Deval L. Patrick, Governor
Timothy P. Murray, Lt. Governor
Jeffrey B. Mullan, Secretary & CEO
Luisa Paiewonsky, Administrator

massDOT
Massachusetts Department of Transportation
Highway Division

April 29, 2011

Glenda Velez
U.S. Environmental Protection Agency - Region 1
5 Post Office Square – OEP06-01
Boston, MA 02109-3912

RE: NPDES Phase II Small MS4 General Permit
EPA Permit Number MA043025
MassDOT (formerly MassHighway) Permit Year 8 Annual Report

Dear Ms. Velez,

Please find enclosed the Permit Year 8 Annual Report, signed by the Acting Administrator Francis DePaola. The annual report summarizes the Massachusetts Department of Transportation's activities between April 2010 and March 2011 towards meeting the measurable goals outlined in the NPDES Phase II Notice of Intent (NOI), which was submitted to your office in July 2003, and most recently revised on January 11, 2008. Please feel free to contact Henry Barbaro, Supervisor of Wetlands & Water Resources, at (617) 973-7419, if you have any questions or require further information.

Sincerely,

Kevin M. Walsh
Director
Environmental Services

Enclosures: NPDES Phase II Small MS4 General Permit Annual Report – Year 8

cc: Fred Civian
Massachusetts Department of Environmental Protection
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Boston, MA 02108

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Municipality/Organization: MassDOT - Highway Division

EPA NPDES Permit Number: MA043025

MaDEP Transmittal Number: W-040919

Annual Report Number & Reporting Period: No. 8: April 2010-March 2011

NPDES Phase II Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: Mr. Henry Barbaro Title: Supervisor of Wetlands & Water Resources

Telephone #: (617) 973-7419 Email: henry.barbaro@state.ma.us

Certification:

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: 

Printed Name: Francis A. DePaola, P.E.

Title: Acting Highway Administrator – MassDOT, Highway Division

Date: 4/25/2011

Part II. Self-Assessment

MassDOT – Highway Division has completed the required self-assessment and continues to determine that the Municipal Separate Storm Sewer Systems (MS4) is in full compliance with the permit conditions. By letters dated January 25, 2007 and April 27, 2007, MassDOT received full authorization to discharge stormwater from MassDOT owned and operated MS4s in urbanized areas of Massachusetts. EPA requested that MassDOT continue to update/revise the Storm Water Management Plan (SWMP) by letters dated August 18, 2006 and October 10, 2006. MassDOT submitted a revised SWMP to address the EPA comments on January 11, 2008.

On May 30, 2008, the United States District Court for the District of Massachusetts (Young, J.) entered findings and rulings after a trial held in Conservation Law Foundation et al. v. Patrick et al., No. 06-11295-WGY. MassDOT subsequently revised its SWMP to conform to the Court's trial findings, and submitted its revised SWMP to the Court and EPA on about December 23, 2009. On May 11, 2010, the Court entered an order, requiring MassDOT to implement stormwater mitigation measures at the three sites addressed at trial (in Bellingham, Lancaster, and Milford) and to further revise its SWMP in accordance with an April 22, 2010 letter from the EPA (discussed below). On July 26, 2010, the Court approved the remedial plan submitted by MassDOT (including all SWMP revisions), and on April 14, 2011, it entered final judgment and closed the case. As of January 31, 2011, MassDOT completed construction of all mitigation measures at the three sites (see report below on BMP 7T & Appendix M).

On April 22, 2010, MassDOT received a letter from EPA outlining concerns regarding MassDOT's plan for addressing impaired waters (including waters covered by TMDLs), as set forth in the December 2009 revised SWMP. To address these concerns, MassDOT met with EPA and submitted a response on June 9 and July 23, 2010. The response included the development of the "Impaired Waters Program" and the commitments made in BMP 7U and 7R. We have received no written comments from EPA since the response. MassDOT has begun discussions with EPA regarding pursuing coverage under an individual permit during the next permit term.

MassDOT, with our consultant's support, has developed a new and robust "Impaired Waters Program" to address discharges to impaired waters from the highway stormwater system as part of compliance with the MS4 general permit. MassDOT has expended a significant amount of external and internal resources to implement this aggressive program to address discharges to impaired waters. MassDOT's program includes two components:

- **Retrofit Initiative**: As part of MassDOT's commitments under BMPs 7U and 7R of the most recent SWMP, MassDOT is implementing an analysis of sites to address stormwater runoff to impaired waters in areas covered by the MS4 permit. The purpose of this initiative is to identify and prioritize the most serious pollution problems where MassDOT has the most impact and quickly move BMPs to design/permitting and construction. Where analysis determines that additional BMPs beyond the existing stormwater controls are necessary, MassDOT will develop design plans and construct the retrofit improvements.

MassDOT received federal funding for construction contracts under this initiative for fiscal year 2011.

- **Programmed Projects Initiative**: As described in BMPs 7U and 7R, MassDOT also continues to seek opportunities in its existing highway construction projects to implement additional stormwater BMPs. In order to expand the projects which include stormwater drainage improvements beyond the retrofit initiative, MassDOT has developed this second program. The initiative includes identifying opportunities to address stormwater impacts into the design phase of MassDOT road improvement or maintenance projects included in the State Transportation Improvement Plan (TIP) (referred to as "programmed projects") and implementing BMPs. MassDOT will coordinate this process with its on-going assessments under BMP 7U and 7R to ensure consistency in its assessments and recommendations.

In the nine months since the June 8, 2010 start date of this five-year program, MassDOT has assessed 109 impaired water bodies through the Retrofit Initiative, as set forth in the three quarterly reports submitted to the EPA on September 8, 2010; December 8, 2010; and March 8, 2011. These assessments have identified 54 existing BMPs, and led to plans to install an additional 18 BMPs. Through the Programmed Projects Initiative, MassDOT also has received over 120 Site Data Forms that indicate whether a project may need additional stormwater controls to address stormwater runoff. More than 51 existing and proposed BMPs that treat runoff from more than 120 acres of roadway have been identified on these forms. Additionally, MassDOT has identified at least six new BMPs that will be built during upcoming "resurfacing" projects. A summary of these activities is included in the report below for BMPs 7R and 7U, along with Appendix L.

As required under Part II.D.2 of the general permit, we want to highlight MassDOT has modified BMP 7U to add components to include the impervious cover method protocol. MassDOT recently developed this protocol for use in assessments of impaired waters without TMDLs and submitted the document to EPA for comment. There is no generally accepted approach to conducting such an analysis for waters without total maximum daily limits (TMDLs) short of an in-depth study of the specific water body and all associated pollutant sources. Such an analysis is expensive and time consuming to implement for a single watershed and becomes prohibitive on the scale of MassDOT's stormwater system. Therefore, MassDOT needed to develop an efficient and effective approach for assessing the many waterbodies across the state that fell into this non-TMDL impaired waters category. The developed approach is based on the "Impervious Cover" (IC) Method, which was endorsed by recent EPA guidance published in November 2010 and findings by the National Research Council (NRC 2009)[1] MassDOT originally designed BMP 7U based on earlier EPA guidance from 2002, which recommends an "iterative adaptive" approach and acknowledges that numeric limits should be used only in "rare" cases.[2] In accordance with the 2002 guidance, BMP 7U stated that it would "consider currently

[1] The 2010 EPA guidance, entitled "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs'," is available at http://www.nctcog.org/envir/SEEclean/wq/tmdl/EPAestablishingtmdlwla_revision.pdf.

available data on pollutants in highway stormwater runoff, including USGS data" in conducting impaired-waters assessments, but left open the possibility of relying on other sources of quantitative data. The IC method represents MassDOT's effort, in light of the recent EPA guidance and scientific findings, to incorporate the most up-to-date research and methods to the task of broadly assessing, over a short period of time, 684 water bodies to which MassDOT may potentially discharge stormwater in order to determine the need for additional control measures and BMPs.

MassDOT has also added BMP 7T to summarize the activities undertaken at three sites to address water quality.

This annual report incorporates the combination of MassHighway with the Massachusetts Turnpike Authority properties and a few MA Department of Conservation and Recreation roads (Arlington Road, Casey Highway, Columbia Road, Gallivan Boulevard, McGrath Highway, Middlesex Avenue, Morton Street, and O'Brien Highway) that are operated as the Massachusetts Department of Transportation, Division of Highways (MassDOT) agency[3]. The annual report includes a summary of the BMPs included in the Turnpike's SWMP and reported on in previous annual reports. This annual report indicates how the former Turnpike BMPs will be incorporated into the MassDOT BMPs. The DCR roads will also be addressed by the current MassDOT BMPs.

[2] The 2002 EPA guidance, entitled "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs," is available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/final-wwtmdl.pdf.

[3] Massachusetts Highway Department ("MassHighway") was integrated into the new Massachusetts Department of Transportation, Division of Highways, effective November 1, 2009, pursuant to St. 2009, c. 25, § 8.

Part III. Summary of Minimum Control Measures

The BMPs included in MassDOT's Stormwater Management Plan (SWMP) are summarized in each of the Minimum Control Measure sections below.

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
1A	MassDOT Training Assistance Program (MTAP)	MTAP	Facilitate one training program related to storm water and /or snow and ice control as a means of reducing source pollution. Document attendance numbers.	Twenty-one Snow & Ice Control classes were conducted in 2010 with a total of 689 personnel in attendance. Classes ran 5-6 hours each. Trainings dates were September through December, 2010. Topics covered included: • Anti-icing vs. Deicing • Spreader calibration • Behavior of chemicals • Liquids and pre-wetting • Sidewalks as part of snow operations	Continue with snow and ice and/or stormwater pollution source reduction training.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
1B	Baystate Roads	Baystate Roads	Provide one training program for MassDOT employees and one for municipal DPW snowplow drivers related to snow and ice control as a means of reducing source pollution. Document attendance numbers.	Training programs were resumed this permit year. The following classes were held: **Snow Roadeo**, 4 workshops for 3.5 hours with 60 personnel in attendance. Plow driver skills were tested and drivers were quizzed on knowledge of proper use of chemicals and proper operations. **Snow and Ice Operations** – same topics as 1A, held Oct and Nov 2010. Five workshops and 267 personnel attended. **Spreader calibration** was held Dec and Jan 2010 for 3.5 hours. There were four workshops and 120 attended. Topics covered were hands-on spreader calibration exercise, application rates, and data collection. **Gravel Road Maintenance** was held in March 2010. There were four workshops and 120 attended for 3.5 hours. The topic covered was proper grading to reduce erosion. **Introduction to Highway Hydraulics** was held in Dec 2010. It was one 15 hour workshop with 28 in attendance. Topics covered included rational method, a water flume is used to collect flow data, flow calculations are then performed for a variety of flow conditions, and pipe and open channel flow calculations are performed.	Continue snow & ice pollution source reduction training. Give a presentation through Baystate Roads relative to stormwater compliance and the MassDOT project delivery process.
IC-1	MassDOT Web Site	IT/Environmental	Add Environmental Section web page to web site.	Measurable goal completed in Permit Year 1.	Measurable goal complete.
1C-2	MassDOT Web Site	IT/ Environmental	Include link for contacting Highway Department via email. Review emails and direct to appropriate department.	The MassDOT web site includes a link for contacting the Highway Division via email. Emails received are reviewed and directed to the appropriate department.	Measurable goal complete.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
1C-3	MassDOT Web Site	IT/ Environmental	Evaluate web page annually and revise as necessary.	The Environmental web page has been reviewed and updated. Annual Report 7 was added this year.	Evaluate web page and revise as necessary. Annual Report 8 will be added to the content. MassDOT is developing a Stormwater Management Website to be launched in 2011. This website will contain information on our various stormwater management programs as well as maintain links to important design, construction, and annual reporting information.
1D-1	**Removed** Storm Water Training Workshop	Environmental/ MTAP	Conduct training for MassDOT personnel every two years. Summarize date of meeting, topics covered, and #of attendees in annual report. Also include # of Snow& Ice training classes, and # of "tailgate" meetings.	This BMP is duplicative since storm water training is addressed through the BMP 1A program above. The BMP 1D-1 is replaced by the additional commitments made in BMP 1A in the January 2008 SWMP.	BMP Removed
1D-2	**Removed** Storm Water Training Workshop	Environmental/ Baystate Roads	Conduct storm water training workshop for municipal DPW personnel every two years. Summarize training programs similarly to above.	This BMP is duplicative since storm water training is addressed through the BMP 1B program above. The BMP 1D-2 is replaced by the additional commitments made in BMP 1B in the January 2008 SWMP.	BMP Removed
1E	Educational Seminars for CIM members	Construction Section	Provide educational seminars for CIM members on CGP Permit coverage and environmental compliance in Permit Year 1.	Measurable goal complete in Permit Year 1.	Measurable goal complete.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
1F	**Removed** MassDOT/ Municipal Tie-In Review Process	Environmental/ Districts	Develop communication mechanism re: MassDOT drainage that discharges to a local MS4. Develop review process for addressing those concerns. Notify other MS4s of process.	BMP Revised – see 1F below	BMP Revised
1F Revised (Revised in Jan 08 SWMP)	*Post Contact Names for Municipal Drainage Concerns on MassDOT Web Site*	*Environmental/ Districts/ GIS*	*1) Distribute a flyer with contact names to municipalities during May 2007 Baystate Roads NPDES Phase II General Permit seminar.* *2) Post DHD contact name for each district on website for municipalities to contact and maintain link.* *3) GIS group will develop a program to provide easy to use access and allow the public to identify a selected area and review the MassDOT owned roads and outfalls. MassDOT will then review alternatives for alerting towns and the public to the availability of this information.*	*1) Completed in Year 5.* *2) DHD contact names continue to be updated on the web site. Go to http://www.mhd.state.ma.us/default.asp?pgid=dist/distRoot&sid=wrapper&iid=dist/dist.asp default.asp?pgid=content/projects&sid=about"* *3) MassDOT received requests from Kingston, Littleton, Revere and Peabody to share drainage outfall inventory information this year.*	*1) Completed in Year 5.* *2) Continue to maintain contact names.* *3) Share drainage inventory information as requested.*
1G	River and Stream Signs	Traffic Operations	Maintain signs identifying rivers and streams crossed by MassDOT roads, until crossing of all named rivers and streams are signposted.	MassDOT has installed 24 signs identifying river and stream crossings in Permit Year 8. The locations were identified by MassRiverways Program and installed by MassDOT personnel. A list of the locations is included in Appendix A of this report.	MassDOT will continue to install signs in areas identified by MassRiverways Program and anticipates installing approximately 15-20 signs in the next 12 months.
1H	Anti-litter/ Dumping Messages on Variable Message Boards	Operations	Maintain anti-litter message in the message mix on permanent Variable Message Boards (VMBs).	Anti-litter messages were included in the message mix on permanent Variable Message Boards.	Continue to include anti-litter messages on VMBs.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
1I	Anti-litter/ Dumping Literature at Visitors Centers	Operations	Work with EOEEA's Think Blue Campaign to identify appropriate brochures for use in Visitor's Centers. Distribute literature to appropriate visitor centers and track number of brochures distributed annually.	The Think Blue Campaign was not utilized for this BMP due to lack of resources and agreement for approach to project. Instead, MassDOT developed a stormwater brochure to distribute at appropriate venues. 300 flyers were distributed at the Massachusetts Association of Conservation Commissioners (MACC) annual meeting in March 2010. A copy of the brochure is included as Appendix B.	Distribute brochure at appropriate venues and track # distributed.
1J	New England DOT Meetings	Environmental	Coordinate with New England DOTs to discuss on-going issues and programs being faced by the DOTs including wetland mitigation, storm water and erosion controls.	Henry Barbaro communicates with other DOTs in the New England region and across the country as the need arises. This has been done on an individual basis, small group basis, and through the AASHTO Storm Water Committee. Henry Barbaro, Wetlands Chief Supervisor, is on the AASHTO Storm Water Committee and attended the biannual conference 4/27–29/2010 (Denver, Colorado). Approximately 60 people were in attendance; all 50 states were represented. Topics covered included transportation and the environment.	MassDOT will communicate with other DOTs as the need develops and participate in the AASHTO storm water committee.
1K	Storm Water Coordinator	Environmental	Fund a full-time stormwater coordinator position each year.	Robert Bennett continues to coordinate the NPDES stormwater program. He has completed many tasks under this role throughout the year. MassDOT added a staff member to the Environmental Section to be in charge of the Impaired Waters Program implementation, Mr. Alex Murray works with design consultants to determine what stormwater features might be necessary to address discharges to impaired waters and works with our consultant, AECOM, to perform assessments under the Impaired Waters Retrofit Initiative and Programmed Project Initiative.	Continue to fund a stormwater coordinator and an Impaired Waters Program coordinator.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
	Environmental Site Data Form	Environmental	Develop an environmental site data form for review by designers with Environmental staff at 25% Design. Implement on all projects.	The Environmental Site Data Form , now termed the Water Quality Data Form (WQDF)was completed and updated version released throughout 2010, The data form is now required for submittal at 25% Design and 75% Design stage to MassDOT by internal designers and consultants. A copy of the form is included as Appendix C of this report. More than 100 projects on the STIP have been assessed for impacts to Impaired Waters utilizing the WQDF this year. Several statewide trainings have been conducted to familiarize in-house design, projects, environmental, and maintenance staff with the requirements of the Impaired Waters Program including the WQDF. To date, these trainings have reached over 130 MassDOT staff at headquarters and in the district offices. Additional training sessions for design consultants reached 108 people, representing 63 different engineering and design firms."	Internal designers and consultants will continue to submit the forms at 25% and 75% Design Submittals. Continue to work with designers to educate on the information required as part of the data form and how to accurately and comprehensively complete.

