Municipality/Organization: **MassDOT - Highway Division**

EPA NPDES Permit Number: **MA043025**

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Annual Report Number & Reporting Period: **No. 15: April 2017-March 2018**

NPDES Phase II Small MS4 General Permit Annual Report

Part I. General Information

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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: Jonathan L. Gulliver

Title: Administrator – MassDOT, Highway Division

Date: 05/01/2018

Part II. Self-Assessment

The Massachusetts Department of Transportation – Highway Division (MassDOT) has completed the required self-assessment and has determined itself to be in full compliance with the conditions of the Massachusetts MS4 permit, pursuant to the United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems. MassDOT has spent significant time, effort and funds focusing on the potential impacts of stormwater from its roads and properties this year. MassDOT has advanced its stormwater program in Permit Year 15 through implementation of the Impaired Waters Program (IWP), educating its staff, conducting public outreach at numerous seminars, and continuing a pilot stormwater inspection program.

The MassDOT Environmental Services Stormwater Unit presently consists of two environmental scientists who focus on stormwater management across the Commonwealth. A third stormwater scientist is projected to be hired in June 2018. The Stormwater Unit reviews the proposed drainage/stormwater management system improvements for all programmed (planned) projects, identifies programmed projects that would benefit from the implementation of structural stormwater BMPs, ensures effective BMPs are designed, and implements the IWP. Additionally, the Stormwater Unit works to expand its BMP and drainage inventory, and promote inspection and maintenance practices. In Permit Year 15, the Stormwater Unit hired two co-op students (a six-month internship program) which increased the overall capabilities of the Unit.

MassDOT, with consultant support, has continued to implement the IWP to address discharges of highway runoff to impaired waters as part of its compliance with the MS4 general permit, and has completed a significant number of water quality treatment projects. MassDOT's IWP includes two components: the Retrofit Initiative and the Programmed Projects Initiative. Through the Retrofit Initiative, MassDOT identifies locations that warrant adding after-the-fact stormwater Best Management Practices (BMPs) along existing roadways; and through the Programmed Projects Initiative, MassDOT incorporates stormwater BMPs into programmed highway projects. The latter project types have the advantage of being more holistically integrated into highway drainage systems, which often provides more effective stormwater management.

MassHighway's 2010 IWP commitment to the court and EPA regarding IWP assessments of impaired waters potentially receiving MassDOT stormwater runoff was fulfilled in Permit Year 13, therefore it was not necessary for MassDOT to complete additional assessments during Permit Year 14. Overall, 826 water bodies were assessed, 142 more than the 684 required under the EPA Enforcement Order. These additional assessments illustrate MassDOT's commitment to manage and treat runoff from its highways as the opportunities arise.

This year, MassDOT employed six consultant firms to perform site assessments to determine if retrofit BMPs were warranted. There are currently 30 stormwater BMP retrofit projects in various stages of design. These projects include the design of a broad range of vegetated and subsurface stormwater infiltration BMPs. BMPs included in final designs this year are estimated to remove 206 acres of effective impervious cover (EIC) and 212 lbs/yr of phosphorus from the watersheds. 30 projects are currently under construction and 62 have been completed since the program began in 2010. A summary of the IWP is included in BMPs 7R and 7U, along with Appendix D of this report.

In order to alert designers working on projects that potentially impact impaired waters, and to capture information regarding stormwater improvements incorporated into highway designs, MassDOT developed a water quality data form (WQDF) which is submitted by design consultants at the 25% and 75% design stages.

MassDOT continues to follow up on potential illicit connections identified along its drainage systems while working on a more targeted and efficient Illicit Discharge Detection and Elimination (IDDE) program as the isolated and controlled nature of MassDOT's roadway network results in a very low probability for illicit connections. As part of the process of developing the Draft TS4 permit, EPA is working with MassDOT to prioritize areas that have a greater potential for illicit drainage connections throughout the State, i.e., where there is a higher probability of discovering illicit connections during targeted site investigations.

MassDOT continued the review of Appendix A (IDDE Status) and Appendix B (Status of Drainage Tie-In Permits) that have been submitted in previous Annual Reports. This included revising the tables, including more specific information on the Property Owner and Action Items. Additionally, each District was contacted to determine if any of the drainage tie-ins were issued permits.

The Drainage Tie-In Standard Operating Procedure (SOP), issued in 2012, has been utilized this past year to regulate property owners with existing or proposed drainage conveyances tied into MassDOT's system. This mechanism has advanced the objectives of the IDDE program by identifying unauthorized pipe outfalls (e.g., from basement sump pumps) that otherwise would not be detected by using dry-weather flow inspections. When MassDOT identifies such a stormwater connection into MassDOT's drainage system, the respective property owner is contacted with a Notice of Violation (NOV) letter informing them that they can either apply for a Tie-in Permit or remove their connection. A generic NOV letter is included in Appendix C.

According to the 25% forms submitted in Permit Year 15, MassDOT proposed projects would discharge to 43 receiving water body segments. Of these segments, 43 had water quality impairments, 20 of which specifically had a Total Maximum Daily Load (TMDL) report. The 75% forms documented a total of 37 stormwater BMPs (existing and proposed) and at least 686 proposed deep sump catch basins. Additionally, sensitive site design elements for these projects were documented and included measures such as preserving existing vegetation, natural drainage patterns, and riparian buffers; minimizing disturbance to wetland resource areas; promoting sheet flow to vegetated areas; and reducing existing impervious cover. Information collected in WQDFs during Permit Year 15 is included in Appendix E.

MassDOT has found that alerting designers early on about impaired waters is an effective way to make sure they include the appropriate stormwater features to address the impairment. In addition, by capturing BMP design information at the 75% design stage, MassDOT can readily build its database of stormwater BMPs which has a variety of applications (e.g., asset management). MassDOT is updating the WQDF to be released in Permit Year 16. This update will include a BMP pollutant estimator tool and allow MassDOT to track pollutant removal and EIC reduction from each BMP proposed.

MassDOT has developed the IWP geospatial database to track the many structural BMPs being designed and constructed by its design consultants as well as the status of water body assessments. As the assessment portion of the IWP has been fulfilled, BMP data has been transferred to MassDOT's

Stormwater Asset Database. In addition to BMPs, this database includes information on stormwater discharge points, inlets, manholes, pipes, and small culverts. WQDF information (e.g., stormwater BMPs) is used to populate the Stormwater Asset Database.

The Stormwater Asset Database is an integral part of MassDOT's Asset Management Initiative to collect location and condition data on all assets statewide. During Permit Year 1, all structures along MassDOT roadways (inlets and manholes) were collected using LiDAR and high quality imagery as part of MassDOT's Asset Management Initiative. In Permit Year 15, that data was refined by collecting additional structures on ramps that were not collected in the original LiDAR survey. Data on small culverts (under 10 feet in diameter) were also collected.

Compiling stormwater BMP and drainage infrastructure information in the Stormwater Asset Database will allow for streamlined tracking and maintenance of BMPs moving forward. Inspection forms were developed and piloted for inlets, outlets, and BMPs. The Stormwater Asset Database will be used by field personnel to report on condition and maintenance activities performed moving forward. In Permit year 15, appximately 100 outlets, 2400 inlets, and 225 BMP inspections were conducted using the online-based inspection form.

MassDOT conducted a robust training and outreach effort in Permit Year 15 including presentations on MassDOT's stormwater program at various meetings and trainings, participation in national research studies and workshops, and internal staff training. MassDOT's stormwater program continues to be at the cutting edge of stormwater management for regional state DOTs, and presentations from MassDOT are sought out by conference organizers in the area.

MassDOT continues to promote pollution prevention and good housekeeping initiatives. Approximately 32,200 bags of litter were collected along MassDOT roadways during Permit Year 15. Salt material usage, anti-icing equipment upgrades, and training for snow and ice contractors continued to be a focus for MassDOT with the objective of reducing the amount of deicing materials used and effective storage of materials.

MassDOT additionally advanced their updated Stormwater Handbook during Permit Year 15. The Handbook has been significantly revised to ensure MassDOT projects comply with federal and state regulations, as well as MassDOT policies. Major updates include discussion on the Impaired Waters Program and WQDF, refined BMP typical designs, guidance, and pollutant credits, a focus on BMP selection and low impact development, and a section on BMP inspection and maintenance. MassDOT plans to complete internal review and secure MassDEP ratification of the Handbook during Permit Year 16.

