Measurable Goals

See Appendix A, Activity C-7 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.