Former MassTurnpike BMPs

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 1A	Educational Displays	Environmental	MTA will post 1 display per year.	Replaced by MassDOT BMP 1I: Anti-litter/ Dumping Literature at Visitors Center.	Replaced.
MTA 1B	MTA Website	Environmental/ IT	Post stormwater education information twice per year; link to DEP's website; update annually or as needed.	New website for MassDOT available 11/2009. Replaced by MassDOT BMP 1C-1: MassDOT Web Site.	Replaced.
MTA 1C	Informational Pamphlets	Environmental	Obtain or develop stormwater information pamphlets; provided at all rest areas.	Replaced by MassDOT BMP 1I: Anti-litter/ Dumping Literature at Visitors Center.	Replaced.

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
2A	Project Related Public Notification and Public Participation Requirements	Environmental	Continue compliance with federal and state public notification and public participation requirements including but not limited to Wetlands Protection Act, Clean Water Act 401 Water Quality Certification, Army Corps of Engineers 404 Permit, and MEPA/NEPA.	MassDOT continues to comply with federal and state public notification and public participation requirements. MassDOT conducted 95 design public hearings in this permit year (see Appendix D).	MassDOT will continue to comply with federal and state public notification and public participation requirements. All public hearings will be posted on the website.
2B	Adopt-a-Highway	Adopt-a-Highway	Continue to support program.	MassDOT continues to support this program. Thirty Adopt-A-Highway signs were posted.	MassDOT will continue to support this program, maintaining the current level of sponsors and increasing volunteer participation.
2C	**Removed** Project Clean	Project Clean	Continue to support Project Clean.	Revised – see 2C below	BMP Removed.
2C Revised	*511 Massachusetts Traveler Information System*	*Operations*	*Maintain 511 System*	*The 511 program received various calls during the permit year. The calls included reports of issues such as roadway debris and litter along the roadway.*	*The 511 system will continue to be monitored and maintained via MassDOT's vendor: Sendza, Inc.*
2D-1	MassDOT Web Site	IT/ Environmental	Post Storm Water Management Plan (SWMP) to web site.	The most recent SWMP submitted to EPA (January 2008) is posted on MassDOT's web site.	Post NOI and SWMP submitted for new general permit(s) (when issued) within 60 days of submittal.
2D-2	MassDOT Web Site	IT/ Environmental	Post annual reports to the web site.	Measurable goal complete. Annual Reports for Permit Year 1-7 are posted on the Environmental Section's web page.	Permit Year 8's Annual Report will be posted to the Environmental Section web page for public access within 30 days of submittal to EPA and DEP.
2E	Complete AASHTO's Center for Environmental Excellence on "Strategies & Approaches to Complying with NPDES Phase II Survey"	Environmental	Complete survey.	Completed survey in Permit Year 3.	Measurable goal complete.

Former MassTurnpike BMPs

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 2A	Trash Pick-up	Operations	Pick up trash along turnpike on a regular basis.	Replaced by MassDOT 6C-2: Maintenance.	Replaced.
MTA 2B	Storm Drain Stenciling	Operations	Stencil CBs at service stations.	Stencils inspected during semi-annual CB cleaning and replace if necessary. BMP replaced by MassDOT 1G: River and Stream Signs and 6C-2: Maintenance.	Replaced.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
3A-1	Rest Area Leases	Environmental/ Right-of-Way	Include drainage system submittal requirements in all new rest area leases where the site is to be redeveloped. Summarize in annual reports.	Submission of drainage information is a standard condition on all new rest area leases.	Measurable goal complete.
3A -2	Rest Area Leases	Right-of-Way	Summarize new rest area leases issued each year in the annual report.	No new rest area leases were issued during Permit Year 8.	If new rest area leases are issued, they will be summarized in the annual report. However, because existing lease agreements are multi-year, no new lease agreements or lease renegotiations are expected during the next permit year.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
3B-1	Drainage Inventory	Environmental/ Construction/ Planning/ IT Section	Develop and implement specification for securing drainage information from future construction and redevelopment projects.	MassDOT is the procurement phase for an asset and maintenance management system. With the assistance of Cartegraph, Inc., MassDOT conducted a comprehensive review of MassDOT-Highway Division's requirements for asset and maintenance management, and produced a Needs Assessment Report. MassDOT-Highway Division then posted, in January 2010, a request for proposals for an asset and maintenance management system and is now in the process of system selection and procurement. As part of illicit discharge review and mapping program and the Retrofit Initiative, MassDOT-Highway Division consultant, AECOM, has continued to improve upon MassDOT's drainage outfalls and other drainage components electronic inventory.	With the procurement of an asset and maintenance management system, data on stormwater drainage components will be loaded into the new system. Through training efforts at the District level, activities related to stormwater infrastructure, such as inspections and catch-basin cleaning will be tracked, helping to keep our infrastructure data up to date. Updating of the outfall inventory and information related to the illicit discharge work will continue to be used to update that stormwater infrastructure layer. During site visits for the Retrofit Initiative, AECOM will locate existing stormwater BMPs and add them to the infrastructure layer.
3B-2	Drainage Inventory	Environmental/ IT/ Districts	Map drainage discharges within urbanized areas. By the end of the permit term complete inventory of urbanized areas and include summary of resource areas with outfalls. Review methods to make outfall inventory available to the public for ease of access.	Outfall inventory was completed in Permit Year 5. Public access has been provided by MassDOT through the web site or through District offices to Town's or other entities that request inventory related information. MassDOT has received a number of requests and have been able to respond relatively quickly.	Continue to share inventory with public and within the Department.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
3C-1	Drainage Connection Policy	Environmental	1.) Issue Drainage Connection Policy. 2) Post copy of policy on MassDOT web site. 3) Enforce the provision through referrals to the Attorney General office. 4) Summarize actions taken in the annual report.	1.) Policy issued on June 26, 2006 by the Chief Engineer – measurable goal complete. 2.) Policy posted at http://www.http://www.mhd.state.ma.us/default.asp?pgid=content/engineering02&sid=about 3.) No referrals to the AG office were necessary. 4.) Draft letters have been prepared to send to residences/ businesses with potential illicit connections this permit term.	Continue to enforce provisions of drainage connection policy. Finalize the draft letters and send them out; follow up on letters.
3C-2	Drainage Tie-In Standard Operation Procedure (SOP)	Environmental/ Legal	Issue a revised Drainage Tie-In SOP. Annual reports will summarize drainage tie-in permits applications and permits issued.	MassDOT has chosen a contractor for the SOP process. The current draft SOP was reviewed and recommendations have been submitted. Appendix E summarizes the status of drainage tie-in permits applied for, received or where the homeowner has been instructed to apply for a permit or disconnect flow as of this permit year. The DOT permit process allows DOT to review the flow and ensure the flow is an exempt non-stormwater discharge, among other requirements.	Finalize Drainage Tie-In SOP by end of 2011. Submit to Chief Engineer for signature and issuance to Department. The Executive Office of Transportation Legal and Environmental Services will take steps to make the Drainage Tie-In Policy a formal MassDOT SOP
3D	**Revised** Illicit Connection Review	Environmental/ Districts	Review twenty discharges each permit year for potential illicit connections.	BMP Revised	BMP Revised

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
3D Revised	*Illicit Connection Review*	*Environmental/ Districts*	*Develop prioritized list for IDDE and include in Permit Year 5 Annual Report. Release RFR for development and implementation of IDDE program for watersheds on prioritized list. Field review complaints/ potential IDDEs identified by District personnel, during the drainage inventory, in response to municipal email requesting suspect areas and/ or from public throughout the year.*	*Contract was awarded to AECOM and a Notice to Proceed was issued on September 15, 2010. AECOM reviewed approximately 138 miles of roads from September through December 2010. The illicit discharge program focused on reviewing areas with impaired waterbodies that are only impaired for pathogen related impairments.* *During the 2010 field season, AECOM field crews investigated 2,307 stormwater features in DOT Districts 3, 4 and 5. Work was conducted in 21 cities and towns on 137.7 miles of roadway on 22 different interstates, state highways, and state roadways. The roads are summarized in the table below. This review included IDDE activity for roads as part of the Retrofit Initiative to address receiving waters which were impaired for pathogens and other pollutants. Appendix F includes a summary report of the 2010 IDDE program results.* *(cont'd next page)*	*AECOM will perform a comprehensive dry weather review of an additional 10% of urbanized area roads this year. The review will continue to focus on waterbodies impaired for pathogens, selected programmed projects that drain to receiving waters impaired for pathogens and assessments completed under the Retrofit Initiative.* *MassDOT and/or AECOM will further investigate potential illicit discharge identified during the 2010 field season. The additional investigation may include further sampling and extended surveys of the stormwater system in conjunction with adjacent property owners and municipalities to identify and eliminate the potentially illicit sources. In cases where flows originated from, or continued onto, property not owned by DOT it will be important for DOT to work with local municipalities or private landowners to address the identified flows.*

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
3D Revised (cont'd).	*Illicit Connection Review*	*Environmental/ Districts*	*Develop prioritized list for IDDE and include in Permit Year 5 Annual Report. Release RFR for development and implementation of IDDE program for watersheds on prioritized list. Field review complaints/ potential IDDEs identified by District personnel, during the drainage inventory, in response to municipal email requesting suspect areas and/ or from public throughout the year.*	*The AECOM field team collected samples from 41 dry weather flows within the 2010 survey area. The analytical results for 29 of the locations suggested natural sources for the flow such as groundwater seepage or a culverted stream. Analytical results and field observations identified the remaining 12 flows as potentially illicit discharges. Surfactant benchmark exceedances at 11 of these locations suggested washwater contamination within the discharges; likely sources include a recently washed car or a residential washwater hookup. The analytical results for one flow resulted in high fluoride values which suggested irrigation or tap water as the source for discharge.* *Common inputs of tap water include irrigation runoff or a cross connection with the municipal water line. None of the tested flows exceeded the benchmark for the ammonia/potassium ratio in order to require laboratory E.coli testing. A full summary of the 2010 IDDE work is included as Appendix F.* *MassDOT and AECOM also spent time following up on legacy potential illicit discharges. Appendix E includes a summary sheet of the discharges and a single page description for each of the discharges which were reviewed providing additional detail.*	*MassDOT will perform field review of complaints/ potential IDDEs identified by District personnel, during the IDDE work, in response to municipal email requesting suspect areas and/ or from public throughout the year. We will provide summary of IDDE activity in annual report.*