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 15	Planned Activities – 2018/ 2019
1A **Revised**	MassDOT Training Assistance Program (MTAP)	MTAP	Facilitate one training program related to stormwater and /or snow and ice control as a means of reducing source pollution. Document attendance numbers.	Because this training is for MassDOT staff and contractors, this BMP is reported under 6B-1 (Pollution Prevention/Good Housekeeping).	BMP Revised.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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.	Approximately 38 classes were held throughout the permit year providing training on snow and ice operations and source pollution reduction. Attendees included municipal DPW snowplow drivers and there were approximately 1,600 attendees in total. Topics covered included: • Current vendor contract • Anti-icing • Department operations • Salt and environmental considerations • Drainage systems. Additionally,54 trainings on various topics were provided by Baystate Roads, which is partially funded by MassDOT. The trainings included the following and a total of 1,218 people attended. A full list of trainings is included in Appendix M. • Highway Construction/Surveying • How to read Construction Plans • Basics of a Good Road • Complete Streets 101 – Benefits, Eligibility & Funding • Advanced Complete Streets 201 • Principles of Drainage • Snow & Ice Operations • Spreader Calibration • Stormwater Management • 2017 Moving Together Conference • Gravel Roads: When the Dust Settles	Provide one training program for municipal DPW snowplow drivers related to snow and ice control as a means of reducing source pollution. Document attendance numbers.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
IC-1	MassDOT Web Site	IT/Environmental	Add Environmental Section web page to web site.	Measurable goal completed in Permit Year 1. The MassDOT Environmental Section website was updated and reorganized in the summer of 2014. The updated website is easier to use and more streamlined.	Measurable goal complete. Continue to update the website with the most updated information. MassDOT will be working with the State of Massachusetts to update the state-wide website. This will allow an opportunity to refresh the stormwater information made available to the public.
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.
1C-3	MassDOT Web Site	IT/ Environmental	Evaluate web page annually and revise as necessary.	Stormwater Program Webpage – MassDOT updated the stormwater program webpage in Summer 2014 to allow the public to access all related information on the MassDOT stormwater program. The Environmental web page was reviewed and updated. Annual Report 14 was added this year. The WQDF Web Map was updated in Permit Year 15 and posted to MassDOT's website.	Update the stormwater program webpage as necessary to reflect the current status and most recent documents. Add the PY15 Annual Report. Continue to post updates to the Water Quality Data Form and the WQDF Web Map. Make stormwater assets (e.g., catch basins) available as appropriate.
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 stormwater 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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
1D-2 **Removed**	Storm Water Training Workshop	Environmental/ Baystate Roads	Conduct stormwater training workshop for municipal DPW personnel every two years. Summarize training programs similarly to above.	This BMP is duplicative since stormwater 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.
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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
1F **Revised**	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.massdot.state.ma.us/highway/AbouttheDistricts.aspx 3) MassDOT continues to refine its Open Data portal where various data sets are available for view and download by the public. MassDOT has posted the drainage outfall inventory on this web site at this location: https://geo-massdot.opendata.arcgis.com/datasets?group_ids=362562c527bb404884dd1608b4bfdb62	1) Completed in Year 5. 2) Continue to maintain contact names. 3) Share drainage inventory information as requested. MassDOT will post additional drainage data, such as inlet data, as they are available.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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 installed 13 signs identifying river and stream crossings. The locations were identified by the MassRiverways Program and installed by MassDOT personnel. The locations were identified by the MassRiverways Program and installed by MassDOT personnel. One sign was installed along Route 6 to identify the Bass River. One sign was installed along I-290 to identify the Middle River. Six signs were installed along I-495 to identify the Merrimack River, Little River, Snow Brook, East Meadow River, Cobbler's Brook, and Powow River. Five signs were installed along Route 24 to identify the Rattlesnake River, Terry Brook, Assonet River, Taunton River, and Town River.	MassDOT will continue to install signs in areas identified by MassRiverways Program.
1H	Anti-litter/ Dumping Messages on Variable Message Boards	Operations	Maintain anti-litter message in the message mix on permanent Variable Message Boards (VMBs).	Messages on permanent Variable Message Boards are restricted to traffic and safety issues. MassDOT has developed a working group to address public safety and has identified roadside litter as a potential safety issue. Post anti-litter message on VMBs during the weekend of Earth Day (April 21-24th) and additional days as conditions allow. Don't Trash Mass! – Please Don't Litter!	Post anti-litter message on VMBs during the weekend of Earth Day and additional days as conditions allow.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
1I **Removed**	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.	It was determined in Permit Year 7, that the Think Blue Campaign was not the right program for providing stormwater literature to the public. The BMP was revised – see 1I below.	BMP Revised.
1I **Revised**	Highway Stewardship Literature	Operations / Environmental	Educate the public on the Impaired Waters Program, proper stormwater management, and other environmental stewardship measures.	MassDOT presented various aspects of the MassDOT Stormwater Program at various conferences/meetings throughout the year. In February and March 2018, MassDOT participated in five stormwater trainings, conducted by the University of Massachusetts Training Center (Baystate Roads) and targeted to municipal DPWs, part of which focused on MassDOT's Stormwater Program. Stormwater Program Webpage – MassDOT updated the stormwater program webpage in Summer 2014 to allow the public to access all related information on the MassDOT stormwater program.	The stormwater program webpage will be updated to reflect the current status and most recent documents. Continue to inform others about the Impaired Waters Program through public outreach.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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, stormwater, and erosion controls.	MassDOT communicated with other DOTs when the need developed. Specifically, MassDOT has coordinated with representative from Connecticut DOT, Rhode Island DOT, and New York State DOT this permit year. These DOTs have reached out to MassDOT as they are working with regulators to develop permit conditions to learn more about MassDOT's program and to share best practices. As of November 2014, a member MassDOT's Stormwater Unit is participating in an NCHRP 3-year research study titled the "Limitations of the Infiltration Approach to Stormwater Management in the Highway Environment." The objective of the research is to develop guidance for the state DOTs to determine appropriate siting of stormwater infiltration BMPs based on the limitations, risks, and benefits in the context of the built and natural environments. In June 2015, a member of MassDOT's Stormwater Unit joined an NCHRP research panel on how to design an effective stormwater monitoring program that is proportionate and appropriate for any state DOT. The study will identify minimum stormwater monitoring goals and objectives that provide information for state DOTs to develop, implement, and improve their stormwater management programs. The study period is 12 months and has $125,000 in funding. The Study ended on 1/22/18. In September 2015, a member of MassDOT's Stormwater Unit joined an NCHRP research panel to evaluate the effectiveness and cost of using granulated ferric oxide media in removing dissolved metals from stormwater runoff. The study period is three years and has $400,000 in funding.	MassDOT will continue to communicate with other DOTs as the need develops and opportunities become available. MassDOT will continue to participate in NCHRP research panels for the duration of the studies.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
1J (Cont'd)				Additionally, in October 2015, a member of MassDOT's Stormwater Unit joined an NCHRP research panel to develop guidance for DOTs on complying with TMDLs. The study period is two years and has $200,000 in funding. In September 2017, a member of the Unit was recruited to join the Center for Environmental Excellence's Stormwater Community of Practice (CoP), and participate on behalf of MassDOT. The CoP's responsibilities are to do the following: - Schedule and conduct monthly calls to discuss priority/emerging issues among other state DOTs, share best practices, and facilitate trainings and webinars; - Determine the subject of a white paper/state-of-the-practice report and provide draft edits and content review; and - Identify meetings and conferences of other disciplines for potential engagement. In May 2017, MassDOT provided its draft Stormwater Handbook to the RIDOT Office of Stormwater to serve as a template for RIDOT's Handbook. Their request stated that they "have seen a great deal of progress both in technology and ingenuity in the application of [MassDOT's] BMP sites." In January 2018, a member of the Stormwater Unit was recruited by the Water Research Foundation to be a member of Project Advisory Group to assist in the development of a "road map" for research needs on the topic of "Managing impacts from deicing salt on drinking water supplies." Staff met with the Committee on March 15-16, 2018.	

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
1J (Cont'd)				The Stormwater Unit was invited to represent MassDOT as a member of the Statewide Stormwater Coalition, which is a Committee of municipal officials that discusses ongoing MS4 permit compliance methods, challenges, and opportunities to work together on permit compliance.	
1K	Storm Water Coordinator	Environmental	Fund a full-time stormwater coordinator position each year.	The Environmental Section stormwater staff, consisting of two environmental scientists, continues to coordinate compliance with the NPDES MS4 stormwater program across the Commonwealth. They have completed many tasks under these roles throughout the year. Stormwater staff members also continue to coordinate the Impaired Waters Program implementation. They work with consultants to select appropriate stormwater BMPS as part of the Retrofit Initiative and Programmed Project Initiative. During Permit Year 15, MassDOT employed three summer interns (part-time) who assisted with enhancing MassDOT's stormwater BMP inspection program and reviewing stormwater designs. Additionally, MassDOT's Stormwater Unit hired two co-ops for 6-month periods, one from July to December 2017 and one from January to June 2018 to assist with general stormwater program implementation.	Continue to fund a stormwater unit supervisor, a stormwater analyst, and an Impaired Waters Program coordinator. Hire two co-ops for the fall semester and in the spring, as funding allows, to provide stormwater related assistance.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
Addn.	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 Water Quality Data Form (WQDF) is being used for submittal at 25% design and 75% design stage to MassDOT by internal designers and consultants. This year, MassDOT has received 99 water quality data forms; 44 at the 25% design phase and 55 forms at the 75% design phase. Of the 25% forms, 43 receiving waterbodies were identified, 43 affected an impaired water body of which 20 had a TMDL. The 75% forms documented a total of 37 stormwater BMPs (existing and proposed) and at least 686 proposed deep sump catch basins. Additionally, site sensitive design measures for these projects were documented. Appendix E provides more information on data collected through the WQDFs in Permit Year 15.	MassDOT designers and consultants will continue to submit the forms at 25% and 75% Design Submittals. Continue to update MassDOT database to accurately track BMP design and pollutant reduction data. Continue to educate designers on how to accurately and comprehensively complete the WQDF. Issue updated WQDF which allows for pollutant load reduction information to be calculated and uploaded into MassDOT's Stormwater Asset Database. Post new form and conduct training sessions on new WQDF.
Addn.	Stormwater Related Presentations	Environmental		MassDOT stormwater staff delivers educational stormwater presentations to interested groups throughout the year. MassDOT presented to the Connecticut River Cleanup Committee on June 6, 2017. In February and March 2018, the University of Massachusetts Training Center (Baystate Roads) conducted five stormwater trainings to municipal DPWs, part of which focused on MassDOT's Stormwater Program.	Continue to present relevant topics at conferences. MassDOT will conduct trainings on the updated Water Quality Data Form and on the updated MassDOT Stormwater Handbook once it is ratified and made available.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
Addn.	TRB NCHRP Committee(s)	Environmental		As of November 2014, a member MassDOT's Stormwater Unit is participating in an NCHRP three-year research study titled the "Limitations of the Infiltration Approach to Stormwater Management in the Highway Environment." The objective of the research is to develop guidance for the state DOTs to determine appropriate siting of stormwater infiltration BMPs based on the limitations, risks, and benefits in the context of the built and natural environments. In June 2015, a member of MassDOT's Stormwater Unit joined an NCHRP research panel on how to design an effective stormwater monitoring program that is proportionate and appropriate for any state DOT. The study will identify minimum stormwater monitoring goals and objectives that provide information for state DOTs to develop, implement, and improve their stormwater management programs. The study period is 12 months and has $125,000 in funding. The Study ended on 1/22/18. In September 2015, a member of MassDOT's Stormwater Unit joined an NCHRP research panel to evaluate the effectiveness and cost of using granulated ferric oxide media in removing dissolved metals from stormwater runoff. The study period is three years and has $400,000 in funding. Additionally, in October 2015, a member of MassDOT's Stormwater Unit joined an NCHRP research panel to develop guidance for DOTs on complying with TMDLs. The study period is two years and has $200,000 in funding.	Continue participation in NCHRP study panels.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
Addn.	USGS Phosphorus Study	Environmental		The operation of the three bridge-deck monitoring stations on Route 2A in Boston, Interstate 90 in Weston, and Route 20 in Quinsigamond continued through September 2016. In total, over 50 composite samples of bridge-deck runoff were collected at each station from August 2014 through September 2016. These samples were analyzed for concentrations of total phosphorus, total nitrogen, particulate carbon, loss on ignition, and suspended sediment, including particle size distributions. The final report was prepared which characterized total nutrients and suspended sediment concentrations in stormwater runoff from each bridge location.	The Technical Report is projected to be released online by USGS in May 2018.
Addn.	MassDOT Blog Posts	Environmental	Post information on MassDOT's Stormwater Program on the MassDOT blog to update the public.	MassDOT developed a press release (July 10, 2017) highlighting MassDOTs Stormwater Program Initiatives, including the environmental improvements related to the All Electronic Tolling project, which included removal of 20 acres of impervious cover.	Continue to identify projects or activities to post on MassDOT's blog to update the public on water quality improvement efforts.