Table 1 Roads Included in 2010 IDDE Survey Work

DOT District	Road Miles	DOT Roads
3	31.6	I-90, I-190; Routes 2, 12, 20, 122A, 146
4	55.8	I-93, I-495; Routes 3, 38, 62, 129, 133
5	50.3	I-195; Routes 6, 28A, 44, 103, 123, 138, 140
Total	137.7	

Table 2 Impaired Waterbodies Included in the 2010 IDDE Survey

DOT District	Waterbody	Impairment
3	Blackstone River	Unknown toxicity, priority organics, Metals, Nutrients, Pathogens, Flow Alteration, Suspended Solids, Turbidity, Taste, Odor
3	North Nashua River	Pathogens, Taste, Odor, Color, Turbidity, Cause Unknown
4	Spring Brook	Pathogens
4	Vine Brook	Pathogens
4	Strong Water Brook	Pathogens
4	Maple Meadow Brook	Pathogens
5	Three Mile River	Pathogens
5	Segreganset River	Pathogens
5	Kickamuit River	Pathogens
5	Lee River	Pathogens
5	Bread and Cheese Brook	Pathogens
5	West Falmouth Harbor	Nutrients, other habitat alterations, Pathogens
5	Harbor Head	Pathogens
5	Great Sippewisset Creek	Pathogens

Table 3 Dry Weather Discharges Identified in the 2010 IDDE Survey

Feature ID	Flow	Turbidity	Floatables	pH	Temp (°F)	Surfac-tants (mg/L)	Fluoride (mg/L)	NH_3 (mg/L)	Potas-sium (mg/L)	NH_3/ Potassium Ratio	Potential Source	Justification	Recommendation
17543.1	Trickle	None	Organic Material	7.54	52.7	0.25	0.00	0.00	0.00	-	Washwater	Borderline surfactant level	Determine if culvert is cracked or in disrepair; determine if flow is allowable non-stormwater
17585.1	Trickle	None	None	7.32	59.7	0.50	0.00	0.00	8.00	–	Washwater	High surfactant level	Determine if flow is allowable non-stormwater
20047.2	Trickle	None	None	7.25	52.3	0.50	0.00	0.00	10.0	–	Washwater	High surfactant level	Follow up with DOT, determine origin of flow and if flow is allowable non-stormwater
20100.2	Trickle	None	None	8.01	43.2	0.27	0.00	0.00	11.00	–	Washwater	High surfactant level	Determine if flow is allowable non-stormwater
20104.2	Trickle	None	None	7.50	45.3	0.28	0.00	0.00	8.00	–	Washwater	High surfactant level	Determine if flow is allowable non-stormwater
20212.2	Trickle	None	None	6.90	67.5	0.25	0.00	0.00	0.00	–	Washwater	High temperature, borderline surfactant level	Resurvey during dry weather conditions, follow up with town /business owner to determine if flow is allowable non-stormwater
20309.3	Trickle	None	None	7.45	61.0	0.25	0.00	0.00	3.00	–	Washwater	Borderline surfactant level	Determine if flow is allowable non-stormwater
20407.3	Trickle	None	None	6.16	54.0	0.26	0.00	1.00	9.00	0.1	Washwater	High surfactant level	Determine if flow is allowable non-stormwater
20616.3	Trickle	None	None	6.51	60.3	0.42	0.00	1.00	22.0	0.05	Washwater	High surfactant level	Determine if flow is allowable non-stormwater
17583.1	Trickle	Cloudy	None	6.81	63.8	0.60	0.00	0.00	6.00	–	Washwater	Cloudy color, high surfactant level	Determine if flow is allowable non-stormwater
17541.1	Trickle	Slightly Cloudy	None	7.89	60.8	0.50	0.00	0.00	9.00	–	Washwater	Cloudy color, high surfactant level	Determine if flow is allowable non-stormwater

Table 3 Dry Weather Discharges Identified in the 2010 IDDE Survey (continued)

Feature ID	Flow	Turbidity	Floatables	pH	Temp (°F)	Surfac-tants (mg/L)	Fluoride (mg/L)	NH_3 (mg/L)	Potas-sium (mg/L)	NH_3/ Potassium Ratio	Potential Source	Justification	Recommendation
17849.2	Trickle	None	None	7.52	55.2	0.13	0.44	-	-	-	Tap water/ Irrigation	High fluoride levels	Follow up with town to determine if residential discharge is allowable non-stormwater

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
3E	Resident Engineer Illicit Connection Training	Construction	Provide training on illicit connection policy, illicit connection identification and protocol for reporting during annual Resident Engineer training seminars. Summarize # of attendees in annual report.	Action completed in Permit Year 4.	No action required.
3F	Maintenance Staff Illicit Connection Training	Environmental	Provide training on illicit connection policy, illicit connection identification and protocol for reporting during annual training seminars for maintenance personnel.	Action completed in Permit Year 4.	No action required.

Former MassTurnpike BMPs

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 3A	Mapping Stormwater Outfalls	Environmental/ IT/ Districts	Develop outfall map showing outfall pipes, CBs, MHs, etc.; Compile info in Permit Year 1; inspect 25% in Permit Years 2-5. Overview and objectives section (in reports) indicates, 1) inspection and reporting on stormwater drainage system occurs every 3 years, 2) objective is to create CAD/GIS database, 3) during Permit Year 2, created inventory list of properties in urban area; list continues to be updated, 4) target areas (more likely to have illicit discharges) have been identified for existing stormwater infrastructure.	Replaced by MassDOT 3B-2.	Replaced.
MTA 3B	Non-Stormwater Discharge Program	Environmental/IT/ Districts	Adopt a program or mechanism to reduce/prohibit non-stormwater discharges into system.	This BMP to be addressed in MassDOT BMP 3C-1: Drainage Connection Policy.	Replaced
MTA 3C	Develop Illicit Discharge Plan	Environmental/IT/ Districts	Develop procedure to identify, locate, and remove illicit discharges.	Replaced with MassDOT BMP 3D: Illicit Connection Review.	Replaced.
MTA 3D	Video Inspections	Environmental/IT/ Districts	Use video camera to inspect drain pipes to follow up on illicit discharges found under BMP 3C.	Replaced with MassDOT BMP 3D: Illicit Connection Review.	Replaced.
MTA 3E	Educate Public and Employees	Environmental	Provide informational brochures to the public; add link to website; inform employees.	Replaced by MassDOT BMP CC-3: MassDOT Web Site and 1I: Anti-litter/ Dumping Literature at Visitors Center.	Replaced.

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
4A	MassDOT Department Project Development & Design Guide	Environmental/ Construction/ Projects	Drainage systems for MassDOT roadways will be designed in accordance with Chapter 8 of the MHD Highway Design Guide and companion manuals.	All MassDOT projects will continue to be designed in compliance with the erosion and sediment control requirements in the design guide.	All MassDOT projects will continue to be designed in compliance with the erosion and sediment control requirements in the design guide.
4B	MA DEP Stormwater Management Policy	Environmental/ Construction/ Projects	New construction and redevelopment activities will comply with Massachusetts DEP's Stormwater Management Policy and Performance Standards under the Wetlands Protection Act (WPA) and Clean Water Act Section 401.	MassDOT designs continue to comply with the Stormwater Management Policy when projects are subject to the WPA or within urbanized areas.	MassDOT designs will continue to comply with the Stormwater Management Policy when projects are subject to the WPA or within urbanized areas.
4C	NPDES Construction General Permit	Construction	1) File NOIs for new projects which disturb more than one acre. 2) Summarize NOIs issued to MassDOT in annual report.	NOIs were filed during Permit Year 8. The permits are listed in Appendix G.	Continue to file NOIs for new projects which disturb more than an acre.
4D	Other State Environmental Regulations or Policy	Environmental/ Construction/ Projects	Projects will continue to be designed and constructed in accordance with all applicable state and federal environmental regulations or policy (e.g. Wetlands Protection Act, 404).	The Environmental Section reviews all projects at the 25% design stage to determine what environmental permits are required. The District Environmental Engineer or equivalent District construction staff person attends all pre-construction meetings with the selected contractor to review permit requirements for the project.	The process of design review and pre-construction coordination will continue.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
4E	MassDOT Storm Water Handbook	Environmental/ Construction/ Projects	Design projects in urbanized areas in compliance with Handbook	MassDOT requires that all new construction and redevelopment activities undertaken by MassDOT, or by others that are funded in whole or in part by MassDOT, comply with the Handbook.	MassDOT will continue to require that all new construction and redevelopment activities undertaken by MassDOT, or by others that are funded in whole or in part by MassDOT, comply with the Handbook. The Handbook is currently being revised to address changes in the DEP Stormwater Policy. MassDOT will then submit the revised handbook to DEP for review and comment.
4F	Standard Specification for Highways and Bridges	Environmental/ Construction/ Projects	Continue to include erosion and pollution prevention controls in construction contracts.	Inclusion of such controls is standard practice for construction contracts issued by MassDOT. A revised contract item/ specification is now included in each contract which requires a detailed Storm Water Pollution Prevention Plan (SWPPP)/ Erosion Control Plan (ECP) for all projects (except minor - such as signage, grass mowing, etc.). Having the contractor develop the SWPPP and ECP (rather than the designer) has been accepted by the Conservation Commissions and DEP on a project by project basis.	Such controls will continue to be included in construction contracts issued by MassDOT.
4G	*MassDOT Research Needs Program*	*Environmental/ Construction*	*Continue funding the MassDOT Research Needs Program.*	*Moved to MCM 6 since focus of research program is now for source control instead of construction*	

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
4H	Pre-Construction Meeting Review of NPDES Construction GP requirements	District Environmental Staff/ Construction	District Environmental Staff Review NPDES requirements at the applicable pre-construction meetings. These meetings include outlining the requirements of the Construction General Permit and identify the roles and responsibilities of MassDOT and the Contractor.	MassDOT reviews the NPDES Construction GP requirements with Contractors at the pre-construction meeting. MassDOT Environmental Engineers attend all pre-construction meetings which involve environmental permits, not limited to NPDES. Therefore, erosion control discussed at all pre-con meetings.	MassDOT will continue to review the NPDES Construction GP requirements with Contractors at the pre-construction meeting.
4I	Contract Bid Item and Special Provision for Storm Water Pollution Prevention Plans (SWPPPs)	Construction Section/ Contracts	Prepare a Contract Bid Item and Special Provision for inclusion in construction contracts to be advertised for bids which exceed the one-acre disturbance threshold.	Measurable goal complete. A revised contract item/ specification is now included in each contract which requires a detailed Storm Water Pollution Prevention Plan (SWPPP)/ Erosion Control Plan (ECP) for all projects (except minor - such as signage, grass mowing, etc.). Having the contractor develop the SWPPP and ECP (rather than the designer) has been accepted by the Conservation Commissions and DEP on a project-by-project basis.	Measurable goal complete.
4J	Field Guide on Erosion Prevention and Sediment Control	Construction Section/ Chief Engineer	Prepare field guide and issue to Resident Engineers	Draft State Guide development is 95% complete. A meeting was held with the consultant preparing the Guide this past summer. Additional changes are required before it is finalized and distributed.	Complete guide and internal reviews. Post online.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
4K	Storm Water Pollution Prevention Plan (SWPPP) Guidance Manual for Contractors	Construction Section/ Districts	Prepare a SWPPP Guidance for Contractors document on MassDOT construction projects. Implement use of the document on all appropriate MassDOT projects. Once contractors begin to use the document, it may be revised if necessary to address input received internally and from agencies. Ultimately the document will be converted into a computer program.	Measurable goal complete in Permit Year 4. SWPPP bid item to include an Erosion Control Plan is now included in all contracts.	Continue use by Contractors on MassDOT projects.
4L-1	Training	Construction Section	Conduct annual Erosion Prevention and Sediment Control Training for MassDOT Construction Personnel. Summarize # of attendees and topics covered.	Winter seminars performed and covered erosion and sedimentation controls, diesel retrofit, landscaping, and hazardous materials. District 1 - Feb 16, 2011 District 2 - Feb 11, 2011 District 3 - April 14, 2011 with 81 attendees District 4– Jan 20, 2011 with 53 attendees. District 5 – Feb 8, 2011 with 45 attendees (also covered environmental and flagging issues). District 6– April 13, 2011 (did not cover hazardous materials, but added Asian Long-horned beetle.)	MassDOT will continue training on topics similar to those discussed in the past.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
4L-2	Non-Traditional Erosion Control Specifications	Landscaping Section	Develop specifications for non-traditional erosion controls and evaluate research being conducted by other state DOTs that can be accepted by MassDOT Research and Materials Section. As new technologies are developed, review and develop specifications for additional erosion controls.	There is increasing use of compost in the form of compost-amended topsoil, for which MassDOT developed specifications this year. MassDOT has used compost filled tubes in a number of projects and has developed a detail as well as special provisions. Special Provisions is under refinement. In general conservation commissions are receptive, but there are exceptions.	MassDOT anticipates expanded use of compost-amended topsoil in lieu of loam for many of its projects. Additionally, MassDOT will increasingly be using compost tubes in lieu of (or sometimes in addition to) hay bales and silt fences.
4M	Erosion and Sediment Control Field Tests	Construction Section/ Districts/ Landscaping	Perform field tests of new erosion and sediment control materials on MassDOT projects. Prepare and circulate an internal memo on the effectiveness of the new measure.		
4N	Construction Bulletins	Construction Section	Issue annual construction bulletins to each District regarding storm water issues.	Issued bulletin in Fall to all Districts on November 5, 2010 regarding storm water issues..	Will issue bulletin in 2011.
4O	Solicit Construction Activity Feedback from Public	Construction Section/ IT	Maintain MassDOT web site to include contact information for ongoing construction activities. Respond to concerns submitted in a timely manner.	MassDOT maintained their website to include contact information for ongoing construction activities. MassDOT responded to concerns submitted in a timely manner.	MassDOT will continue to maintain their website to include contact information for ongoing construction activities. MassDOT will respond to concerns submitted in a timely manner.
4P	Construction Runoff Control Enforcement	Construction Section/ Districts	Non-compliance with the CGP and SWPPP as well as non-compliance with any applicable environmental permits will be addressed through the District Construction personnel and District Highway Director and can include monetary penalties, where included in contracts, and deductions or delays in payment, when warranted.	Compliance inspections were held. See Appendix H for details.	Continue to address non-compliance through monetary penalties or deductions or delays in payment, when warranted.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
4Q	Standard Practices Memo	Construction Section	MassDOT will prepare and issue a Standard Practices memo to Construction Engineers on the protocol for Illicit Discharge Detection and Elimination during construction projects.	A separate SOP for construction was not developed. During Permit Year 4, the District Construction offices were provided with the procedures to follow on discovery of any illicit discharges during construction and provided training to the Residential Engineers (Res).). MassDOT determined a separate SOP was not warranted.	No further action warranted.
4R	Contractor Inspector Training	Construction Section	Modify NPDES SWPPP item to include half day training requirement. Provide training programs.	MassDOT is currently developing a new item to include in bid documents. MassDOT has obtained a consultant contract to develop and perform training.	MassDOT will continue developing the new bid item. Training program is being developed by MassDOT and implement will be finalized by October 2011. Once the training is finalized, training sessions will be held for contractors when the SWPPP item applies to their contract and resident engineers.

Former MassTurnpike BMPs

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 4A	Construction Runoff Program	Environmental/Construction/ Projects	Adopt a program or mechanism to require sedimentation and erosion control during constructions projects which result in greater than 1 acre of disturbance (adopt a plan by Permit Year 3).	Completed under DOT 4C and 4H.	Replaced
MTA 4B	Construction Plan Review	Environmental/Construction	Review and approve required sedimentation and erosion plans by Permit Year 3.	Completed under 4I and 4 L of DOT.	Replaced

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
5A-1	MassDOT Storm Water Handbook	Environmental	Secure DEP ratification for MassDOT Storm Water Handbook.	Measurable goal complete for original Handbook. MassDOT is completing internal final revisions to the Stormwater Handbook.	MassDOT anticipates completion of the Stormwater Handbook in Spring of 2011. MassDOT will then submit a copy to DEP to secure ratification of the revised Handbook.
5A-2	Revise Ch. 4 of the MassDOT Storm Water Handbook	Environmental	Revise Chapter 4 within 9 months of DEP's SW Policy Handbook update being released. Reissue MassDOT Handbook to Designers within 1 year of DEP's document being released.	MassDOT is completing internal final revisions to the Stormwater Handbook. MassDOT determined that a rewrite of the entire Handbook was more appropriate to address the changes in the DEP Policy and the MassDOT experience gained in implementing the guidelines. Therefore, the update has been more extensive and the schedule extended.	MassDOT anticipates completion of the Stormwater Handbook in Spring of 2011. MassDOT will then submit a copy to DEP to secure ratification of the revised Handbook.
5A-3	Revise Ch. 5 of the MassDOT Storm Water Handbook	Environmental	Revise Chapter 5 within 9 months of DEP's SW Policy Handbook update being released. Reissue MassDOT Handbook to Designers within 1 year of DEP's document being released.	MassDOT is completing internal final revisions to the Stormwater Handbook. MassDOT determined that a rewrite of the entire Handbook was more appropriate to address the changes in the DEP Policy and the MassDOT experience gained in implementing the guidelines. Therefore, the update has been more extensive and the schedule extended.	MassDOT anticipates completion of the Stormwater Handbook in Fall of 2011. MassDOT will then submit a copy to DEP to secure ratification of the revised Handbook.
5B	MassDOT Roadway Maintenance Program	Maintenance	Continue to implement MassDOT maintenance program as outlined in the maintenance schedule and in accordance with TMDL watersheds specific agreements.	MassDOT maintained their roads in compliance with the maintenance schedule included in the SWMP and TMDL watershed specific agreements. A summary of this year's maintenance for each district is included in Appendix I.	MassDOT will continue to conduct maintenance on its roadways as outlined in the maintenance schedule and in accordance with TMDL watersheds specific agreements.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
5C	Technology Acceptance and Reciprocity Partnership (TARP)	TARP	Continue to work with DEP to develop review protocol for innovative stormwater BMPs. Summarize meeting(s) attended and agenda in annual report.	The TARP partnership is no longer in place. MassDOT staff participated in proprietary system sub-committee meetings sponsored by MA DEP as part of the SW Policy update. The meetings included developing protocols for analyzing field and lab tests of the systems.	No activities planned.
5D	Southeast Expressway BMP Effectiveness Project	Environmental	Conduct a study of the effectiveness of water quality inlets (WQIs) and catch basins at removing suspended sediments from highway runoff.	Study completed previously. The 14-month sediment removal efficiency was 35 % for one WQI and 28% for the second WQI. The efficiency for individual storms for deep sumped hooded catch basins was 39%.	No further action planned.
5E	Highway Runoff Contaminant Model	Env. Div. Consultant	Develop and calibrate contaminant loading model.	The final report, "Quality of Stormwater Discharged from Massachusetts Highways 2005-2007" was completed and approved by the USGS in 12/09. The report is available at http://pibs.usgs.gov/sir/2009/5269/ Because the findings documented in the final report indicate that the quality of highway runoff in the southern coastal area, including Cape Cod, was significantly different than the quality of highway runoff collected elsewhere in the state of Massachusetts, a total of 31 additional composite samples of highway runoff were collected at a site on Interstate 195 in Marion and on Route 6 in Harwich, Massachusetts. These samples were analyzed for suspended sediment, major ions, and total-recoverable metals. This new data can be used to improve the accuracy for estimates of constituent loads from state highways in the southeast portion of Massachusetts by the Stochastic Empirical Loading and Dilution Model (SELDM) model.	Project completed. The SELDM funded by the Federal Highway Administration (FHWA) has been delayed. Currently, the model is undergoing BETA testing and will be released when testing is complete.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
5F	***Remove*** *BMP Maintenance Manual*	*Environmental/ Maintenance*	*Develop BMP Maintenance Manual to be used as a field guide by maintenance personnel Provide training on the BMP Maintenance Manual.*	*Remove. Changes to BMP 5B narrative now include the manual used as guidance by maintenance staff while performing drainage system maintenance.*	*No further action.*
5G	Right of Way Parcel Evaluation	Environmental	Develop and implement a program of evaluating parcels which are candidates for disposal by MassDOT for their potential in siting storm water BMPs.	The Environmental Services Section reviewed 19 canvasses for the permit year. Three of them were opposed for sale because of their value in stormwater management. Of the 16 that were not opposed, nine were approved for sale; one would actually improve with conditions that the stormwater treatment conditions with the proposed use of the land. Nine of the canvasses were not opposed for sale provided that certain stipulations were followed. In each case, the stipulations allowed for maintenance, enhancement, or implementation of stormwater treatment functions are maintained.	Environmental will continue to review canvasses as they are presented. The emphasis will remain on keeping parcels of land that are highly suitable for stormwater treatment (and wetland replication). In instances where a sale would be more beneficial, any chance to offer information or guidance on stormwater treatment will be mentioned within the commentary.
5H-1	Post Construction Runoff Enforcement-Illicit Discharge Prohibition Policy	Commissioner/ Legal/ Environmental	1) Develop policy for addressing unauthorized connections to the MassDOT's drainage system. 2) Enforce the provisions through referrals to the Attorney General. 3) Summarize actions taken in annual report.	Illicit Discharge Policy was issued in June 2006. Failure to comply with the Dept. request will necessitate further action by the Department either through the State Attorney General's office or the District. There are some locations with connections that potentially violate the Illicit Discharge Prohibition Policy; this information was obtained during recent field work. Letters that will be sent to the property owners have been finalized. The issues are summarized in a table and individual summary sheets included in Appendix E.	MassDOT will continue to enforce Illicit Discharge Prohibition Policy. For all presently occurring situations, the finalized letters to the property owners will be sent early in the next permit year with notification to MassDOT's Legal Department. MassDOT will continue to follow up on these locations throughout the year.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
5H-2	Post Construction Runoff Enforcement- Drainage Tie-In Policy	Commissioner/ Legal/ Environmental/ Districts	Develop permitting process for adjacent properties which would like to tie into MassDOT drainage system. Implement program and summarize actions taken under program in annual report.	A consultant has been hired to address specific implementation concerns. Appendix E summarizes the status of drainage tie-in permits applied for and received as of this permit year. Appendix E also includes drainage tie-ins identified in the field during field work where the field teams were unsure of whether the connections are permitted and follow up is necessary.	Finalize Drainage Tie-In SOP. Submit to Chief Engineer for signature and issuance to Department. A final draft is anticipated in Winter 2011. Follow up on field identified connections in Appendix E and determine if permitted. If not, contact adjacent property to determine course of action.
5H-3	Post Construction Runoff Enforcement- Offsite Pollution to MassDOT Drainage System	Commissioner/ Legal/ Environmental	Runoff not meeting the NPDES MS4 requirements which is reaching the MassDOT MS4 and is not covered under 5H-1 or 5H-2 may be considered trespassing and referred to the AG's office by MassDOT counsel at the DHD's discretion.	No enforcement action was needed in any of the districts.	MassDOT will continue to take action when these requirements are not met.
5I	Rest Area Redevelopment to Meet Stormwater Management Handbook Standards	Environmental/ Right of Way	Add language to new lease agreements requiring lessees, who redevelop or build new buildings on rest area property leased from MassDOT, to meet the standards within the Storm Water Management Handbook and the SWMP requirements.	Measurable goal complete.	No action required.
5J	Transportation Evaluation Criteria	Planning/ MPOs	Continue to include environmental considerations in the funding prioritization evaluation.	MPOs continued to include the environmental component in their evaluation procedures.	Continue to include environmental component in evaluation procedure.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
5K	Federal Enhancement Funding	Planning	Explore opportunities for using Federal enhancement funding for environmental restoration and pollution abatement projects. Participate in quarterly committee meetings.	BMP was replaced with activities undertaken as part of Impaired Waters Program and BMP 7U and 7R. However, this past year 2 projects were pursued by outside agencies and will be paid for and constructed by MassDOT with enhancement funding. • #606041, Boylston/Clinton, drainage improvements on Route 70, pursued by DCR, $2,477,000 in funding • #605878, Middleborough, drainage improvements along the Nemasket River, pursued by the Town of Middleborough, $425,000 in funding.	Replaced.

Former MassTurnpike BMPs

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 5A	Post-Construction Stormwater Runoff Program	Environmental/Construction/ Projects	Develop a program to address post-construction runoff from projects with greater than 1 acre of disturbance (adopt program by Permit Year 3).	Replaced by DOT BMP 5B.	Replaced.
MTA 5B	Site Plan Review	Environmental/Construction/ Projects	Under the Post-Construction Runoff Program, applicants with projects with greater than 1 acre of disturbance will be required to submit stormwater control plans for review and approval.	Replaced by DOT BMP 5A-1 and 7D.	Replaced.
MTA 5C	Stormwater System Maintenance Plan	Maintenance	Under the Post-Construction Runoff Program, projects disturbing greater than 1 acre will be required to include a program outlining enhanced procedures for long term operation and maintenance of stormwater facilities; anticipated program adoption in Permit Year 3. Until Permit Year 3, MTA is to require operation and maintenance in accordance with existing programs.	Replaced by DOT BMP 5B.	Replaced