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 96 design public hearings and public information meetings in this permit year. See Appendix F for a full list of meetings. This does not include the numerous public participation meetings held for various permit processes throughout the year.	MassDOT will continue to comply with federal and state public notification and public participation requirements.
2B	Adopt-a-Highway	Adopt-a-Highway	Continue to support program.	MassDOT maintained, repaired, and replaced program signs as needed. 750 lane miles are covered by the Adopt-a-Highway and Sponsor-a-Highway programs.	MassDOT will continue to support and promote this program.
2C **Removed**	511 Massachusetts Traveler Information System	Operations	Maintain 511 System.	Revised – see 2C below	BMP Removed.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
2C **Revised**	Call-In Numbers for Roadway Debris	Operations	Maintain Call-In Numbers for Roadway Debris	Each District and Headquarters has a general call-in number for the public to use to alert MassDOT of roadway debris. If Headquarter receives the call, then the information is forwarded to the appropriate District. The information is then forwarded to the Maintenance Department Foreman, who coordinates with the workers to alleviate the situation. Contact information can be found here: http://www.massdot.state.ma.us/ContactUs.aspx Call-in numbers are listed below. • *Headquarters: (857) 368-4636* • *District 1: (413)-637-5700* • *District 2: (413) 582-0599* • *District 3: (508) 929-3800* • *District 4: (781) 641-8300* • *District 5: (508) 824-6633* • *District 6: (857) 368-6100* MassDOT provides Highway Assistance Patrol (HAP), an emergency roadway assistance service, along the most highly traveled roadways in Massachusetts. HAP patrols 982,000 miles annually and removes roadway debris when encountered, in addition to other services.	Maintain call-in numbers and providing active responses.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
2D-1	MassDOT Web Site	IT/ Environmental	Post Storm Water Management Plan (SWMP) to web site.	The most recent SWMP submitted to EPA (December 2009) is posted on MassDOT's web site.	EPA has indicated that MassDOT will receive an individual Transportation specific permit (TS4) and is not included as a permittee in the 2016 MA general permit. MassDOT will continue to be covered by the 2003 MS4 permit until EPA issues a MassDOT TS4 permit. MassDOT will prepare a revised SWMP as part of the TS4 permit compliance, which will be posted on the website once complete.
2D-2	MassDOT Web Site	IT/ Environmental	Post annual reports to the web site.	Annual Reports for Permit Year 1-14 are posted on the Environmental Section's web page.	Permit Year 15'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.
Addn.	Participate in local cleanup days	Districts	Assist with local cleanup efforts, as appropriate.	On June 1st, District 1 held its Annual Clean Up Day On July 29th, District 5 Staff removed approximately 800-1000 illegally dumped tires on Route 140 in NewBedford.	No action required.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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	Environmental/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 15.	Any new rest area leases will be summarized in the Annual Report. See MCM 5 for more information on future I-90 leases.
3B-1	Drainage Inventory	Environmental/ Construction/ Planning/ IT Section	Develop and implement specification for securing drainage information from future construction and redevelopment projects.	As part of the Impaired Waters Program Retrofit Initiative, MassDOT consultants have continued to improve upon MassDOT's drainage components electronic inventory. MassDOT has developed a geospatial database to inventory the improvements being identified, designed and installed as part of the program. This database is submitted at the completion of the project design. For programmed projects, the Water Quality Data Form submitted as part of 75% design provides geospatial information on existing and proposed stormwater improvements thereby continuing to develop the database. Additionally, MassDOT has developed a geospatial Stormwater Asset Database to collect all drainage assets including inlets, pipes, and outlets. Manholes and inlets in the roadway were collected using LiDAR data and added into MassDOT's Stormwater Asset Database this permit year.	The IWP database will continue to be updated as retrofit project designs reach milestones. MassDOT will also continue to refine the Water Quality Data Form to capture information from programmed projects. MassDOT is developing methods to update the Stormwater Asset Database from construction and maintenance efforts. Various methods will be evaluated including using LiDAR data, aerial images, record design plans, or manual collection in the field during inspection and maintenance activities. MassDOT will continue to work towards expanding this effort statewide as part of MassDOT's larger Asset Management Initiative.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 and is posted on MassDOT's website at MassDOT has received a number of requests for information and have been able to respond relatively quickly.	Continue to maintain outfall inventory on website. MassDOT will work towards collecting additional data on drainage assets in accordance with the Asset Management Imitative.
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 2) Policy posted at http://www.massdot.state.ma.us/Portals/8/docs/engineeringDirectives/policy/p-06-002.pdf 3 and 4) See Appendix A for illicit connection/discharge issues and actions during this permit year.	The drainage tie-in policy is now a formal MassDOT policy and is implemented as necessary.
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.	The Drainage Tie-In SOP has been finalized. It was officially issued on March 19, 2012. The SOP continues to be utilized for tie-in issues and procedures. Appendix B summarizes the status of drainage tie-in permits that have been issued or are still in the application process as of this permit year.	The Drainage Tie-In SOP will be utilized for tie-in issues and procedures. MassDOT will also continue to update Appendix B as needed.
3D **Removed**	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 15	Planned Activities – 2018/2019
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.	Past Illicit Discharge Detection and Elimination (IDDE surveys) have identified few connections relative to the funds and time expended required to conduct the surveys. As part of the process of developing the Draft TS4 permit, EPA is working with MassDOT to prioritize areas that have a greater potential for illicit drainage connections throughout the State. In addition to the previous IDDE catchment area prioritization ranking system, which looked at watershed attributes (pathogen impairments/TMDL, public health concerns), MassDOT and EPA have added roadways-based attributes to further inform the prioritization ranking system. These attributes include whether the roadway is: a limited access highway or within 100 feet from any buildings or structures.	Once the areas that warrant IDDE investigations are established in the TS4 permit, MassDOT will perform a desktop review to look at the type of DOT owned road(s) (e.g. rural, highway, etc.), and proximity to developed areas, in order to isolate the segments of roads and schedule their respective IDDE investigations.
3D (cont'd)				Appendix B of this report provides a table of locations where unpermitted connections have been identified that require MassDOT stormwater permits. Part of the permitting process will determine if the flows are appropriate under the MS4 permit and therefore not considered illicit. MassDOT discussed these potential illicit connections with the appropriate MassDOT Districts to determine if the connections were previously permitted or required drainage tie-in permits.	MassDOT will proactively address complaints/ potential IDDEs identified by District personnel, during the Impaired Waters Program 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.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 additional trainings on IDDE were offered in Permit Year 15.	No action required. MassDOT plans to conduct trainings on the updated Stormwater Handbook which will include IDDE protocols.
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.	MassDOT is working on providing training on illicit connection policy, illicit connection identification, and protocol for reporting.
Addn.	Standard IDDE Letter	Environmental/Legal	Create a standardized letter to make the early stage of the IDDE procedure more efficient. The letter will alert property owners of illicit and/or unauthorized discharges and connections from their property that tie into MassDOT's drainage system. The letter will also recommend that the property owners apply for a non-vehicular access permit in accordance with the MassDOT Drainage Tie-in SOP	Measurable goal met in Permit Year 11. MassDOT has begun to use the Notice of Violation (NOV) letter for notifying property owners of unpermitted connection violations. Appendix A shows NOV letters which were sent in PY14 and the status of follow up.	Send the standardized NOV letter to property owners for any new event involving illicit and/or unauthorized discharges and connections that tie-in to MassDOT's drainage system. Track letters sent and responses in future annual reports.
Addn.	NOV Letter for Municipalities	Environmental/Legal	Create a standardized NOV letter to specific municipalities that have IDDE's into the MassDOT system.	MassDOT has initiated a draft letter to send to municipalities and landowners that were identified to have potential IDDE connections to the MassDOT stormwater system. Appendix A provides an update on status of follow up efforts. Model NOV letter was finalized (see Appendix C).	Conduct additional field work, inspection, and sampling to determine if potential IDDE connections are of concern. Send NOV letters as needed. Track letters sent and responses in annual reports.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
Addn.	Billerica/ Somerville/ Arlington/ Belmont IDDE follow up	Environmental	Follow up on potential illicit connections to MassDOT's drainage system in Belmont	The Town of Belmont is working on eliminating their Illicit Drainage Connections, including the the illicit connection that eventually discharges to MassDOT's drainage system.	MassDOT will continue to monitor the Town of Belmont's efforts to eliminate the illicit connection discharging to MassDOT's drainage system via a Town of Belmont connection.
Addn. Cont.	Barnstable IDDE investigation	Environmental	Investigation of potential illicit connections to MassDOT's drainage system in Barnstable	During the Spring months of 2017, MassDOT coordinated with the Town of Barnstable to inspect the drainage pipes along Routes 6A and 132, in response to a complaint of sewage contamination. In May 2017, MassDOT determined there was no evidence of sewage infiltration into the pipes.	MassDOT will continue to respond to complaints of suspect illicit connections discharging to MassDOT's drainage system.
Addn. Cont.	Municipal Data Request	Environmental	Collect drainage and sewer mapping in GIS from Massachusetts municipalities.	A letter to all Massachusetts municipalities was sent in June 2015 requesting their drainage and sewer mapping be sent to MassDOT. Drainage and sewer mapping has been received from approximately 70 municipalities. No additional data was received in Permit Year 15.	MassDOT will use this data to identify locations where municipal drainage systems tie into MassDOT drainage or where municipal sewer systems cross MassDOT drainage systems. This information will be used in the effort to prioritize MassDOT's IDDE efforts.

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
4B	MA DEP Stormwater Management Policy	Environmental/ Construction/ Projects	New construction and redevelopment activities will comply with Massachusetts DEP's Stormwater Standards under the Wetlands Protection Act (WPA) and Section 401 of the Clean Water Act.	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.	46 MassDOT projects included submittal of NOIs and development of SWPPPs for compliance with NPDES construction general permit during Permit Year 15. 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.
4E	MassDOT Stormwater Handbook	Environmental/ Construction/ Projects	Design projects in urbanized areas in compliance with the Stormwater 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 is currently revising the Stormwater Handbook to address MassDEP regulatory changes, MassDOT policy changes, TMDL requirements, and the requirements of the forthcoming TS4 permit. MassDOT determined that, given the extent of the changes in its Stormwater Program (e.g., Impaired Waters Program, the use of Water Quality Data Forms, design and maintenance policies, BMP selection with an emphasis on pavement disconnection and stormwater infiltration, BMP inventory and inspection), that the Handbook needed more of a re-write than just an update.	MassDOT anticipates that the Stormwater Handbook will be ratified by MassDEP in June 2018 (i.e., recognition that MassDOT's Handbook is in compliance with the statewide stormwater management standards to the maximum extent practicable). MassDOT will offer outreach and training on the new handbook to internal staff and consultants once the Handbook is ratified.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
4F	Standard Specification for Highways and Bridges	Environmental/ Construction/ Projects	Continue to include erosion and pollution prevention controls in construction contracts	Inclusion of pollution prevention 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 projects 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. In addition, the Stormwater Unit ensures that all construction contracts include items for sediment removal and disposal from pipes and drainage structures within the project area.	Such controls will continue to be included in construction contracts issued by MassDOT.
4G **Revised**	MassDOT Research Needs Program	Environmental/ Construction	Continue funding the MassDOT Research Needs Program	Moved to MCM 6 since the focus of the research program is no longer construction controls.	
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 General Permit (CGP) requirements (i.e. SWPPP) 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 is discussed at all pre-con meetings. MassDOT has reviewed the 2017 CGP and summarized the changes to all MassDOT Districts and construction personnel.	MassDOT will continue to review the NPDES Construction GP requirements with Contractors at the pre-construction meeting.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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.	Measurable goal complete.
4J	Field Guide on Erosion Prevention and Sediment Control	Construction Section/ Chief Engineer	Prepare field guide and issue to Resident Engineers.	The guide was issued to resident engineers at winter training and was posted online at the Field Operations page in December 2013 found here: http://www.massdot.state.ma.us/Portals/8/docs/FieldOperations/ErosionSedimentFieldGuide2013.pdf	Measurable goal is now complete.
4K	Storm Water Pollution Prevention Plan (SWPPP) Guidance Manual for Contractors	Construction Section/ Districts	Prepare a SWPPP Guidance for Contractors 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 which includes an Erosion Control Plan is now included in all contracts with over 1 acre of soil disturbance.	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 were performed and covered NPDES permitting, erosion and sediment control, dust, noise, landscape, HazMat, and Diesel Retrofit Program, as well as Chapter 007 – Environmental Compliance and Chapter 200 – Drainage of the RE Inspection Manual. District 1 – February 27th, 2018 District 2 – March 29th2018 District 3 – April 27th, 2018 District 5 – January 24th, 2018 A highway core curriculum class was held for Environemtnal Permitting on October 16, 2017.	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 15	Planned Activities – 2018/ 2019
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.	MassDOT continues to use compost filter tubes as the default for sediment controls. MassDOT is now working, with input from the industry, to develop a specification for bonded fiber matrix for late-fall slope stabilization and dormant seeding. MassDOT continues to use compost amended topsoil and compost filter tubes for many of its projects. There is variability in the reliability of the material available. MassDOT continues to expand its use of compost topsoil in lieu of conventional loam placement, as well as compost filter tubes in lieu of hay bales. MassDOT uses compost for amended topsoil, filter tubes, and compost topsoil and continues to refine its specifications based on feedback from construction. The spec for bonded fiber matrix with seeding has been developed and used on a handful of projects. MassDOT has been using "compost topsoil," which is essentially a compost blanket, for erosion control.	MassDOT intends to continue to solicit input from the industry on slope stabilization.
4M **Removed**	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.	MassDOT does not perform its own field tests any longer but instead relies upon guidance developed by others.	BMP Removed.
4N	Construction Bulletins	Construction Section	Issue annual construction bulletins to each District regarding stormwater issues.	Issued annual construction bulletins to all Districts in Fall of 2016 regarding erosion control and a related training class, dust, cofferdams, project schedules, and stabilization.	Issue bulletin in the Fall of 2018 regarding stormwater issues.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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.	.	MassDOT will continue to address non-compliance through monetary penalties or deductions or delays in payment, when warranted.
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.	The new SWPPP Item 756 was revised by the working group and added online training, and will be in new contracts with SWPPP Item. MassDOT provides annual training and contractors are required to take training.	MassDOT will continue to add this item to contracts.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
Addn.	Drainage Structure Sediment Removal	Environmental/Design	Include removal of sediments from drainage structures as a standard item on all construction projects	MassDOT bid items 227.3 (removal of drainage structure sediments) and 227.31 (removal of drainage pipe sediments) have been included in all MassDOT bid estimates so as to ensure drainage structures within the project limits are cleaned after construction is complete, as necessary.	Continue to include drainage structure sediment removal bid items in all construction projects.