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6A-1	Source Control - 511 Massachusetts Traveler Information System	Project Clean/ Operations	Maintain the existing 511 System.	MassDOT continues to support this system.	MassDOT will continue to support this system.
6A-2	Source Control – Adopt-a-Highway	Adopt-a-Highway/ Operations	Continue to support this program by maintaining signs in areas where the program is active. Summarize number of road miles cleaned.	MassDOT continues to support this program. Approximately 8484 miles were cleaned during Permit Year 8.	MassDOT will continue to support this program.
6A-3	Source Control - Deicing Programs and Reduced Salt Areas	Environmental/ Districts	Continue to support De-icing and Reduced Salt Areas Programs.	MassDOT will continue to support the De-icing and Reduced Salt Areas Programs. The Salt Material Usage Committee was reconvened June 28, 2010. Discussed and evaluated reduced salt zones, material selection, and usage. Reviewed areas of concern, salt storage management, and technological advances. See Appendix J for more information on well replacements and Salt Remediation Program (BMP 6G).	The Salt Material Usage Committee will be reconvened in Spring 2011. The committee will continue to review reduced salt zones and explore alternative BMPs within these areas.
6A-4	Source Control – Motorist Assistance Program (formerly HELP)	MAP Program/ Operations	Continue to provide 22 Highway Emergency Locator Program (HELP) vans and/or tow trucks.	MassDOT increased service from 22 routes to 25 routes of roving service patrols or tow trucks in Permit Year 7 and continued with this number during Permit Year 8. MassDOT also added 10 Emergency Service Patrol (ESP) vehicles, which patrolled 4 routes in PY8. This service not only assists disabled motorists also reduces traffic congestion.	MassDOT will continue to maintain this program.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6A-5	Source Control - VMP	Environmental	1) Develop a generic Vegetation Management Plan (VMP) which outlines methods of minimizing the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers. 2) Prepare a Yearly Operational Plan (YOP) by April of each year. 3) Post YOP on web site within 30 days. 4) Summarize actions taken in previous year in annual report.	1) MassDOT completed The Five-Year 2009-2013 Vegetation Management Plan and posted it on the web. The plan is for proposed limited use of herbicides as part of overall vegetation management plan. 2) YOPs were completed for the districts; these describe the locations and materials that are proposed for application. 3) The current VMP and YOP for Districts 2-5 has been posted on the following website: http://www.mhd.state.ma.us/default.asp?pgid=content/publicationother&sid=about 4) The Vegetation Management Plan for District 6 is nearing approval and will be posted at that time.	MassDOT will be publishing Yearly Operational Plans for Districts 2-6 next year.
6A-6	Source Control - HOV	Planning	Continue participation in ridesharing activities through the duration of the permit term.	MassDOT continues to support this program	MassDOT will continue to support this program.
6A-7	Source Control - Alternative Transportation	Planning	Provide technical assistance and funding for bicycling and walking, including on-road and off-road improvements, at the local level.	Fiscal Year 2010 Bicycle and Walking Budget for MassDOT: $20,203.099. $1,561,310 was used for bicycle and walking infrastructure improvements as part of the Safe Route to School Program Budget.	Fiscal Year 2011 Bicycle and Walking Budget for MassDOT: $48,774,000. $4,600,500 will be used for bicycle and walking infrastructure improvements as part of the Safe Route to School Program Budget.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6A-8	Source Control- Highway Safety	Highway Design	1) Incorporate safety measures into all new highway designs. 2) Provide signage to warn of vehicle hazards including tipping hazards and steep grades. 3) Install variable message boards (VMBs) on selected roadways to improve driver awareness. 4) Include evolving safety technologies as part of future highway design projects as they are developed.	Safety measures are included in all new highway designs including appropriate signage and evolving technologies. MassDOT installs and maintains VMBs on select roads to improve driver awareness to potential safety hazards.	MassDOT will continue to support this program.
6A-9	Source Control - TURA	Environmental	1) Maintain an active Pollution Prevention Task Force (PPTF) throughout the permit term. 2) Provide summary of actions taken on each pollution prevention initiative included in the SWMP in the annual report.	Active PPTF was maintained. No new water conservation or pollution prevention initiatives in permit year. Actions on Toxics Use Reduction: • Department continues to utilize low VOC, waterborne traffic paint that is free of lead and chromium. • Termination of open-air spray painting of vehicles and equipment using solvent-based, leaded and chromate automotive paints at former Turnpike facilities. MassDOT will continue to implement BMPs for management of hazardous materials, salt, sand, solid waste, and vehicle/equipment storage and maintenance to prevent or minimize contact of pollutants with stormwater.	MassDOT will continue to support this program. MassDOT will continue to explore feasible alternatives to toxic chemical use in the workplace. Toxics Use Reduction Initiatives which have already been identified and proven to be both cost effective and otherwise beneficial to the department will be implemented department-wide.
6B-1	Employee Training	MTAP/ Baystate Roads	Continue to support MTAP and Baystate Roads program.	MassDOT continues to support these programs. Specific programs sponsored by these programs are discussed in BMP 1A and 1B.	MassDOT will continue to support these programs.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6B-2	Employee Training	Environmental	Provide annual training to at least 300 maintenance facility personnel regarding good housekeeping/ spill prevention.	Trainings were provided during the winter of 2010/2011 for 405 maintenance facility personnel. Training included discussion of the following topics: • Asbestos Containing Materials • Solid Waste • Roadside Issues • Storage Tanks • Wetlands • Recordkeeping • Inspections • Water Quality • Natural Resources • SOPs • Emergency Response • Spill Prevent115+109+99+82 • ion/Response/ Management • Hazardous Materials Management • Hazardous Waste Management • Universal Waste Management • Stage II Vapor Recovery System Inspection • Illicit Connection Policy • Illicit discharge identification and protocol for reporting • Vehicle washing *(continued on next page)*	MassDOT will again provide annual training to maintenance facility personnel regarding good housekeeping practices and spill prevention.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6B-2 (cont'd)				**District 1:** No training, but D1 updated SOPs. Training scheduled early (April) PY9. **District 2:** On Nov 29, 30 and Dec 2, trainings were provided for 115 district maintenance personnel. **District 3:** On Oct 7, 13, 19, 26, and Nov 3 trainings were provided for 109 district maintenance personnel. **District 4:** On Nov 2, Nov. 3, and Nov. 4, trainings were provided for 99 district maintenance personnel. **District 5:** On Nov 8, 9 and 10, training sessions were provided for 82 district maintenance personnel. **District 6:** In March 2011, training sessions were provided for 7 district maintenance personnel.	
6B-3	Employee Training	Highway Operations	Provide annual training to at least 200 supervisors and drivers annually on the latest on snow and ice removal.	MassDOT has expanded training to include all maintenance personnel. More than 20 Snow and Ice Trainings were from Sept 15th through Dec 15th. More than 650 state personnel attended. Topics covered all aspects of snow and ice operations including: Overall Operations, Materials Use, Anti-icing, Proper Plow Configurations and Many Other Pertinent Topics.	All supervisors and drivers will continue to stress training to our personnel. We will train everyone each year. We are anticipating more focus on proper inspection, and proper application of materials, and better timing.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6B-4	Employee Training	Highway Operations	Ensure all equipment and vehicle operators have received training on the proper operation of the equipment and vehicles they operate.	Trainings were held throughout the year on topics as follows: • Aerial Bucket Training 38' Terex Lift – (January) Bridge Inspectors • Mower Training Statewide, Operation (September) Maintenance Personnel • Lawn and Garden Hand Tool Training, Chain Saws, Weed Whackers, and Hand Tools, (September) • Snow & Ice Training, Plows, salt Spreaders, Operational, Safety Training (November) • Hydraulic Seminar, Equipment Personnel (November)	MassDOT will provide Operational, Safety, and Maintenance training on Scissor lifts, snow & ice equipment, new item tow plows, and sweepers. These training sessions consist of Operational, Safety, and Maintenance. Additional training may also be held.
6C-1	Maintenance	Districts	Continue to implement maintenance schedule outlined in Appendix E of the SWMP.	MassDOT continued to maintain the highway system through catch basin cleaning contracts, street sweeping and regular drainage system maintenance. See Appendix I of the annual report for a summary of compliance.	MassDOT will continue to maintain the highway system through catch basin cleaning contracts, street sweeping and regular drainage system maintenance in compliance with Appendix E of the SWMP.
6C-2	Maintenance	Districts	1) MassDOT reviewed each of the maintenance and material storage yards and creates a site specific facility handbook that provides information on necessary steps to environmental compliance. 2) Post EMS Manual on MassDOT website for public information. 3) Post generic Facility Handbook on website for public information.	Site specific facility handbooks were created in 1995. The EMS Manual and the Facility Environmental Handbook are both posted on the MassDOT web site. In Permit Year 8, the updated EMS Manual was under final review.	MassDOT will continue to maintain environmental compliance at their maintenance facilities by complying with each facility's Environmental Facility Handbook. The updated Facility Handbook will be posted to the website in 2011. Post the updated EMS Manual to the website in 2011. Conduct scheduled audits and inspections, draft new SOPs as required, conduct training, and perform corrective actions as required.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6C-3	Maintenance Record and Data Management Work Management System	Environmental	1) Develop work management system. 2) Populate program with infrastructure information as available. 3) Implement system and begin to record maintenance activities in these watersheds.	MassDOT signed a contract with EMA, Inc. to implement the Maximo Asset Management System. The implementation is underway. MassDOT-Highway Division has continued to improve upon its inventories of drainage outfalls and other drainage components.	Training on the new system has been organized and will happen early in PY9Permit Year 9.
6D	Waste Disposal	Districts	1) Street sweeping waste will be reused in appropriate slope stabilization and road work projects in compliance with SOP, when appropriate. 2) Street Sweeping material which cannot be reused will be disposed of at landfills as daily cover. 3) Waste material from drainage structures and storm water BMPs removed during maintenance will be disposed of according to "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills" DEP Policy #COMM-97-001.	MassDOT and its contractors continue to properly dispose of waste. MassDOT did not have an appropriate opportunity to reuse street sweeping waste. District 1 reported that it removed and disposed of 2,800 cubic yards of sweeping materials, but had no contract for drainage structure waste removal. District 2 reported that 4,500 tons of street sweeping material and 2,200 CY of drainage structure waste were disposed of properly. District 4 reported that all material was properly disposed of by contract through the Compliance Coordinator. District 5 reported that it removed and disposed of 33,000 cubic yards of sweeping materials and 1,600 cubic yards of drainage structure waste. District 6 reported that all material was properly disposed.	MassDOT and its contractors will continue to properly dispose of waste. MassDOT Environment will work with the District to quantify the disposal volumes of sweeping materials and drainage structure waste this year and report in next annual report.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6E - Revised	*Good Housekeeping/ Pollution Prevention Program Evaluation*	*Environmental*	*Evaluate existing Maintenance Programs to determine additional or revised activities, which would increase effectiveness and usefulness of the programs.*	*BMP 6E Good Housekeeping/ Pollution Prevention Program Evaluation has been removed (and the subsequent BMPs renumbered) since the addition of BMP 6F through 6O provide a better use of resources with an increased impact on meeting the good housekeeping and pollution prevention minimum control measure.*	
6E	Catch Basin Accumulation Project	Environmental/ Maintenance/ Districts	1) Provide annual report on progress each December and include summary in annual report. 2) Complete a study of debris accumulation in catch basins. 3) Based on the results of the study, revise the existing cleaning schedule and SOP for catch basin cleaning.	The summary document was reviewed internally at MassDOT and finalized. A copy is included as LL of this report. The findings do not support the need for revising the existing cleaning schedule and SOP for catch basin cleaning.	No further action recommended.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6F	Policy and Program Review	Environmental	MassDOT will continue to at least biannually evaluate its snow and ice control policies and operational programs in order to make adjustments based on data and experience, and to respond to changing conditions.	The Program is evaluated each year, in the Spring. Changes and updates include: new technology, Closed Looped Controllers, Use of Wing Plows, Correct configuration of material spreaders, Use of a Tow Plow. MassDOT has established a program so that all material spreaders will have Closed Loop Ground Speed Controller Systems by 2014. A truck operator with an automatic controller based on ground speed is able to maintain a constant application rate of material on the road without having to adjust the valve opening to conform to the changing speed of the truck. The closed-loop system monitors both truck speed and belt or auger speed and adjusts the control valve until a predetermined ratio value of belt or auger speed and truck speed is obtained. This provides a more efficient application of material.	Continue to evaluate program and implement changes as determined beneficial. Incorporation of a "Salt Slurry" Spreader for Operational Improvements.
6G	Salt Remediation Program	Environmental. Maintenance/ Districts	Continue to provide the Salt Remediation Program with a funding level appropriate to quickly address salt related complaints.	Funding provided through new ISA - until June 2012. The Public Well Supply Matrix included in the December 2009 SWMP is included as Appendix J of this annual report to summarize the current status of each public well included in the Salt Remediation Program. Liquid deicing was used prior to storms. Expanded use of magnesium chloride occurred in low-salt zones. The Andover runoff Study continued.	The Andover runoff study will continue. Field monitoring of public water supply wells will continue with funding provided by the ISA.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6H	Clean Well Initiative	Environmental	Provide a continued level of funding that will allow MassDOT to complete up to 20 replacement wells per year.	MassDOT replaced a total of eight wells this permit year. The names and locations of the wells are as follows: • Ash, Boxford • DeSouza, Boxford • Mooney, Palmer • Meister, Granby • Bullock, Ware • O'Day Prizio, Brimfield • Chancelleor, Huntington Continued sampling and analysis of private wells. An updated version of the Public Well Supply Matrix is included as Appendix J of this annual report to summarize the current status of each public well included in the Clean Well Initiative Program. Funding provided through new ISA - $4.75 million through June 2011.	Continue Sampling and Analysis of Private Wells and Where Applicable Replacement Well and Water Treatment Activities. Funding provided by the ISA through June 2012.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6I	Salt Management and Storage	Operations	MassDOT will continue to replace or repair inadequate salt storage sheds, as well as cover sand piles and/or move them out of wetland buffer zones.		
			Review sheds: Increased capacity of some sheds may be justified because salt storage needs have grown over time and/or because the shed is in a sensitive area and the salt loading operations call for better containment. In sensitive areas, consideration should be given to the use of Gambrel style sheds that provide for the entire operation to be conducted under cover to minimize salt spillage outside of the shed. MassDOT will continue to prioritize the identification and selection of parcels being considered for new salt storage facilities, considering operational needs and the environmental setting.	MassDOT repaired or replaced many salt storage sheds including Revere, Salisbury, Peabody, Westwood, Braintree, and Many Other Facilities Across the State.	MassDOT will continue to inspect sheds for repair needs in all districts.
			Review Sand Piles: MassDOT will strive to locate sand piles outside wetland buffer zones whenever space allows. However, when this is not possible the department will work towards storing sand piles under cover, especially during the non-winter months. This could be accomplished by storing sand within sheds or, more likely, using a heavy-gauge polyethylene tarp. *((Continued on next page)*	Review sand piles: MassDOT has worked to standardize the new facilities upgrades to include room to load undercover and store multiple de-icers undercover, including sand. Several new fabric shed facilities are planned. They will address the concerns of wetlands.	Two New Fabric Sheds -- Andover and Rowley

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6I (cont'd)			The tarp could be peeled back once, before winter operations, and then covered again at the end of the season. **Personnel:** In October 2006, MassDOT hired a Director of Snow & Ice Operations, with over 20 years of experience in winter operations, to improve salt management and supervision of deicing operations.	Director has continued to improve salt management and supervision of deicing operations.	Director will continue to oversee salt management and supervision of deicing operations.
6J	Salt Storage Best Management Practices/ Pollution Prevention	Environmental	Continue to implement salt storage in compliance with DEP Guidelines on Deicing Chemical Storage. Continue to follow MassDOT SOP for the Management of Sand and Deicing Chemicals at MassDOT Facilities. Continue to follow Facility Environmental Handbook guidelines at maintenance facilities.	MassDOT (through our training) continues to enforce the compliance with salt handling, storage and responsible application. MassDOT continues to partner with the environmental section in our training to our personnel and with Tail Gate Training for our hired vendors.	MassDOT will continue to involve the environmental section with our training and operations to continually make improvements.
6K	Equipment Improvements	Environmental	MassDOT will continue to expand the use of anti-icing as a standard tool for snow and ice control.	Increased the number of direct liquid application vehicles. The system is being expanded to include Interstate I-90 from New York Boarder to Weston facility. MassDOT has mandated pre-wetting for all of our material spreaders. 25% --25% increase in use of anti-icing. Almost all spreaders are now outfitted with pre- wet application systems, thereby allowing solid chemical to remain on road surface longer.	MassDOT will continue to review the possibility of a salt brine facility in District 5 where temperatures are warmer. Salt brine could be an effective alternative to other liquid chemical applications. This facility will support Cape Cod and the South Shore where winters are milder and temperatures are more moderate.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6L	Enhanced Weather Forecasting Information	Environmental	Continue to provide sufficient funding to use weather forecasting contractor to provide up-to-date and local weather information during snow and ice season.	MassDOT has worked very closely with the current provider to continually improve the weather forecast. Funding was secured for a new contract for Weather Forecasting Services (5 Year Contract Signed). Conduct Monthly Reviews and Conference Calls with Lead Meteorologists and Support Staff. Provide Information from Our 140 Facilities Relative to Road and Weather Conditions. Assists in More Accurate and Timely Weather Warnings and Forecasts.	Mass DOT will continue to fine tune forecast and continued cooperation with meteorological staff in order to improve snow fighting capabilities.
6M	Road Weather Information System (RWIS)	Environmental	MassDOT will ensure that these stations will be maintained so as to remain fully functional.	MassDOT recognizes the value of Roadway Weather Information Systems (RWIS) and have a new contract for service maintenance covering the next 5 years. New System Added in Merrimac (I-495)	Contract for RWIS was rebid. Continue to share information provided from RWIS stations with Contracted Meteorologists and the National Weather Service to enhance future forecasts.
6N	Alternative Technologies	Environmental	MassDOT will continue to maximize the use of Premix and liquid calcium chloride, as alternative deicers, to reduce the quantity of granular sodium chloride, and should closely monitor reduced salt zones during storms to ensure the proper timing of salt applications and to minimize the potential for overuse of deicing chemicals.	Pre-Mix continues to be used when appropriate. The increased use of magnesium chloride (MgCl) for Pre-Wetting has continued to maximize the effectiveness of salt while reducing overall use of deicers. Almost 75% of de-icing chemical used on MassDOT roads (former MassHighway roads) is MgCl. This has significantly reduced the amount of solid chemical applied by MassDOT. MgCL works longer and better than dry salt alone.	MassDOT plans to increase use of MgCl to 75% and continue to utilize pre-wetting and anti-icing strategies to reduce overall salt use.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/2012
6O	Research	Operations	MassDOT has joined Clear Roads program and will continue to explore moving forward on other projects. Summarize research performed.	Massachusetts has continued to commit resources towards Clear Roads and MassDOT continues to be active member in the Clear Roads program. Paul Brown (of MassDOT Operations) is currently the chair of committee. During this permit year several projects were in progress. Research continues to assist MassDOT by bringing the most current practices to operations. Clear Roads completed Phase 1 of the Cost Benefit Tool, Multi Blade snow plow project, and the Liquid Route analysis. Highlights of July 2010 annual meeting included: MassDOT has been very active in Clear Roads. Paul Brown was the Chair of the Pooled fund research project. Submitted A New Research Project, *True Cost of Winter Operations: Phase 2 of the Cost Benefit Tool and the Implantation of a "Smart Truck"*	Research planned for the next permit year includes Continued Interest in Toxicity of De-Icing Chemicals and Corrosion Inhibited De-icing chemicals. Partnership with Pacific Northwest Snow Fighters on a Major Equipment Corrosion Study.
Addn.	*MassDOT Research Needs Program (Previously indicated as BMP 4G but focus of research program is now for source control instead of construction)*	*Environmental/ Construction*	*Continue funding the MassDOT Research Needs Program.*	The consultant continued to collect salt usage data throughout the winter season of 2010-2011. GIS mapping was started and completed. GIS mapping for the Public Drinking Water Supply Zone II is in draft form.	Finalize GIS mapping for the Public Drinking Water Supply Zone II.

Former MassTurnpike BMPs

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 6A	Training of Employees	Environmental/Operations	MTA will be informed of new good housekeeping policies and procedures, and SWPPP requirements. Adopt a training program in Permit year 1. Begin training in Permit Year 2 with refreshers during Permit Years 3 through 5.	Replaced by 6B-1 DOT.	Replaced
MTA 6B	Catch Basin Cleaning Program	Environmental/Maintenance/ Districts	Develop a program with prioritized areas in Permit Year 1. Monitor Compliance and revise policies in Permit Years 2 through 5.	Replaced 6C-1 DOT	Replaced
MTA 6C	Street Sweeping	Environmental/Maintenance/ Districts	Sweep all streets in urban areas once per year.	Replaced 6C-1 DOT	Replaced
MTA 6D	Landscaping and Lawn Care	Maintenance/Environmental	MTA will evaluate use of herbicides in Permit Year 1 and continue to apply pesticides with licensed applicators only.	Replaced by BMP 6A-5.	Replaced

7. Impaired Waters

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
7A	Wetland Protection Act (WPA) Compliance	Environmental	1) All MassDOT projects will comply with the WPA and MESA. 2) When potential impacts are identified, MassDOT will work with the appropriate agencies to design the project to minimize the impacts.	Continue to comply with MESA as required by the WPA.	Continue to comply with MESA as required by the WPA.
7B	401 Water Quality Certification	Environmental	Massachusetts's 401 Water Quality certification requirements, which include review of the project by MA Natural Heritage program and US Fish and Wildlife if endangered species habitat is mapped in the project vicinity, will be complied with whenever they are applicable.	Continue to comply with MA 401 Water Quality Certification Regulations.	Continue to comply with MA 401 Water Quality Certification Regulations.
7C	CE Checklist	Environmental	Complete a Categorical Exclusion Checklist for all MassDOT projects that utilize federal funds.	82 Categorical Exclusion (CE) checklists were completed and approved for all federally-aided projects advertised for construction by MassDOT during Permit Year 8. All documentation supporting the MassDOT's determination of a project meeting the definition of a CE is on file with Environmental Services Department at MassDOT Highway Division.	Complete and approve 80 to 120 Categorical Checklists for the current federally-aided construction advertising program. Complete this checklist at 25% design stage for other project that receives federal funds.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
7D	Environmental Site Data Form (Water Quality Data Form - WQDF)	Environmental/ Construction	Develop an environmental site data form for review by designers with Environmental staff at 25% Design. Implement on all projects.	The WQDF was updated multiple times to integrate the Impaired Water Program and capture information about existing and proposed BMPs identified by design consultants and MassDOT designers. The WQDF is now part of 25% (preliminary design) and 75% design (final design) submittals. The form requires the designer to document information about the stormwater system and the receiving water. A copy of the site data form is included in Appendix C and is available on MassDOT's website. MassDOT's Environmental Section has received WQDFs from design consultants and internal designers this year for 119 projects. The sheets included 51 existing or proposed BMPs on the 75% Design checklist (final design). MassDOT performed training on the WQDF for design consultants. 108 people attended the training.	Continue to require submittal of forms at 25% and 75% design submittals. Report on results in annual report. Expand reporting to include detail about each project, # of impervious acres before and after project is completed, receiving water name and impairment status, and name of any applicable TMDLs. Where identified, the annual report will include a summary of the measures taken for discharges to waters with applicable TMDLs. TMDLs. Continue to educate designers on the information required as part of the data form and how to complete the form accurately and comprehensively.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
7E	TMDL Recommendation Summary Table Update	Environmental	The TMDL Recommendation Summary Table of the annual report will be updated annually to reflect the TMDL reports that have been finalized in the previous permit year and to include update on activities consistent with the recommendations made in the TMDL.	While MassDOT has developed a more detailed program in the Impaired Water Program this year to address TMDLs, we had historically included a table in the annual report summarizing all Final TMDLs in the state, how they relate to MassDOT and activities which have occurred in the watershed that are consistent with the TMDL suggestions. We have continued to include this table as Appendix L of this annual report for consistency with new data regarding activities that occurred this year and TMDLs that were finalized this permit year. MassDOT provided public comment on the draft Upper/ Middle Charles River Phosphorus TMDL and Buzzards Bay Bacteria TMDL. As part of MassDOT's commitment under our Impaired Waters Program and BMP 7R of the SWMP, impaired waters with TMDLs are being assessed for compliance with the TMDL. Additional information is included under BMP 7R of this report.	Continue to review draft and final TMDL reports and implement TMDL recommended activities when possible. Continue to review impaired waterbodies with TMDLs as indicated in BMP 7R.
7F – 7Q	TMDL Specific Recommendations	See NOI		Comply with TMDL recommendations in Appendix L.	Comply with TMDL recommendations in Appendix L.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
7R (revised as of June 8 and July 22, 2010)	TMDL Watershed Review	Environmental	1. Assess all TMDL waters (total of 209 covered by final TMDLs as of April 30, 2010) listed in Appendix L-1 of the SWMP (revised as of July 22, 2010), using the process described in BMP 7R. The assessments will be completed over five years, beginning June 8, 2010, and 20% (or about 41, TMDL waters) will be assessed each year. 2. Assess at least 25 water bodies (both TMDL and non-TMDL waters) within the first quarter of the Impaired Water Program (BMPs 7U and 7R). 3. Submit annual report to EPA containing the documentation described in Step 6 of BMP 7R. 4. Submit quarterly progress report to EPA during the first year of the Impaired Waters Program (BMP 7U and BMP 7R) and semi-annually thereafter.	MassDOT issued a Notice to Proceed (NTP) to AECOM to provide environmental services under a new contract which includes review of impaired waterbodies for compliance with TMDLS. 1 & 2. MassDOT completed assessment of 37 waterbodies (both TMDL and non-TMDL) for the first quarterly submittal to EPA. The quarterly submittals to date keep MassDOT on track to meet the commitment made to review 20% of watersheds with TMDLs (about 41) each year. 3. A summary of the TMDL waterbodies reviewed during the first three quarters of BMP 7R is included in Table 7A-1. MassDOT has received federal funding for FY11 for stormwater retrofits built under BMPs 7R and 7U. 4. MassDOT has submitted quarterly progress report to EPA (submitted September 8, 2010; December 8, 2010, March 8, 2011). These reports included the review of 104 impaired waterbodies, including 45waterbodies with TMDLs. Additional BMPs have been designed as part of the Programmed Project Initiative. Some of the BMPs are described in Table 7-3 and Appendix L.	Continue to assess waterbodies under BMP 7R. Provide the final quarterly report on or before June 8, 2011. Provide twice yearly reports to EPA, starting December 8, 2011. Continue to be an active participant in developing TMDL that impact MassDOT with EPA and DEP. Provide public comment on draft TMDLs as appropriate. As new TMDLs are finalized, they will be used during future assessments under the Impaired Waters Program. Expand reporting to include detail about each project, # of impervious acres before and after project is completed, receiving water name and impairment status, and name of any applicable TMDLs. Where identified, the annual report will include a summary of the measures taken for discharges to waters with applicable TMDLs. TMDLs.
7S	Salt Remediation Program	Environmental	Continue to provide the Salt Remediation Program with a funding level appropriate to quickly address salt related complaints.	Overall ISA 56565 Salt Remediation Program budget is $4.75 million through June 2011.	Continue to address new and existing salt complaints.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
7T (added)	Review of Specific Sites for Water Quality Exceedances in Response to Conservation Law Foundation (CLF) et al. Lawsuit	Environmental	1. Analyze each of the three sites identified in the CLF lawsuit (Charles River crossings in Bellingham and Milford; and North Nashua River crossing in Lancaster). Develop summary report with modeling methodology and summary of results. 2. For the sites which are determined to contribute to the exceedance of water quality at the stream crossing, construct BMPs to address MassDOT related exceedances. 3. Submit a remedial plan to the court.	1. Task completed. 2. Task completed. 3. Task completed. A proposed remediation plan was submitted to the court on June 1, 2010, and construction began as of June 8, 2010. Construction progress reports were submitted on July 30 and October 15, 2010, and a final report with as-built construction plans submitted on January 31, 2011. .Construction totals included $970,000. A copy of the final report (including as-built construction plans and updated water quality volume sizing calculations) is included as Appendix M.	MassDOT committed to providing a one-year summary of inspection and maintenance activities at the 3 sites by October 31, 2011.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
7U (revised as of June 8 and July 22, 2010)	Water Quality Impaired Waters Assessment and Mitigation Plan	Environmental	1). Assess all water listed in Appendix L-1 of the SWMP (revised as of July 22, 2010) using the process described in this BMP. 2). Assess at least 25 water bodies (both TMDL and non-TMDL waters) within the first quarter of the Impaired Water Program (BMPs 7U and 7R). 3) Submit quarterly progress reports to EPA during the first year of the Impaired Waters Program and semi-annually thereafter. 4) Provide documentation described in step 6 of BMP 7U in annual reports to the EPA.	1) MassDOT issued a Notice to Proceed (NTP) to AECOM to provide environmental services under a new contract which includes review of impaired waterbodies. In its June 9, 2010 submittal to EPA, MassDOT committed to assessing a total of 684 impaired waters (including 209 waters covered by final TMDLs as of April 30, 2010) to which MassDOT urbanized may discharge stormwater. 2) MassDOT completed assessment of 37 waterbodies for the first quarterly submittal to EPA. 3) MassDOT has submitted quarterly progress report to EPA (submitted September 8, 2010; December 8, 2010, March 8, 2011). These reports included the review of 104 impaired waterbodies, including 45waterbodies with TMDLs. 4) Table 7A-2 documents the assessment results of BMP 7U performed during the first three quarters of the program. Additional BMPs have been designed as part of the Programmed Project Initiative. Some of the BMPs are described in Table 7-3 and Appendix L.	Continue to assess waterbodies under BMP 7U. MassDOT submitted the Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method) to describe the imperious cover protocol used in assessments under this BMP to EPA on April 6, 2011. Provide the final quarterly report on or before June 8, 2011. Provide twice yearly reports to EPA, starting December 8, 2011. Expand reporting to include detail about each project, # of impervious acres before and after project is completed, receiving water name and impairment status, and name of any applicable TMDLs. Where identified, the annual report will include a summary of the measures taken for discharges to waters with applicable TMDLs. TMDLs.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
8A	Cultural Resources Review	Cultural Resources Department	Review all projects for impacts to historic properties at the 25% design phase. If a potential impact is found, the Department works with the designer (MassDOT or consultant) and Massachusetts Historical Commission to alter the design to mitigate or prevent adverse effects.	All projects listed in the Construction Advertisement Program for Permit Year 8 were reviewed for impacts to historic properties or archaeological resources. Three projects (with detention basins) were subjected to archaeological surveys which yielded no significant sites. None of these projects required any stormwater BMP design alterations.	Continue to review projects for impacts to historic properties at the 25% Design Stage