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 15	Planned Activities – 2018/ 2019
5A-1	MassDOT Stormwater Handbook	Environmental	Secure DEP ratification for MassDOT Stormwater Handbook.	Measurable goal complete for original Handbook. MassDOT is currently revising the Stormwater Handbook to address MassDEP regulatory changes, MassDOT policy changes, TMDL requirements, and the requirements of the forthcoming TS4 permit. MassDOT determined that, given the extent of the changes in its Stormwater Program (e.g., Impaired Waters Program, the use of Water Quality Data Forms, design and maintenance policies, BMP selection with an emphasis on pavement disconnection and stormwater infiltration, BMP inventory and inspection), that the Handbook needed more of a re-write than just an update.	MassDOT anticipates an internal draft of the Stormwater Handbook to be completed in the Spring of 2017. Following internal review, the next step will be to submit the Handbook to MassDEP for ratification (i.e., recognition that MassDOT's Handbook is in compliance with the statewide stormwater management standards to the maximum extent practicable).
5A-2	Revise Ch. 4 of the MassDOT Storm Water Handbook	Environmental	Revise Chapter 4 (selection methodologies) 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 revising the Stormwater Handbook. MassDOT determined that a rewrite of the entire Handbook was more appropriate to address the changes in the DEP Policy, the MassDOT experience gained in implementing the guidelines, and the requirements of the forthcoming TS4 permit. Therefore, the update has been more extensive and the schedule extended. The handbook draft was completed and sent to DEP and EPA for review February 2018	MassDOT anticipates that the Stormwater Handbook will be ratified by MassDEP in June 2018 (i.e., recognition that MassDOT's Handbook is in compliance with the statewide stormwater management standards to the maximum extent practicable).
5A-3	Revise Ch. 5 of the MassDOT Storm Water Handbook	Environmental	Revise Chapter 5 (BMP toolbox) within nine months of DEP's SW Policy Handbook update being released. Reissue MassDOT Handbook to Designers within one year of DEP's document being released.	MassDOT is revising 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 an internal draft of the Stormwater Handbook to be completed in the Spring of 2017. Following internal review, the next step will be to submit the Handbook to MassDEP for ratification (i.e., recognition that MassDOT's Handbook is in compliance with the statewide stormwater management standards to the maximum extent practicable).

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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 H.	MassDOT will continue to conduct maintenance on its roadways as outlined in the maintenance schedule and in accordance with the requirements of the TMDL reports.
5C **Removed**	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.	BMP Revised – see 5C Revised below.	BMP Revised.
5C **Revised**	Identify Innovative Stormwater BMPs Appropriate for MassDOT Projects	Environmental	Introduce innovative stormwater BMPs for MassDOT highway projects.	MassDOT has been drafting Chapter 4 of the MassDOT Stormwater Handbook. This chapter identifies highway-specific BMPs that are designed and implemented on a site specific basis. New and innovative BMPs are being evaluated for inclusion in these chapters. MassDOT continues to review each project for the potential to include innovative and low impact development type BMPs. Reduction of existing unused pavement and use of porous pavement are two examples of innovative applications used in MassDOT projects.	DEP to ratify & MassDOT to publish the MassDOT Stormwater Handbook.
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.	No further action planned.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
5E	Highway Runoff Contaminant Model	Env. Div. Consultant	Develop and calibrate contaminant loading model (SELDM).	MassDOT has initiated collaboration with EPA to develop a load and BMP credit calculator using published data from EPA, and results from SELDM and MassDOT's long-term continuous simulation model. The calculator will be included in MassDOT's WQDF and also in a stand-alone excel tool. MassDOT continues to work with USGS in the development and use of SELDM.	MassDOT will incorporate the calculator into MassDOT's WQDF and also in a stand-alone excel tool. MassDOT will use the values to estimate loading and pollutant treatment for all of its inventoried BMPs where data is available.
5F **Removed**	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.	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 stormwater BMPs.	Environmental reviewed 31 right of way canvasses. All sales, transfers, and leases of MassDOT properties were approved. Conditions were developed for parcels that were determined to potentially impact existing stormwater facilities or wetlands. These conditions were made standard for all future right-of-way canvass agreements.	The Environmental Section 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 (as well as wetland replication).
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 were no referrals to the Attorney General's office during Permit Year 15. The standard Notice of Violation (NOV) Letter has been revised. The IDDE Table in Appendix A has been updated to reflect the current status for each case.	MassDOT's Environmental Services Section will continue to communicate (where possible) with the property owners and move toward resolution of the issues. The improved Notice of Violation (NOV) Letter will now be used any new event involving illicit and/or unauthorized discharges and connections that tie-in to MassDOT's drainage system.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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.	The Drainage Tie-In SOP is being implemented when necessary. Appendix B summarizes the status of drainage tie-in permits that have been received or are still in the application process as of this permit year.	The Drainage Tie-In SOP will continue to be implemented for tie-in issues and procedures. MassDOT will also continue to update Appendix B as needed.
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.	Appendix B lists the known drainage connections that are potentially unauthorized (although unlikely to be illicit).	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. Additionally, MassDOT has implemented a new project review and prioritization process which MassDOT's Stormwater Unit is integrally involved. See the additional BMP for Project Selection and Advisory Council on the following pages for more information.	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 15	Planned Activities – 2018/ 2019
5K	Federal Enhancement Funding	Planning	Explore opportunities for using Federal enhancement funding for environmental restoration and pollution abatement projects. Participate in quarterly committee meetings.	MassDOT no longer utilizes TAP funding for the Impaired Waters Program. Instead, funding for structural stormwater improvements is received now through the FHWA Surface Transportation Program (STP) under Transportation Enhancements. MassDOT has continued to secure funding for the Impaired Waters Program. MassDOT advertised $3,246,000 in stormwater improvements in PY15. This included approximately $2.71 million in Federal Fiscal Year 2017 (from April 2017-September 2017) and approximately $620,000 to date in Federal Fiscal Year 2017.	Continue to utilize funding from the STP for the Impaired Waters Program. For the remaining time within Federal Fiscal Year 2018 (through September 2018), MassDOT will advertise approximately $6 million in stormwater improvements projects. An additional $2.4 million is allocated to stormwater improvement projects in Federal Fiscal Year 2019.
Addn.	Rest Area Pet Waste Program	Environmental/Office of Real Estate Development		In Permit Year 13, MassDOT completed a study of all rest areas within the watershed of a pathogen impaired water body for installation of pet waste stations (signage, bags, and waste disposal). In MassDOT-owned Service Plazas, those with tenants such as gas stations or food vendors, MassDOT began discussions to delegate the maintenance responsibility of the pet waste stations on the tenants and to include this requirement in upcoming lease agreements. Leases for service area tenants were not renewed in Permit Year 15.	In Permit Year 16, MassDOT plans to discuss the possibility of Service Plaza tenants along I-90 installing and maintaining pet waste stations. For unmanned rest areas, especially those with no facilities including waste barrels, MassDOT will work toward securing funding for the maintenance of pet waste stations.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
Addn.	Project Selection and Advisory Council (PSAC)	Environmental		MassDOT's Stormwater Unit has become involved in the Project Selection and Advisory Council (PSAC), which has developed and implemented a standardized scoring system to effectively evaluate project merit for the goal of delivering a balanced Transportation Investment Program. A potential project is scored based on a wide variety of attributes, which includes impacts to water quality and other environmental resources, where a project will score negatively if water quality impacts are anticipated or positively for projects that may improve existing stormwater quality. The inclusion of MassDOT's Stormwater Unit in the PSAC scoring process has provided improved identification of a potential project's overall impact to water quality, therefore allowing the Council to arrive at more informed decisions on a project's viability.	MassDOT's Stormwater Unit will continue to have an active role in the PSAC moving forward.

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 15	Planned Activities – 2018/2019
6A-1 **Removed**	Source Control - 511 Massachusetts Traveler Information System	Project Clean/ Operations	Maintain the existing 511 System.	Revised – see 6A-1 below.	BMP removed.
6A-1 **Revised**	Source Control - Call-In Numbers for Roadway Debris	Operations	Maintain Call-In Numbers for Roadway Debris	Each District and Headquarters has a general call-in number for the public to use to alert MassDOT of roadway debris. If Headquarter receives the call, then the information is forwarded to the appropriate District. The information is then forwarded to the Maintenance Department Foreman, who coordinates with the workers to alleviate the situation. Contact information can be found at this link: http://www.massdot.state.ma.us/ContactUs.aspx Call-in numbers are listed below. • *Headquarters: (857) 368-4636* • *District 1: (413)-637-5700* • *District 2: (413) 582-0599* • *District 3: (508) 929-3800* • *District 4: (781) 641-8300* • *District 5: (508) 824-6633* • *District 6: (857) 368-6100* MassDOT provides Highway Assistance Patrol (HAP), an emergency roadway assistance service, along the most highly traveled roadways in Massachusetts. HAP patrols 982,000 miles annually and removes roadway debris when encountered, as outlined in Appendix L, in addition to other services.	The call-in numbers will continue to be utilized for the public to call in about roadway debris.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 32,200 bags of litter were picked up statewide. MassDOT continues to maintain, repair, and replace program signs as needed. See Appendix L for a summary of litter programs.	MassDOT will maintain or increase the current level of sponsors and increase volunteer participation.
6A-3	Source Control - Deicing Programs and Reduced Salt Areas	Environmental/ Districts	Continue to support De-icing and Reduced Salt Areas Programs.	MassDOT continues to support the De-icing and Reduced Salt Areas Programs. One Material Usage Committee meeting was held on June 23, 2016 and the discussion topics included: Winter Severity Index vs. material usage, possible name change from Reduced Salt Zones (RSZ) to Salt Sensitive Areas, ESPR Annual Report, and anticipated training locations for 2016/2017 season. No Material Usage Committee meetings were held in the last year. MassDOT has increased the number of state and hired material spreaders, which include cloud-based material reporting capabilities. 60 of these spreaders are employed in Districts 3, 4, and 6, and are placed in environmentally-sensitive areas.	The next Material Usage Committee meeting will be held in summer 2018. The committee will review results from RSZ study, new areas of concern, and the Snow and Ice Control Program annual update.
6A-4	Source Control – Motorist Assistance Program (formerly HELP)	MAP Program/ Operations	Continue to provide 22 Highway Emergency Locator Program vans and/or tow trucks.	MassDOT provided 45 Highway Assistance Program (HAP) vans and/or tow trucks. The HAP vehicles cover 34 patrol routes on Massachusetts' most highly traveled roads and patrols approximately 982,000 miles annually. https://www.mass.gov/roadside-assistance	MassDOT will continue to maintain this program.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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.	There are currently no active VMPs for MassDOT. While a VMP was developed and is posted on MassDEP's website (http://www.mass.gov/eea/docs/agr/pesticides/rightofway/vmp/massdot-vmp-2014-2018.pdf), this plan has not been internally vetted or implemented. MassDOT does use herbicide for selective control of invasive plant species on its construction projects, working with regulatory agencies as applicable. There are currently no active VMPs for MassDOT. While a VMP was developed and is posted on MassDEP's website (http://www.mass.gov/eea/docs/agr/pesticides/rightofway/vmp/massdot-vmp-2014-2018.pdf), this plan has not been internally vetted or implemented. MassDOT does use herbicide for selective control of invasive plant species on its construction projects, working with regulatory agencies as applicable.	MassDOT anticipates very limited spraying statewide-mostly for treatment of invasive plants.
6A-6	Source Control - HOV	Planning	Continue participation in ridesharing activities through the duration of the permit term.	MassDOT continues to support this program through: • Operation of the HOV lanes on I-93 • Funding and promotion of the Bay State commute ride matching system online ride-matching system. • The toll discount program on I-90 for HOVs	MassDOT will continue to support this program.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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.	MassDOT continues to utilize Transportation Alternatives Program (TAP) and Congestion Mitigation and Air Quality (CMAQ) funding to fund bicycle and walking infrastructure improvements as part of the Safe Routes to School Program and other transportation improvement projects. In addition, in November 2015, the Baker-Polito Administration and MassDOT announced a $12.5 million Complete Streets Funding Program in an effort to encourage cities and towns in the Commonwealth to design and construct projects to make street networks safer and more efficient for pedestrians, cyclists, drivers, and users of mass transit. The Complete Streets Funding Program provides up to $50,000 in technical assistance and $400,000 in construction funding. The Complete Streets Funding Program was launched in February 2016. MassDOT Planning is finalizing the Massachusetts Pedestrian Transportation Plan, which will focus on both improving MassDOT's pedestrian infrastructure and provide direction and guidance to municipalities on best practice in planning and maintaining pedestrian networks. Completion of the Plan is scheduled for spring 2018. MassDOT is also creating the Massachusetts Bicycle Transportation Plan. This study will build upon emerging trends in statewide bicycling since its last update in 2008. Emphasis will be placed on recent changes in the way bike infrastructure is looked at as a result of demographic shifts in urban migration as well as new mobility options such as bike sharing. Other core goals of the Plan will include bicycling as a catalyst to unlocking economic development; better access to public transit by improving cycling infrastructure to/from transit nodes; and better connectivity of existing bicycling infrastructure for both recreation and transportation. Completion of the Plan is scheduled for summer 2018.	Continue to provide funding for bicycle, walking, and complete streets enhancements across the state. Continue to update the statewide pedestrian and bicycle plans.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 **Revised**	Source Control	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.	MassDOT continued the practice of indoor storage of raw materials (oils, chemicals, salt) and operation/maintenance equipment. Hazardous materials/hazardous waste are covered either in the depot garage bays or hazardous waste storage sheds. MassDOT continued enforcement of the indoor-only vehicle washing policy; no soap or power washing outside. All Standard Operating Procedures can be found here: http://www.massdot.state.ma.us/highway/Departments/EnvironmentalServices/FormsPublicationsDocuments/EMSSustainability.aspx	MassDOT will continue monitoring for proper handling and management of stormwater polluting materials, solid wastes, and industrial waste water.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6B-1	Employee Training	MTAP/ Baystate Roads	Facilitate one training program related to stormwater and /or snow and ice control as a means of reducing source pollution. Document attendance numbers.	Snow and ice control classes were conducted in Permit Year 154 with approximately 1,600 attendees. Topics covered included: • Current vendor contract • Anti-icing • Department operations • Salt and environmental considerations • Drainage systems Additionally, nine classes and one event were held by Baystate Roads on snow and ice operations with a total of 299 attendees. Topics included: • The proper use of salt and liquid anti-icers and the environmental impacts. • Pre wetting and pre-treating • Anti-icing vs. De-icing. • The use of sand and its environmental impact. • Equipment calibration, usage specification and technology. • Snow and ice policy for public review. • Cost benefit analysis of salt vs. sand.	Provide one training program for MassDOT employees (provided by MTAP) and one for municipal DPW snowplow drivers (provided by MTAP/Baystate Roads) related to snow and ice control as a means of reducing source pollution. Document attendance numbers.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 2016/2017 for 322 maintenance facility personnel. Training included discussion of the following topics: • Environmental Awareness Training • Asbestos containing materials • Solid waste • Roadside issues • Storage tanks • Wetlands protection and compliance • Recordkeeping • Inspections/Audits • Water quality (including stormwater issues) • Hazardous materials management • Hazardous waste management • Universal waste management • • Traffic Incident Management First Responder Safety	MassDOT will again provide annual training to maintenance facility personnel regarding good housekeeping practices and spill prevention.
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 held 38 training sessions, 18 of which were dedicated ot MassDOT employees, and 20 of which included both MassDOT employees and hired contractors who are responsible for applying anti-icing materials/freezing point depressants. Approximately 700 state employees and 900 hired operators were trained.	MassDOT will continue to provide training and focus on operational efficiency and effectiveness. Topics to discuss will include material usage data, technology and cause and effect of snow & ice operations and environmentally sensitive areas.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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.	Various MassDOT districts have hosted trainings for maintenance personnel in Permit Year 15 on the correct usage of construction and maintenance equipment, including but not limited to street sweepers, front end loaders, bucket trucks, wood chippers, lane closures, safe equipment handling, and safety tailgate training.	MassDOT will provide operational, safety, and maintenance training on sweeper training, mower training, and snow and ice equipment training. Training is based on the District's needs and requests.
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 and performed street sweeping and regular drainage system maintenance. See Appendix H of the annual report for a summary of compliance. Daily Field Inspection Reports for District Four are now comleted and stored electronically in the MassDOT Field Operations website.	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. MassDOT will work to develop a spatial maintenance work order tracking system to allow for easier tracking and reporting of maintenance activities.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6C-2	Maintenance/ Material Storage Yards	Districts	1) MassDOT inspects and audits maintenance and material storage yards using the Facility Environmental Handbook in order to maintain environmental compliance. 2) Post EMS Manual on MassDOT website for public information. 3) Post generic Facility Environmental Handbook on website for public information.	MassDOT updated its Facility Environmental Handbook in 2011. This handbook includes information on hazardous waste, hazardous materials, water quality, inspections, and record keeping for MassDOT facilities. The Facility Environmental Handbook is posted on MassDOT's public website. Additionally, in 2015, MassDOT developed updated facility plans for each specific facility. This year no updates were completed for the Environmental Management System (EMS) Manual. The manual outlines the organizational structure, associated responsibilities, and procedures for integrating environmental objectives in roadway and maintenance facility operations and is posted on the internal MassDOT web site. MassDOT has finalized an updated audit checklist associated with the EMS Manual. See Appendix K for the most recent audit checklist.	MassDOT will continue to post updated materials to the public website.
6C-3	Maintenance Record and Data Management Work Management System	Environmental/ Highway Operations	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.	The Maximo Asset and Maintenance Management System is being used in each of MassDOT's Districts as a maintenance work order program. MassDOT is currently piloting new asset management systems which allow for spatial data storage and mobile data collection. Additionally, drainage cleaning and repair contracts were issued and included language requiring contractors to report work completed and system condition in a mobile data collection system.	Continue using ArcGIS Online to capture information on catch basin cleaning and repair through the Asset Management Initiative. Provide data from maintenance operations in annual report. Continue to pilot stormwater BMP inspection program and identify appropriate inspectors statewide, train inspectors, and implement program.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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 stormwater 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. In some instances MassDOT beneficially reused street sweeping materials. MassDOT removed greater than 10,000C.Y. of sweeping material and 6,000 C.Y. of drainage structure material this year. Material removed is summarized below. • District 1 had 1,100 C.Y. of sweeping materials removed and 315 C.Y. of drainage structure waste removed. • District 2 had 2,424 tons of sweeping materials removed and 0 tons of drainage structure waste removed due to an issue with the catch basin cleaning contract • District 3 had 1,973 tons of sweeping materials removed and 588 C.Y. of drainage structure waste removed. • District 4 had 2,270 C.Y. of sweeping materials removed and 551 C.Y. of drainage structure removed. • District 5 had 1,189 tons of sweeping materials removed and 2,225 C.Y. of drainage structure waste removed. • District 6 had 1,835 C.Y. of sweeping materials removed beneficially reused.	MassDOT and its contractors will continue to properly dispose of waste and ensure disposal of street sweepings and catch basin cleanings are in accordance with DEP policy.
6E – **Removed**	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.	No further action recommended.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6E **Revised**	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.	Measurable goal is complete. The findings of the Catch Basin Accumulation Project do not support the need for revising the existing cleaning schedule and SOP for catch basin cleaning. During Permit Year 14, MassDOT collected location information on each drainage structure along MassDOT roadways using LiDAR data. MassDOT has developed a Stormwater Asset Database to allow for tracking and maintenance/condition reporting. In Permit Year 15, MassDOT collected additional data to include in the Stormwater Asset Database. The data includes: structures located on highway ramps, small culverts, and newly constructed stormwater BMPs. MassDOT has embarked on conducting two, year-long catch basin sediment accumulation studies; one in Weymouth and Abington on Route 18 and the other in Needham and Wellesley on I-95. The goal of the study is to determine the most appropriate inspection and cleaning frequencies for catch basins, which need to be cleaned once the sediment depth reaches 50% of the sump depth. Currently, the study scopes have been developed, but the field work portion of the study cannot begin until the roadway construction within the study areas is completed. MassDOT conducted inspections on approximately 2,400 that allowed catch basin cleaning contractors to collect information on work performed, condition, and action required on catch basins.	MassDOT will continue to conduct catch basin inspections using ArcGIS online. MassDOT will further advance the Catch basin cleaning studies.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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.	During the winter season of 2017-2018 MassDOT continued to include Closed Loop Ground Speed Controller Systems on all material spreaders. This allows truck operators 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 which provides a more efficient and consistent application of material. Additionally, MassDOT had pilot studies for loader scales, GPS/AVL (particularly with cloud-based material usage reporting), friction meters and mobile RWIS stations. Over the past 5 years MassDOT has realized a 25% reduction in material usage due to updates to the snow and ice policy.	MassDOT will evaluate the effectiveness of the pilot studies and consider if these tools should be permanently added to the snow and ice control policy. The overall program will also be evaluated annually.
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.	MassDOT continues to provide the Salt Remediation Program with a funding level appropriate to quickly address salt related complaints. Funding has been provided through Interdepartmental Service Agreement (ISA) totaling $4.05 million from July 2015 through June 2018. Unlike private well complaints, which are investigated and remediated by MassDOT's Salt Remediation Program, public water supplies concerned about elevated levels of sodium and/or chloride will provide water quality results to MassDOT for evaluating the effectiveness of snow & ice control BMPs in those areas. Based on the evaluation, MassDOT will make operational improvements as needed. An updated version of the Public Well Supply Matrix is included as Appendix I of this annual report to summarize the current status of these public water supply complaints.	Continue Salt Remediation Program and continue ISA funding for the program.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6H	Clean Well Initiative	Environmental	Provide a continued level of funding that will allow MassDOT to complete up to 20 replacement wells per year.	Funding is provided from the Interdepartmental Service Agreement from July 2015 to June 2018. MassDOT remediated eight (8) private wells through replacement well installation, water supply treatment, and/or connection to a public water supply. These wells were in following locations: • Clarksburg (1) • Groton (1) • Orange (1) • Palmer (2) • Uxbridge (1) • Sandisfield (1) • Grafton (1) An updated version of the Public Well Supply Matrix is included as Appendix I of this annual report to summarize the current status of each public well included in the Clean Well Initiative Program.	Continue sampling and analysis of private water supply wells and where applicable well rehabilitation, replacement well, water treatment activities and drainage modifications.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6I	Salt/Sand Management and Storage	Highway 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. **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)	MassDOT continues to staff the position of Director of Snow and Ice Operations. In Andover there is a new Gambrel-style salt shed on River Road to replace the shed that was closed at the I-93/I-495 junction. Numerous improvements were undertaken at existing facilities to address damaged salt shed doors, roof trusses, and wall panels in order to improve the stability of these structures and to reduce the risk of salt accidentally escaping into the environment due to poor management.	Continue to train our Snow and Ice personnel to be aware of wetlands in and around our facilities. MassDOT will repair or replace any damaged sheds. . Environmentally sensitive areas will be considered in the design process for new sheds MassDOT will work with area supervisors to manage sand supply in all areas.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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.		
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 continued to include environmental stewardship in their winter operations classes. The classes emphasized the needs to follow the current SOP's on salt management and proper material handling. Concepts stressed at trainings included: • Prewetting • Pretreating • Environmental stewardship In addition, MassDOT has repaired leaky liquid magnesium chloride pumps, values, and hoses statewide.	Continue to inform Snow and Ice personnel of the cause and effects of winter operations on the environment.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6K	Snow and Ice - Equipment Improvements	Environmental	MassDOT will continue to expand the use of anti-icing as a standard tool for snow and ice control.	Anti-icing consists of applying salt in liquid form to roadways before a snowfall event. This prevents ice from forming on roadways and requires less salt to be used. The anti-icing program expanded with the opening of a salt brine production facility in Sagamore in December 2012. The use of anti-icing has increased. MassDOT increased the number of anti-icing equipment and the hours the equipment is utilized. Most of the depots across the Commonwealth have access to direct liquid trucks. Interstates are the primary roads targeted followed by all others. MassDOT has state-owned spreaders in District 3 with GPS-AVL technology, which allows material spreaders to be reflected on a map and material distribution parameters can be viewed in real-time and after an event to examine if practices are consistent with MassDOT directives and protocols. This program highlights that all contractors are responsible for material conservation and are held accountable as business entities and individuals for responsible use of anti-icing materials. In addition, MassDOT is utilizing a greater number of tankers and slurry spreaders statewide. Slurry spreaders provide a greater saturation level for dry salt to be applied in a manner that will decrease the potential for the salt to be scattered to the side of the road by a material spreader's spinner and subsequent passes by vehicular traffic.	MassDOT will work on a method of quantifying anti-icing activities versus pre-wetting activities. Each District will acquire additional liquid tank trucks to increase roadway pretreatment prior to winter storm events. A small number of obsolete tanks will be replaced and a few facilities will receive new tanks. This will enhance our Agency's ability and directive for all state-owned and contracted vehicles to only use pre wetted salt.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6L	Snow and Ice - 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 is using tailgate-mounted friction meters in Districts 1, 4 and 6. These devices measure the height of water/ice, among other parameters and then quantify the grip/friction in real time on a smartphone installed on the driver's windshield. The device also captures images that show the roadway condition and the grip at that specific location. The experienced operators are using these devices to confirm their own visual observations and to optimally time material applications. MassDOT began using five mobile, trailer-based RWISs during Permit Year 15. Four of the trailers were developed by UMASS using Vaisala sensor technology, while one was developed by High Sierra. The one High Sierra RWIS is located in Plymouth at Route 3's exit to Route 44. The four Vaisala-based trailers are relocated per district need, with one currently being used by District One at mile marker 21 along I-90, one currently utilized by District Three in Ashburnham on Route 119 one mile south of the New Hampshire state line, and two brought to depots in West Springfield and Deerfield by District Two. All four Vaisala-based trailers are due for annual Preventative Maintenance More information about the Vaisala-based trailers can be found at on UMASS's website at: https://engineering.umass.edu/news/umass-researchers-develop-portable-weather-stations-monitoring-massachusetts-road-conditions	MassDOT will continue to investigate pavement temperature forecasting.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6M	Snow and Ice - Road Weather Information System (RWIS)	Environmental	MassDOT will ensure that these stations will be maintained so as to remain fully functional.	MassDOT added an additional mobile RWIS unit to its force during Permit Year 15.	MassDOT will plan several new non-invasive RWIS sites tandem to Intelligent Transportation System Improvement Projects that are planned in Districts Three, Four, Five, and Six.
6N	Snow and Ice GEIR - 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.	MassDOT – Highway Division has increased the use of spreaders with GPS AVL technology. In total there are 72 spreaders in areas that have been marked as areas to use less sodium chloride due to their status as senstitive watershed. In addition, MassDOT has added non-invasive RWIS sensors in Sturbridge, Worcester, Auburn, Framingham, Cheshire, Blandford Service Area, New Bedford, Sagamore, Westport, Bedford, Easthampton, Bernardston, I-91, and Route 116, in addition to existing non-invasive RWIS sensors in Quincy, Newton, and Canton. The uses of anti-icing techniques have significantly reduced the amount of deicer required to keep the roads reasonably safe. Additionally, MassDOT had added an additional front-end loader scale that measures the tonnage of salt placed in material spreader.	MassDOT will continue to reduce the quantity of granular sodium chloride, develop operation BMPs to reduce the use of sodium chloride, and 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. MassDOT plans to install four new non-invasive RWIS in District Four as well, in addition to locations in Districts Three and Five.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
6O	Snow and Ice GEIR - 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 an active member in the Clear Roads program, including participating in Peer Summit Meetings and phone-based Regional Roundtables with approximately 30 other cold-weather states. Clear Roads activities are documented on their web-site www.Clearroads.org. Research continues to assist MassDOT by bringing the most current practices to Operations. Recently member states were surveyed about their switch from sand or sand/salt to straight salt. Respondents shared their experience and what they gained from the change. Some of the benefits discussed were: • Less time required to achieve bare pavement during and after events • Lower overtime materials and costs • Lower application rates allowed for longer vehicle routes; this translated to reduced equipment and employee numbers required to do the same work • Fewer overall facilities or facilities with smaller actual and environmental footprints were possible when sand is removed from the winter treatment toolbelt • Reduced sand reliance meant fewer sand-caused environmental repercussions and less required springtime cleanup of sand on the roads, roadsides, drainage basins, etc. • MassDOT now only uses sand in a 50/50 sand/salt mix in reduced salt areas on Cape Cod Clear Roads also inspired a discussion surrounding the huge benefits from prewetting salt before roadway application.	MassDOT will continue to support, participate, and use the research and benefits of collaboration with Clear Roads.