Former Mass Turnpike BMPs

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 8	Planned Activities – 2011/ 2012
MTA 7A	TMDL Limit	Environmental	SWMP includes many BMPs to address reduction of contaminants under all 6 minimum control categories. MTA will implement these BMPs under the timeframes previously described in Section 5.1-5.6.	Replaced by BMP 7R DOT.	Replaced

Table 7-1 Impaired Waterbodies with TMDLs with Completed Assessments under BMP 7R

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA350007	Bents Pond	Noxious aquatic plants, Turbidity	9/8/2010	5/8/2003-CN123.2	Noxious aquatic plants, Turbidity	Phosphorus	MassDOT's property is only a fraction of the watershed draining to Bent's Pond. Discharges are considered a *de minimis* source of phosphorus. No further action recommended.	—
MA35062	Ramsdall Pond	Noxious aquatic plants	9/8/2010	2/5/2003-CN123.2	Noxious aquatic plants	Phosphorus	No DOT Discharge	—
MA72-04	Charles River (Bellingham) (see also Table 7A-2)]	Escherichia coli (E.coli), fish bioassessments, other flow regime alterations, mercury in fish tissue, other, chlordane, and DDT	9/8/2010	1/2007-CN0156.0	e. coli	Pathogens	Stormwater from MassDOT property is treated by various existing structural and non-structural BMPs providing pathogen reductions consistent with the Final Pathogen TMDL for the Charles River Watershed. No further action recommended.	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA72-01	Charles River (Milford) (see also Table 7A-2)	Low flow alterations, other flow regime alterations, dissolved oxygen	9/8/2010	9/2009-CN272.0 1/2007-CN0156.0	Dissolved oxygen Pathogens	Nutrients Pathogens	The majority of MassDOT's stormwater discharges to Cedar Swamp Pond. The direct discharge to the Charles River is de minimis. This, in combination with various non-structural BMPs, is consistent with the requirements of the TMDL for Pathogens and dissolved oxygen for the Charles River Watershed. No further action recommended.	—
MA36142	Spectacle Pond	Noxious aquatic plants	9/8/2010	1/4/2002-CN118	Noxious aquatic plants	Phosphorus	The TMDL for this waterbody does not have an applicable WLA. MassDOT stormwater discharging to Spectacle Pond is treated with a variety of existing structural BMPs that that are consistent with the recommendations included in the TMDL.	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA95-22	West Falmouth Harbor	Nutrients, pathogens, other habitat alterations	9/8/2010	11/19/2007-CN243 3/2009-CN341.1		Nitrogen Pathogen	Stormwater runoff from MassDOT is consistent with the areal WLA for total nitrogen outlined in the TMDL. Furthermore, space constraints at the site prevent the installation of BMPs that would significantly reduce the discharge of pathogens (for instance, the primary outfall is not located on MassDOT property). MassDOT currently implements a variety of non-structural BMPs to reduce potential discharges of pathogens. MassDOT will also review the road under the IDDE program.	—
MA95-31	Acushnet River	Nutrients, Siltation, Organic enrichment/Low DO, Pathogens	9/8/2010	5/15/2009-CN251.1	Pathogens	Pathogen	No DOT Discharge	—
MA95-32	Acushnet River	Nutrients, Organic enrichment/ Low DO, Pathogens	9/8/2010	5/15/2009-CN251.1	Pathogens	Pathogen	No DOT Discharge	—
MA72-16	Bogastow Brook	Fecal Coliform	9/8/2010	5/22/2007-CN156.0	Fecal Coliform	Pathogen	No DOT Discharge	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA73-15	Germany Brook	Nutrients, pH, Pathogens, Taste, odor and color, (Objectionable deposits*)	9/8/2010	6/21/2002-CN121.0	Pathogens	Bacteria	No DOT Discharge	—
MA84084	Knops Pond /Lost Lake	Metals, (Exotic species*)	9/8/2010		Metals	Mercury	No DOT Discharge	—
MA84031	Locust Pond	Metals	9/8/2010	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—
MA34045	Loon Pond	Nutrient/Eutrophication Biological Indicators	9/8/2010	4/12/2002-CN112.0	Nutrient/ Eutrophication Biological Indicators	Phosphorus	No DOT Discharge	—
MA73-12	Mill Brook	Pathogens	9/8/2010	6/21/2002-CN121.0	Pathogens	Bacteria	No DOT Discharge	—
MA73-09	Mine Brook	Organic enrichment/ Low DO, Pathogens	9/8/2010	6/21/2002-CN121.0	Pathogens	Bacteria	No DOT Discharge	—
MA42044	Pikes Pond	Turbidity	9/8/2010	7/12/2002-CN110.0	Turbidity	Phosphorus	No DOT Discharge	—
MA36150	Sugden Reservoir	Nutrients, Organic enrichment/Low DO, Turbidity	9/8/2010	4/12/2002-CN118.0	Nutrients	Phosphorus	No DOT Discharge	—
MA73-13	Unnamed Tributary	Pathogens	9/8/2010	6/21/2002-CN121.0	Pathogens	Bacteria	No DOT Discharge	—
MA84012	Flint Pond	Metals, Noxious aquatic plants, (Exotic species*)	12/8/2010	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—
MA81031	Hickory Hills Lake	Metals	12/8/2010	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA92025	Hood Pond	Metals	12/8/2010	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—
MA84032	Long Pond	Metals, Noxious aquatic plants	12/8/2010	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—
MA96004	Ashumet Pond	Metals	3/8/2011	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—
MA42034	Lowes Pond	Noxious aquatic plants	3/8/2011	4/28/2003-CN110	Noxious aquatic plants	Phosphorus	MassDOT existing BMPs do not fully achieve the TMDL's WLA. MassDOT planning to install 15 additional infiltration BMPs (e.g 11 infiltration basins, 4 water quality swales, 2 vegetated filter strips) to provide the required phosphorus removal.	Recommendations for 15 additional BMPs have been forwarded to consultant for design and construction.
MA95-72	Aucoot Creek (see also Table 7-2)	Nitrogen (Total), Oxygen, Dissolved, Nutrient/ Eutrophication Biological Indicators	3/8/2011	5/15/2009-CN251.1		Pathogens	The 2010 303(d) list indicates that this is covered by the Buzzards Bay Pathogen TMDL but the TMDL report does not list this waterbody segment as covered by the TMDL.	—
MA34-07	Bachelor Brook	Nutrient/Eutrophication Biological Indicators	3/8/2011	4/12/2002-CN112.0	Nutrient/ Eutrophication Biological Indicators	Phosphorus	< 9% IC	—
MA36025	Browning Pond	Nutrient/Eutrophication Biological Indicators, (Non-Native Aquatic Plants*)	3/8/2011	4/12/2002-CN118.0	Nutrient/ Eutrophication Biological Indicators, (Non-Native Aquatic Plants*)	Phosphorus	No DOT Discharge	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA42009	Cedar Meadow Pond	Aquatic Plants (Macrophytes), (Non-Native Aquatic Plants*)	3/8/2011	7/12/2002-CN110.0	Aquatic Plants (Macrophytes), (Non-Native Aquatic Plants*)	Phosphorus	No DOT Discharge	__
MA96-47	Crows Pond	Nutrients	3/8/2011	10/24/2007-CN244.0	Nutrients	Nitrogen	No DOT Discharge	__
MA96-60	Great River	Nutrients	3/8/2011	11/7/2007-CN218.0	Nutrients	Nitrogen	No DOT Discharge	__
MA42023	Greenville Pond	Turbidity	3/8/2011	7/12/2002-CN110.0	Turbidity	Phosphorus	No DOT Discharge	__
MA96-58	Hamblin Pond	Nutrients, Pathogens	3/8/2011	11/7/2007-CN218.0	Nutrients	Nitrogen	No DOT Discharge	__
MA42029	Hudson Pond	Aquatic Plants (Macrophytes)	3/8/2011	7/12/2002-CN110.0	Aquatic Plants (Macrophytes)	Phosphorus	No DOT Discharge	__
MA96-59	Jehu Pond	Nutrients	3/8/2011	11/7/2007-CN218.0	Nutrients	Nitrogen	No DOT Discharge	__
MA42030	Jones Pond	Aquatic Plants (Macrophytes)	3/8/2011	7/12/2002-CN110.0	Aquatic Plants (Macrophytes)	Phosphorus	No DOT Discharge	__
MA96-61	Little River	Nutrients, Pathogens	3/8/2011	11/7/2007-CN218.0	Nutrients	Nitrogen	No DOT Discharge	__
MA36083	Long Pond	Nutrient/Eutrophication Biological Indicators	3/8/2011	4/12/2002-CN118.0	Nutrient/Eutrophication Biological Indicators	Phosphorus	No DOT Discharge-	__
MA96-52	Mill Pond	Nutrients	3/8/2011	6/21/2006-CN206.0	Nutrients	Nitrogen	No DOT Discharge	__
MA96-71	Namequoit River	Nutrients	3/8/2011	10/24/2007-CN244.0	Nutrients	Nitrogen	No DOT Discharge	__
MA96-72	Paw Wah Pond	Nutrients	3/8/2011	10/24/2007-CN244.0	Nutrients	Nitrogen	No DOT Discharge	__
MA96-73	Pochet Neck	Nutrients	3/8/2011	10/24/2007-CN244.0	Nutrients	Nitrogen	No DOT Discharge-	__
MA96-74	Quanset Pond	Nutrients	3/8/2011	10/24/2007-CN244.0	Nutrients	Nitrogen	No DOT Discharge	__

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	TMDL Identifier	Impairment Addressed	TMDL Parameter	Assessment Summary	Current Status
MA96-11	Stage Harbor	Nutrients, Pathogens	3/8/2011	6/21/2006-CN206.0	Nutrients	Nitrogen	No DOT Discharge	—
MA35091	Upper Reservoir	Metals	3/8/2011	12/20/2007-NEHgTMDL	Metals	Mercury	No DOT Discharge	—
MA42048	Rochdale Pond	Nutrient/Eutrophication Biological Indicators	3/8/2011	7/12/2002-CN110.0	Nutrient/ Eutrophication Biological Indicators	Phosphorus	No DOT Discharge	—

* Impairment based on Final 2008 303d list. Draft 2010 303d list was also reviewed during assessment.