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/2019
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.	Continued funding the MassDOT Research Needs Program. MassDOT participated in NCHRP studies concerning limitations of the infiltration approach to stormwater management in the highway setting, stormwater monitoring programs, innovative dissolved metals BMPs, and TMDL compliance.	MassDOT will continue to participate in NCHRP studies.
Addn.	Open Graded Friction Course	Environmental	Complete Study on Open Graded Friction Course benefits on stormwater treatment	MassDOT, along with USGS, has initiated a study on the water quality benefits of Open Graded Friction Course (OGFC). The reason for this study is to obtain stormwater treatment credit from MassDEP for use of this technology along a section of I-95 in Needham and Wellesley. OGFC has stormwater quality benefits, as it reduces vehicle "underwash" and runoff volumes, and contributes fewer pollutants to runoff than traditional pavement. A study area, where traditional hot-mix asphalt adjoins the OGFC pavement, has been selected. During the summer of 2016, MassDOT conducted survey of the study site area to better define the drainage sub-basins. In 2017, MassDOT developed a site plan with the sampling outlets for each pavement type, which includes the installation of plastic drainage trenches, along with "catch basins" to take stormwater samples with automatic samples.	Continue discussions with MassDEP regarding obtaining stormwater treatment credit for OGFC use in any location. Sampling work was delayed about 10 months so as to collect data on, and ascertain the SSC-removal performance of, freshly-paved OGFC. Hence the sampling equipment and runoff sampling will start during the Summer/Fall of 2018.

7. Impaired Waters

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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.	Continued to comply with requirements of MESA and the WPA.	Continued to comply with requirements of MESA and 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.	109 Categorical Exclusion (CE) checklists were completed and approved for all federally-aided projects advertised for construction by MassDOT during Permit Year 15. All documentation supporting MassDOT's determination of a project meeting the definition of a Categorical Exclusion is on file with Environmental Services Department at MassDOT Highway Division.	Continue to approve Categorical Exclusion Checklists in support of MassDOT Highway Division's Construction Advertising Program.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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 captures information during programmed projects about existing and proposed BMPs identified by design consultants and MassDOT designers. The WQDF is part of 25% (preliminary design) and 75% design (final design) submittals to MassDOT. The form requires the designer to document information about the stormwater system and the receiving water. MassDOT reviewed 99 Water Quality Data Forms (44 25% forms and 55 75% forms). The forms indicated that 43 impaired waterbodies would be receiving stormwater runoff from an upcoming MassDOT project. 20 waterbodies with a TMDL were identified. The forms documented a total of 37 proposed stormwater BMPs and 686 deep sump catch basins. Additionally, non-structural BMPs implemented for these projects were documented and included measures such as street sweeping, protecting sensitive areas, inspection and cleaning of stormwater structures, catch basin cleaning, snow removal and deicing controls, and use of sediment and erosion controls during construction. For more information on the data collected through the WQDF, please see Appendix E.	Continue to require submittal of forms at 25% and 75% design submittals. Report on results in annual report. Continue to educate designers on how to accurately and comprehensively complete the WQDF. Issue updated WQDF which allows for pollutant load reduction information to be calculated and uploaded into MassDOT's database. Post new form on MassDOT website and conduct training sessions on new WQDF.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
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 Waters Program to address TMDLs, they 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. MassDOT has continued to include this table as Appendix J of this annual report for consistency with new data regarding activities that occurred this year and TMDLs that were finalized this permit year. As part of MassDOT's commitment under the Impaired Waters Program and BMP 7R of the SWMP, MassDOT completed all assessments of impaired waters with TMDLs. Additional information is included under BMP 7R of this report and in Appendix D.	Continue to review draft and final TMDL reports and implement TMDL recommended activities when possible.
7F – 7Q	TMDL Specific Recommendations	See NOI		Comply with TMDL recommendations in Appendix J.	Comply with TMDL recommendations in Appendix J.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
7R **Revised**	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.	1-4. MassDOT has reviewed all waterbodies on the Appendix L-1 list within watersheds with a TMDL and has fulfilled their commitment to the court with its final semi-annual submission to the EPA on June 8, 2015. MassDOT continues to be an active participant in developing TMDLs with EPA and DEP. Appendix J includes a review of final TMDLs and the implementation requirements which are relevant to MassDOT.	MassDOT will continue to be an active participant in developing TMDLs that impact MassDOT with EPA and DEP. MassDOT will provide public comment on draft TMDLs as appropriate. As new TMDLs are finalized, they will be reviewed during future designs of programmed projects.
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 Salt Remediation Program budget is $4.05 million from July 2015 through June 2018.	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 15	Planned Activities – 2018/ 2019
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 in Permit Year 8. 2. Task completed in Permit Year 8. 3 Task completed in Permit Year 8.	All required actions have been completed.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
7U **Revised**	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.	1-4 MassDOT submitted assessments to EPA as part of its semi-annual submittals for all waters listed in Appendix L-1 as of its final submission on June 8, 2015.	Future activities of the Impaired Waters Program are summarized in Appendix D. MassDOT will continue to develop designs for BMPs to address impaired waters under the Impaired Waters Program.
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 the reporting year were reviewed for impacts to historic properties or archaeological resources. None of the projects reviewed had stormwater impacts to significant archaeological or historic resources. Thus, none of these projects required any stormwater BMP design alterations based on cultural resources concerns.	The Cultural Resources Unit will continue to review projects for any stormwater impacts to historic resources at the 25% design stage.

BMP ID #	BMP Description	Responsible Dept./ Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15	Planned Activities – 2018/ 2019
Addn.	V-Pass Pollutant Assessment Simulation for SWMM	Environmental/ Consultant		MassDOT used the supplemental approach on multiple Retrofit Initiative designs in PY 15. MassDOT, their consultant and EPA have met multiple times to discuss the calibration of the model to loading values in draft NPDES permits. MassDOT has initiated collaboration with EPA to develop a load and BMP credit calculator using published data from EPA, and results from SELDM and MassDOT's V-Pass long-term continuous simulation model. The calculator will be included in MassDOT's WQDF and also in a stand-alone excel tool.	MassDOT will incorporate the calculator into MassDOT's WQDF and also in a stand-alone excel tool. MassDOT will use the values to estimate loading and pollutant treatment for all of its inventoried BMPs where data is available.
Addn.	Programmed Projects Initiative	Environmental/ Consultant		MassDOT continues to implement stormwater BMPs in programmed projects that drain to an impaired water body. The WQDF documented 37 existing and proposed stormwater BMPs this permit year. Refer to Appendix D for more detail on the Programmed Project Initiative and Appendix E for data collected in WQDFs submitted in PY15.	MassDOT will continue the Programmed Projects Initiative.

Part IV. Summary of Information Collected and Analyzed

All information collected and analyzed this year is summarized in the proceeding tables and narrative.

Part V. Program Outputs & Accomplishments (OPTIONAL)

MassDOT's accomplishments during the fifteenth permit year are summarized in Part 1- 4 of this annual report. Additional BMPs that have been added this year have been added to the matrix above with new "Additional" row, rather than summarized below. Additional accomplishments are described below.

The MassDOT Environmental Services Stormwater Unit now consists of two environmental scientists and to focus on stormwater management across the Commonwealth. The Stormwater Unit reviews the drainage/stormwater management system for all programmed projects, identifies programmed projects that would benefit from the implementation of structural stormwater BMPs, ensures effective BMPs are designed, and implements the Impaired Waters Program. Additionally, the Stormwater Unit works to expand its BMP and drainage inventory, and promote inspection and maintenance practices. In Permit Year 15, the Stormwater Unit hired three summer interns (part time) and two co-ops (a 6-month internship program) which increased the overall capacity of the Unit.

On April 24, 2017, MassDOT's Stormwater Unit received Federal Highway Administration's 2017 Environmental Excellence Award for Environmental Leadership for its work on the Impaired Waters Program.

List of Appendices

Appendix A: IDDE Status Table

IDDE Status Table

Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
2012	257 Mansfield Avenue (Route 140) Norton, MA	Not Present	Illicit Discharge Survey	Not Tested	MassDOT conducted two site visits at this location in 2012 and determined the source of this connection is located off of MassDOT property. Property owner was contacted by Mr. George Ayoub in 2012 and was asked to apply for a permit. No record of the permit is known at MA DOT.	Notify the town of Norton of the connection	District 5	Norton Estates (508) 285-2901
2010	Rent-A-Tool 777 North Shore Road (1A), Revere, MA	Trickle	District 4 staff identified flow discharging to a MassDOT catch basin/Follow up Illicit Discharge survey	Not Tested	A permit application was submitted to MassDOT in 2010. Additional information was requested by MassDOT but was not received. May 2017 observation - rent a- Tool no longer there. On going construction work on site. CB contained silt sack and full of water.	District 4 will conduct a site visit.	District 4	Rent-A-Tool (Steve Williams) (781) 829-3900
2011	Dunkin Donuts 888 Main Street Woburn, MA	Not Present	District 4 staff identified a 4" pipe connected to a MassDOT catch basin	Not Tested	In 2011 a letter was sent to the property owner and a phone call was placed in 2013. MassDOT has not received a response from the letter or phone communication. May 2017 nothing observed.	District 4 will follow up with property owner and conduct a site visit to determine if this is a permitted connection.	District 4	Dunkin Donuts (781) 932-0548
2011	454 Patriots Road (Route 2A) Templeton, MA	Not Present	District 2 observed a small pipe exiting this property during a maintenance call	Not Tested	In 2012 a letter was sent to the property owner and a phone call was placed in 2013. MassDOT has not received responses to either form of communication. District staff do not think the flow directly ties into the DOT system.	A follow up visit should be conducted to determine the source of this flow, and follow up with the town should be conducted if this is not connected to MA DOT property	District 2	Charlie Perkins (978) 939-1063 (978) 939-8980
2007	Dorrance, Inc. 283 West Main Street (Route 123) Norton, MA	Not Present	Tie-in identified by MassDOT at private residence	Not Tested	A letter and permit application was sent to the homeowner in September of 2011. In March of 2013 MassDOT Environmental left a detailed message with the homeowner regarding the suspect flow. The permit application has yet to be submitted and a return phone call has not been received.	A follow-up visit should be scheduled to confirm tie-in still exists and then follow-up with a NOV letter.	District 5	Carl Dorrance (508) 455-0299
2012	469 Taunton Avenue (Route 44) Seekonk, MA	Not Present	Impaired Waters Site Visit	Not Tested	This connection was found during an Impaired Waters Site visit in 2012. No flow was present and therefore not tested.	A follow up visit will be conducted to determine the source of this flow. If flow is present a sample will be collected and tested to determine the potential source.	District 5	Mark Chandley (Country Kitchen) (508) 336-9807
2010	Route 2/Spy Pond, Belmont/Arlington, MA	Not Present	MyRWA water quality survey/Illicit Discharge survey	Not known	It was determined that a connection is likely not present in Arlington- but there is still evidence of an illicit connection in Belmont. The Town of Belmont was contacted on January 12, 2017 where they were notified of a potential illicit connection. May 2017 nothing observed.	MassDOT Environmental will work with the Town of Belmont as they investigate the potential illicit connection to their drainage system. April 2018 nothing observed.	District 4	Town of Belmont (617) 993-2650
2016	746 Bedford Street (Route 18) East Bridgewater	Unknown	Unknown	Not Tested	NOV Letter sent on April 16th, 2016. Awaiting Response from the Owner.	Notify the town of East Bridgewater of the potential connection.	District 5	Michael Foley
2014	1 Springfield Street, Chicopee MA	Unknown	Site Survey	Not Tested	NOV Letter Sent on April 6th, 2016	Notify the City of Chicopee of the connection, await response from property owner.	District 2	Peter Wirth
2015	164 Boston Road, Groton MA 01450	Intermittent	Unknown	Not tested	NOV Letter sent on 10/13/15	MassDOT District 3 will follow up by contacting the property owner to reach a resolution.	District 3	Johnsons Restaurant and Dairy Bar

IDDE Status Table

Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
2017	Unknown- Route 6A in Barnstable	Unknown	Potential sewage effluent intrusion to deteriorated RCP.	Tested- elevated pathogen concentrations	MassDOT conducted its own water quality testing and IDDE survey to determine if an illicit connection was present on Route 6A. After a site investigation by Karen Malkus, the Coastal Health Resource Coordinator for the Town of Barnstable Health Division on 7/10/17, the matter was closed by the Director of Public Health, Thomas A. McKean, on 7/14/17.	The matter is closed.	District 5	Concerned property owner- Patrick Paige
2017	2 Widett Circle, Boston MA	Not Present	Permit application	Not tested	Drainage Tie-in permit #6-2017-0044, issued on 12/20/17.	None.	District 6	National Passenger Railroad Corp.
2018	981 & 995 Main Street (Rte.18), Weymouth MA	Not Present	Permit application	Not tested	Drainage Tie-in permit #6-2017-0151, issued on 2/20/18.	None.	District 6	Petro Realty Corp.
2012	25 Upton Street (Route 140) Grafton, MA	Not Present	District 3 observed a 2" PVC pipe exiting a residential home	Not Tested	A follow up visit was conducted again in 2012 and the 2" PVC pipe was still present	Resolved	District 3	Ross Sciarro (508) 839 - 7098
2017	215 Bedford Street, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 4/27/2017. MassDOT has held meetings with a representative of the property owner, and has requested to submit a permit application with a stormwater report so that it can be justified if the drainage tie-in should be or should not be permitted.	Request for a permit application with a stormwater report has occurred.	District 5	Dewhurst Lumber Co., Inc.
2017	225 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 4/27/2017. Tie-in was discussed with property owners, but no permit has been submitted yet.	Property owner response	District 5	Delitzia Development LLC, Canton MA
2017	291 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 4/27/2017, with no response as of 4/27/18.	Property owner response	District 5	Bedford St Realty Trust
2017	494 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 4/27/2017. After inspection, a tie-in could not be found on-site, although the owner believes plugging the tie-in will not affect their property.	Property owner response	District 5	Elizabeth Cain, Martell Family Trust
2017	498 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 4/27/2017. Owner responded and does not believe plugging tie-in will affect the property. MassDOT is still waiting for another call from the property owner.	Property owner response	District 5	Town of East Bridgewater
2017	604 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 4/27/2017. Property owner says that plugging the tie-in will probably not impact the property, and will call MassDOT back. Still waiting for another call as of 4/28/18.	Property owner response	District 5	Richard M. & Harriet Sasso
2017	604 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 5/11/2017. Property owner says that plugging the tie-in will probably not impact the property, and will call MassDOT back. Still waiting for another call as of 4/28/18. Two letters were sent because the mailing address of the owner changed.	Property owner response	District 5	James Sasso 18 Thomas Circle Brockton, MA 02302

IDDE Status Table

Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
2017	153 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 5/11/2017, with no response as of 4/27/18.	Property owner response	District 5	Habib B. Joseph Jr.
2017	306 Temple St, Whitman MA	Connection		Not tested	NOV letter sent to property owner on 5/11/2017, with no response as of 4/27/18.	Property owner response	District 5	South Abington Investments LLC
2017	Elementary School, Rt 18 East Bridgewater	Connection		Not tested	NOV letter sent to property owner on 5/18/2017. After meeting with Town of Bridgewater, the Town said they will disconnect the tie-in.	Town of Bridgewater will disconnect tie-in.	District 5	East Bridgewater Town, Elementary School
2017	769 Bedford St, East Bridgewater MA	Connection		Not tested	NOV letter sent to property owner on 5/26/2017. After meeting with the property owner, District Five agreed to plug the drainage tie-in.	District 5 will work to plug illicit tie-in.	District 5	Ralph & Susan Constantine 769 Bedford Street Realty Trust
2017	1091 Massachusetts Ave, Lunenburg MA	Intermittent	Discovered when the discharge caused icing conditions on a MassDOT routeway.	Not tested	Discharge from basement pumped through pipe that discharges at stone wall into MassDOT ROW. Pipe needs to be redirected to their property.	A solution with the property owner will be developed.	District 3	Anthony Caiozzo (617) 312-5189
2017	117 Putnam Hill Rd, Sutton MA	Intermittent	Discovered when the discharge caused icing conditions on a MassDOT roadway.	Not tested	Discharge from basement pumped through a hose that discharges into a small steel culvert that is directed towards a MassDOT roadway. The hose needs to stop running to the culvert and instead seep into their slope, and the culvert needs to be removed.	A solution with the property owner will be developed.	District 3	None.
2017	210 Mechanic St, Bellingham MA	Connection		Not tested	Property is run-down and not used much, so no plan is in place at the moment.	None.	District 3	None.