Table 7-2 Impaired Waterbodies without TMDLs with Completed Assessments under BMP 7U

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	Assessment Summary	Current Status
MA72-01	Charles River (Milford) (see also Table 7A-1)	Low flow alterations, other flow regime alterations, dissolved oxygen	9/8/2010	The majority of MassDOT's stormwater discharges to Cedar Swamp Pond. The direct discharge to the Charles River is de minimis. This, in combination with various non-structural BMPs, is consistent with the requirements of the TMDL for Pathogens and dissolved oxygen for the Charles River Watershed. No further action recommended.	—
MA72-04	Charles River (Bellingham) (see also Table 7A-1)	Escherichia coli (E.coli), fish bioassessments, other flow regime alterations, mercury in fish tissue, other, chlordane, and DDT	9/8/2010	Stormwater from MassDOT property is treated by various existing structural and non-structural BMPs providing pathogen reductions consistent with the Final Pathogen TMDL for the Charles River Watershed. No further action recommended.	—
MA93-46	Alewife Brook	Fecal Coliform	9/8/2010	No DOT Discharge	—
MA93-45	Alewife Brook	Fecal Coliform	9/8/2010	No DOT Discharge	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	Assessment Summary	Current Status
MA72-06	Charles River	DDT, (Eurasian Water Milfoil, Myriophyllum spicatum*), Excess Algal Growth, Fishes Bioassessments, Non-native aquatic plants, (Other flow regime alterations*), Nutrient/ Eutrophication Biological Indicators, Phosphorus (Total), PCB in Fish Tissue, (Other*	9/8/2010	No DOT Discharge	__
MA34044	Lake Lookout	Nutrient/Eutrophication Biological Indicators	9/8/2010	No DOT Discharge	__
MA72140	Lake Winthrop	Non-native aquatic plants, 2,3,7,8, aquatic plants (Macrophytes)	9/8/2010	No DOT Discharge	__
MA34-06	Lampson Brook	Oxygen, Dissolved, Phosphorus (Total)	9/8/2010**	No DOT Discharge	__
MA72063	Linden Pond	Turbidity, aquatic plants (Macrophytes)	9/8/2010	No DOT Discharge	__
MA34048	Lower Mill Pond	Non-native aquatic plants	9/8/2010	No DOT Discharge	__
MA84A-19	Martins Pond Brook	Siltation, Organic enrichment/Low DO, Turbidity	9/8/2010**	No DOT Discharge	__
MA73-08	Mill Brook	Cause Unknown, (Flow alteration*)	9/8/2010	No DOT Discharge	__
MA62124	Muddy Cove Brook Pond	Noxious aquatic plants, Turbidity	9/8/2010	No DOT Discharge	__
MA34057	Nashawannuck Pond	Non-native aquatic plants, Nutrient/Eutrophication Biological Indicators, Phosphorus (Total)	9/8/2010**	No DOT Discharge	__
MA95110	New Bedford Reservoir	Pesticides, Metals, Nutrients, Organic enrichment/Low DO, (Exotic species*)	9/8/2010	No DOT Discharge	__
MA72084	Noannet Pond	Non-native aquatic plants	9/8/2010	No DOT Discharge	__
MA91-02	Parker River	Pathogens	9/8/2010	No DOT Discharge	__
MA72-20	Powissett Brook	Combined Biota/habitat Bioassessments	9/8/2010	No DOT Discharge	__
MA73058	Turner Pond	(Exotic species*)	9/8/2010	No DOT Discharge	__
MA34-23	Weston Brook	Phosphorus (Total)	9/8/2010	No DOT Discharge	__
MA72-19	Trout Brook	Temperature, Water, Nutrient/Eutrophication Biological Indicators	9/8/2010	No DOT Discharge	__

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	Assessment Summary	Current Status
MA51-03	Blackstone River	Unknown toxicity, priority organics, metals, unionized ammonia, nutrients, organic enrichment/low dissolved oxygen, flow alteration1, other habitat alterations1, pathogens, suspended solids, turbidity, objectionable deposits	12/8/2010	Existing structural BMPs currently provide mitigation to potential water quality impacts from its stormwater. MassDOT proposed to convert one or more dry ponds to infiltration basins in order to meet the Impervious Cover (IC) target reduction. In addition, MassDOT will conduct IDDE field efforts to identify any potential pathogen sources.	Recommendations for modifying existing BMPs have been forwarded to a consultant for design and construction.
MA72156	Cambridge Reservoir	Turbidity, aquatic plants (macrophytes)	12/8/2010	Various structural and non-structural BMPs provide sufficient treatment prior to discharge to the Cambridge Reservoir. MassDOT will continue to implement the non-structural BMPs and will consider the installation of additional structural BMPs as part of upcoming bridge projects along Routes 2 and 2A.	Additional BMPs will be considered as part of two upcoming bridge projects along Routes 2 and 2A.
MA51012	Burncoat Park Pond	Noxious aquatic plants, turbidity	12/8/2010	MassDOT currently treats its stormwater discharges to Burncoat Park Pond with a vegetated filter strip. MassDOT proposed modifying existing vegetated swales and filter strips and installing an infiltration basin BMP to reduce MassDOT's effective IC contributing stormwater to Burncoat Park Pond.	Recommendations for modification of existing BMPs and installation of additional BMPs have been forwarded to a consultant for design and construction.
MA83011	Ballardvale Impoundment	Metals, Noxious aquatic plants, (Exotic species*)	12/8/2010	No DOT Discharge	—
MA84A-11	Beaver Brook	Cause Unknown, (Other habitat alterations*), Pathogens, Oil and grease, Turbidity, (Objectionable deposits*)	12/8/2010	No DOT Discharge	—
MA32022	Congamond Lakes	Organic enrichment/Low DO, (Exotic species*)	12/8/2010	No DOT Discharge	—
MA11018	Cheshire Reservoir	(Eurasian Water Milfoil, Myriophyllum spicatum*), Non-native aquatic plants, aquatic plants (Macrophytes)	12/8/2010	No DOT Discharge	—
MA84010	Crystal Lake	Metals	12/8/2010	No DOT Discharge	—
MA93-16	Essex Bay	Fecal Coliform	12/8/2010	No DOT Discharge-	—

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	Assessment Summary	Current Status
MA84014	Forest Lake	Metals, Noxious aquatic plants	12/8/2010	No DOT Discharge	__
MA92023	Frye Pond	Noxious aquatic plants	12/8/2010	No DOT Discharge	__
MA21-04	Housatonic River	Non-native aquatic plants, Polychlorinated biphenyls, Fecal Coliform, PCB in Fish Tissue	12/8/2010	No DOT Discharge	__
MA92-21	Kimball Brook	Organic enrichment/Low DO, Pathogens	12/8/2010	No DOT Discharge	__
MA84051	Lake Pentucket	Metals	12/8/2010	No DOT Discharge	__
MA84059	Lake Saltonstall	Metals	12/8/2010	No DOT Discharge	__
MA91008	Lower Mill Pond	Noxious aquatic plants, (Exotic species*)	12/8/2010	No DOT Discharge	__
MA84A-26	Merrimack River	Pathogens	12/8/2010	No DOT Discharge	__
MA93-28	Mill River	Fecal Coliform	12/8/2010	No DOT Discharge	__
MA84041	Millvale Reservoir	Metals	12/8/2010	No DOT Discharge	__
MA84A-27	Plum Island River	Pathogens	12/8/2010	No DOT Discharge	__
MA83014	Pomps Pond	Metals, (Exotic species*)	12/8/2010	No DOT Discharge	__
MA41-01	Quinebaug River	Metals, pathogens	12/8/2010 ***	Watershed is < 9% Impervious Cover; therefore storm water is not likely cause of impairment	__
MA93076	Strangman Pond	Excess Algal Growth, Turbidity, aquatic plants (Macrophytes)	12/8/2010	No DOT Discharge	__
MA21-18	West Branch Housatonic River	(Combined Biota/Habitat Bioassessments*), (Debris/Floatables/Trash*), Polychlorinated biphenyls, Fecal Coliform, Taste and odor	12/8/2010	No DOT Discharge	__
MA95-72	Aucoot Creek (see Table 7-1 also)	Nitrogen (Total), Oxygen, Dissolved, Nutrient/Eutrophication Biological Indicators, Fecal Coliform	3/8/2011	Watershed is < 9% Impervious Cover therefore storm water is not likely cause of impairment. The 2010 303(d) list indicates that this is covered by the Buzzards Bay Pathogen TMDL but the TMDL report does not list this waterbody segment as covered by the TMDL.	__

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	Assessment Summary	Current Status
MA11018	Cheshire River	(Eurasian Water Milfoil, Myriophyllum spicatum*), Non-native aquatic plants, aquatic plants (macrophytes)	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA21-01	East Branch Housatonic River	Fecal Coliform, PCB in Fish Tissue	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA81-30	East Wachusett Brook	Pathogens	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA93-16	Essex Bay	Fecal coliform	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA93-11	Essex River	Fecal Coliform	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA32-05	Parker River	Pathogens	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA72-20	Powissett Brook	Combined Biota/ habitat Bioassessemnts	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA94179	Lily Pond	(Flow alteration*), Turbidity, (Exotic species*)	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA62124	Muddy Cove Brook Pond	Noxious aquatic plants, Turbidity	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA91-05	Rowley River	Pathogens	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA92057	Salem Pond	Turbidity	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA36-16	Quaboag River	Pathogens, Taste, odor and color	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__

Waterbody ID	Waterbody Name	Waterbody Impairment*	MassDOT Submittal Date	Assessment Summary	Current Status
MA41-03	Quinebaug River	Nutrients, Organic enrichment/Low DO, (Other habitat alterations*), Pathogens, Taste, odor and color, (Objectionable deposits*)	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA62-42	Unnamed Tributary	Cause Unknown	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA32-05	Westfield River	Cause Unknown, Taste, odor and color, Noxious aquatic plants, Turbidity	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__
MA21-11	Wahconah Falls Brook	Fecal Coliform	3/8/2011	Watershed is < 9% Impervious Cover; therefore stormwater is not likely cause of impairment	__

* Impairments based on Final 2008 303d list**.** Draft 2010 303d list was also reviewed during assessment.
** No DOT discharge figures were mistakenly included in both the September and December submittals for these waterbodies.
*** Full assessment with a summary that the watershed is less than 9% and therefore stormwater is not likely a cause of impairment included in the 12/8/10 submittal. Same waterbody was also mistakenly included in Table 1 Impaired Waters Addressed by IC Method with <9% in Watershed in the 3/8/11 submittal.

Table 7-3 Summary of Retrofit BMPs in Quarterly Assessment Submittals*

Submittal Date	*Impaired Water*	*Total MassDOT Watershed Area (acres)*	*Existing BMPs*		*Retrofit BMPs Recommended*		*Total Watershed Area Treated (acres)*	*Total Watershed Treated (%)*
			#	*Watershed Area Treated (acres)*	*#*	*Watershed Area Treated (acres)*		
Sept. 2010	Bents Pond (MA35007)	0.04	0	0.0	0	0.0	0.0	0%
	Charles River (MA72-04)	19.5	10	16.0	0	0.0	16.0	82%
	Charles River (MA72-01)	58.0	6	55.5	0	0.0	55.5	96%
	Spectacle Pond (MA36142)	2.0**	5	2.0**	0	0.0	2.0	100%
	West Falmouth Harbor (MA95-22)	2.4	0	0.0	0	0.0	0.0	0%
Dec. 2010	Blackstone River (MA51-03)	181.0	23	109.9	1	0.9	110.8	61%
	Cambridge Reservoir (MA72156)	63.0	8	36.6	0***	0.0	36.6	58%
	Burncoat Park Pond (MA51012)	3.2	1	0.5	2	1.0	1.5	47%
March 2010	Lowes Pond (MA42034)	96.0	1	45.2	15	27.0	72.2	75%
	Total	**425.14**	**54**	**265.7**	**18**	**28.9**	**294.6**	74.4%

** Quinebaug River was excluded from this list because, while MassDOT completed an assessment in its 12/8/10 EPA submittal, it determined that no remediation was necessary based on the 9% IC threshold in the IC method. Thus, MassDOT has not confirmed whether any BMPs currently exist at this location, and could not calculate the % of the watershed treated by existing and recommended BMPs.*

*** The quarterly submittal included treatment area outside of the MassDOT right-of-way. These area values include only MassDOT watershed area.*

**** As described in MassDOT's 12/8/10 EPA submittal, several new BMPs are contemplated at this location under the Programmed Projects Initiative.*

7-4 Programmed Projects Initiative Proposed BMPs Design/ Construction Status*

Impaired Water	*Project*	*# of Existing BMPs*	*# of Proposed BMPs*	*Design/ Construction Status*
North Nashua River (MA81-03)	FY10 Rt. 2 Resurfacing, Fitchburg/ Leominster	1	2**	Advertised
Neponset River (MA73-01), Neponset River (MA73-02)	FY11 I-95 Resurfacing Canton	11	4	Advertise in May 2011
Lowes Pond (MA42034)	FY11 I-395 Resurfacing Oxford	1***	15	Advertises in June 2011
Total		13	21	

* Additional Programmed Projects included and will include BMPs. MassDOT is still building a database to collect this information from the individual site data forms. A full summary will be included in future reports.
** proposed BMPs were upgrades to existing
*** 4 acting in series

Part IV. Summary of Information Collected and Analyzed

A final report regarding data collected to support the Highway Runoff Contaminant Model was recently completed by USGS and has been published, and is available online at http://pubs.usgs.gov/sir/2009/5269/. This final report documents concentrations of selective dissolved major ions, total nitrogen and phosphorus, selective total-recoverable metals, suspended sediment, and semi-volatile compounds measured in flow-weighted composites of stormwater collected from common highway-drainage conveyance structures for eight highways in Massachusetts during a two-year monitoring period. The final report discusses the relation between populations of concentration data for the respective constituents among the 12 highway-monitoring stations and to annual average daily traffic volumes. The report also presents methods used to estimate event-mean concentrations for deicing elements from continuous records of flow and specific conductance, and to calculate planning-level estimates for various constituents affiliated with suspended sediment. The data presented in this report will be integrated in the Highway-Runoff Database (HRDB Version 1.0.0a) which serves as a preprocessor for the Stochastic Empirical Loading and Dilution Model (SELDM) currently being developed for the Federal Highway Administration.

Part V. Program Outputs & Accomplishments (OPTIONAL)

MassDOT's accomplishments during the eighth permit year are summarized in Part 1- 4 of this annual report.