Appendix B: Status of Drainage Tie-in Permits

Status of Drainage Tie-In Permits

Permit	Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
Unpermitted	2007	615 Northampton St. (Route 5), Holyoke, MA	Intermittent	Sediment carried in stormwater during rain events is clogging MassDOT catch basin	Not tested	In December 2011 a letter was sent to the property owner by MassDOT. In March 2013 an attempt to locate the property owners phone number was made but rendered unsuccessful. MassDOT has not had any further contact with the property owner. District 2 confirmed that flow is not permitted.	MassDOT will conduct a follow-up site visit to confirm flow is still present and then continue to work with the property owner to obtain a tie-in permit	District 2	Tracey Barclay
Unpermitted	2012	69 South Main Street (Route 114) Middleton, MA	Intermittent	Illicit Discharge Survey	Natural Water/Tap/Irrigation	MassDOT collected and tested the flow located on this property.	District 4 will work with the Middleton Golf Course to obtain a tie-in permit- waiting for DOT response	District 4	Middleton Golf Course (978) 774-4075
Issued	2014	Route 127 (Summer Street) Kings Way, Manchester, MA	Connection	11/28/2014 - 6-inch SDR 35 Private Storm Sewer connection to a MassDOT Drain Manhole	Not tested	Permitted.	Drainage Tie-in permit #4-2015-0186, issued on 3/20/18.	District 4	Martin Nally & Co. 5 University Lane, Manchester, MA
Unpermitted	2013	Oak Street Barnstable, MA	Intermittent	Oak Street drainage is connected to MassDOT drainage. Reconstruction of the roadway is in the design phase and the town of Barnstable will remove the drainage tie-in during reconstruction (2013-2014)	Not tested	Construction began in August of 2013, follow up with the town of Barnstable and request new drainage plans.	Drainage tie-in has been disconnected based on site feedback.	District 5	Town of Barnstable (508) 862-4000
Unpermitted	2012	500 Bedford Street (Route 18) East Bridgewater, MA	Intermittent	4" clay pipe coming from the property, discharging water during dry weather	Natural Source	MassDOT determined this flow is unpermitted.	Upon investigation by field personnel, no evidence of the drainage tie-in exists.	District 5	Albert Medeiros (508) 378-7539
Unpermitted	2013	Abington Fire Station #1040 Bedford Street Abington, MA	Not Present	An 18" reinforced concrete pipe leading from the property's drainage system and connecting to a drain manhole on Route 18 (Bedford Street) was discovered by MassDOT personnel while conducting site investigations as part of a project to widen a section of that roadway.	Not Tested	A *Notice of Violation* letter was sent to the property owner on January 29, 2014.	The drainage tie-in permit was issued to the Town under permit #5-2016-0405 on 10/26/2016.	District 5	Rick LaFond (Town Manager) 781-982-2100

Status of Drainage Tie-In Permits

Permit	Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
Unpermitted	2013	Travi Realty Trust #1400 Bedford Street Abington, MA	Not Present	A small drainage system leading from a pond within a wooded area on the property and connecting to a drain manhole on Route 18 (Bedford Street) was discovered by MassDOT personnel while conducting site investigations as part of a project to widen a section of that roadway. In addition to that, several upstream connections and runoff spots were also discovered.	Not Tested	A *Notice of Violation* letter was sent to the property owner on January 24, 2014.	The drainage tie-in permit # 5-2017-0033 was issued on May 2nd, 2017.	District 5	Vincent Travi 781-871-1469
Unpermitted	2013	McPhail Realty Trust #1200 Bedford Street Abington, MA	Not Present	A 12" PVC pipe leading from a detention pond on the property and connecting to a MassDOT catch basin on Route 18 (Bedford Street) was discovered by MassDOT personnel while conducting site investigations as part of a project to widen a section of that roadway. In addition to that, a 6" HDPE pipe leading from the detention pond to a different MassDOT catch basin further north on Route 18 was also discovered.	Not Tested	A *Notice of Violation* letter was sent to the property owner on January 28, 2014.. Received permit application #5-2017-0518. The permit for this has not been issued yet. Owner is in communication with the Town regarding Environmental approvals for the tie-in.	Permit application #5-2017-0518 has been received, but the permit has not yet been issued. Owner is in communications with the Town of Abington regarding Environmental approvals for the tie-in.	District 5	Matthew and Diana McPhail 781-878-2875
Unpermitted	2012	Residence, 338 South Main Street (Route 122), Orange MA 01364	Intermittent	4" PVC draining flooding backyard (from stormwater) connected to MassDOT catch basin on Route 122.	Groundwater	No further action required.	MassDOT determined no other feasible alternative to a MassDOT tie-in, therefore a non-vehicular access permit was granted to the property owner on June 10, 2014.	District 2	David Vitols
Unpermitted	2014	Blockbuster 465 S. Washington St. North Attleborough, MA	Connection	18" RCP connected to MassDOT drainage	Not tested	A *Notice of Violation* letter was sent to the property owner on September 29, 2014.	Through district investigation, pipe found to not be in violation with the drainage tie-in policy. NOV letter was rescinded.	District 5	Skye Enterprises LLC 9 Cedar Ridge Rd. North Attleborough, MA 02760

Status of Drainage Tie-In Permits

Permit	Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
Unpermitted	2014	776 North King Street, Northampton, MA	Connection	Catch Basin tie-in	Not tested	Conduct site visit to confirm improvements have been made, then a non-vehicular access permit can be granted.	MassDOT Environmental and District personnel coordinated with the property owner to permit the connection. A permit will be granted following the construction of drainage improvements, which involves the addition of an oil-grit separator to the drainage system.	District 2	Sunoco Gas Station-Sandri Company
Unpermitted	2016	539 Main Street, Walpole MA	Connection	6" PVC Pipe	Not Tested	NOV Letter sent to property owner on 7/5/16	Determined that there was no connection to MassDOT drainage system present- NOV letter was rescinded	District 5	Power Test Realty Company
Unpermitted	2017	1 First Avenue, Needham MA	Connection	Corrugated plastic pipe connecting to catch basin via overland flow, resulting in erosion problems.	Not Tested	NOV Letter will be sent to property owner.	Follow-up with District to ensure NOV letter is sent	District 6	Acapulcos Restaurant
Unpermitted	2016	2 Breckenridge Street, Palmer MA	Connection	Existing connection- greatly increasing impervious cover from residential to retail facility. Most runoff flows under Route 20 via a box culvert.	Not tested	Drainage tie-in permit application received- provided treatment prior to connection, comments sent to property owner	Permit granted- no follow-up needed	District 2	Dollar General
Issued	2017	Dalton Ave, Pittsfield MA	Connection	Commercial driveway, 12" HDPP into drainage manhole.	Not tested	Permitted.	Drainage Tie-in permit issued on 8/15/17.	District 1	O'Reilly Auto Parts
Issued	2018	Rte.20, Lenox MA	Connection	installation of pedestrian tunnel, 12" concrete pipe into drainage manhole.	Not tested	Permit pending.	Drainage Tie-in permit pending.	District 1	Cranwell Resort
Issued	2017	2 Widett Circle, Boston MA	Connection	Drainage Tie-in	Not tested	Permitted.	Drainage Tie-in permit #6-2017-0044, issued on 12/20/17.	District 6	National Passenger Railroad Corp.
Issued	2018	981 & 995 Main Street (Rte.18), Weymouth MA	Connection	Drainage Tie-in	Not tested	Permitted.	Drainage Tie-in permit #6-2017-0151, issued on 2/20/18.	District 6	Petro Realty Corp.
Issued	2017	450 Memorial Drive, Chicopee MA	Connection	Utilization of one existing direct drainage connection with proposed drainage system modifications.	Not tested	Permitted.	Drainage Tie-in permit #2-2017-0156, issued on 4/11/17.	District 2	Chicopee Hospitality, Inc.
Issued	2017	Sugarloaf Street, Deerfield MA	Connection	Replacement of one existing drainage connection and installation of two new drainage connections.	Not tested	Permitted.	Drainage Tie-in permit #2-2017-0014, issued on 5/11/17.	District 2	RAGUS, LLC

Status of Drainage Tie-In Permits

Permit	Date	Location	Flow	Source Identification	Test Results	Current Status of Follow up	Action Item	DOT District Responsibility	Flow Owner Contact Information
Issued	2017	Riverdale Street, West Springfield MA	Connection	Utilization of one existing drainage connection and replacement and utilization of one other existing drainage connection.	Not tested	Permitted.	Drainage Tie-in permit #2-2017-0210, issued on 6/21/17.	District 2	Doty River, LLC
Issued	2017	295 Burnett Road, Chicopee MA	Connection	Replacement and utilization of two indirect drainage connections to an existing MassDOT swale.	Not tested	Permitted.	Drainage Tie-in permit #2-2017-0007, issued on 1/17/17.	District 2	Springfield Automotive Partners, LLC
Issued	2017	291 Burnett Road, Chicopee MA	Connection	Construction and utilization of one indirect drainage connection to an existing MassDOT swale.	Not tested	Permitted.	Drainage Tie-in permit #2-2017-0374, issued on 8/29/17.	District 2	AMF Bowling Centers, LLC
Issued	2017	Route I-90, Ludlow MA	Connection	Modification and utilization of two existing indirect drainage connections and one new indirect drainage connection to an existing vegetated area.	Not tested	Permitted.	Drainage Tie-in permit #2-2017-0377, issued on 2/27/18.	District 2	Town of Ludlow, DPW
Issued	2017	31 Elm Street, Deerfield MA	Connection	Connection of one filtered ground water discharge pipe to an existing catch basin.	Not tested	Permitted.	Drainage Tie-in permit #2-2018-0059, issued on 3/20/18.	District 2	ATC Group Services, LLC
Issued	2017	520 Boston Post Road, Sudbury MA	Intermittent	Parking lot runoff for Route 20, former Raytheon Site.	Not tested	The proponent submitted pre-development plans, post-development plans, and a letter demonstrating to the District that there are no feasible alternatives for the storm water except to run it under Route 20 through an existing pipe. After a year of design submission reviews and negotiations, the district and the proponent agreed upon a final design. The logistics of the permits are still being worked out, but it is expected to be approved.	None.	District 3	National Development, Gravestar, MassDOT District 3

Appendix C: Notice of Violation (NOV) Letter

[Letterhead]

[Date]

CERTIFIED MAIL – RETURN RECEIPT REQUESTED # _____

[Contact's Name]
[City/Town or Business Name, If Applicable]
[Address]
[Town/City, State, Zip Code]

Notice of Violation

Re: Illicit and/or Unauthorized Drainage Connection or Discharge to MassDOT Drainage System
Located at _____

Dear _____:

The purpose of this Notice of Violation (NOV) is to inform you, as owner of the above-referenced property, of a suspected connection or discharge to the Massachusetts Department of Transportation's Highway Division (MassDOT) drainage system without a properly issued Non-vehicular Access Permit (tie-in permit).

[Description of the site (several sentences), along with details of the suspect connection.]

This is in violation of G.L. c. 81, § 21, regulations found at 720 CMR 13.00, and Standard Operating Procedure No. HMD-02-2-000 (a copy of which is enclosed). Be aware that MassDOT strictly prohibits illicit and/or unauthorized drainage connections and discharges. Any such connection or discharge must be either permitted by MassDOT or immediately disconnected/sealed.

You have ninety (90) days from the receipt of this notification to contact the person listed below to indicate whether: (1) you will apply for a tie-in permit; (2) you will propose a schedule for the removal of the discharge; or (3) you hold a pre-existing drainage tie-in permit[i]. Should no response be received, a follow-up site investigation will be performed. At that time, should an illicit and/or unauthorized connection or discharge be confirmed, the matter will be forwarded to MassDOT's Chief Legal Counsel for enforcement in conjunction with the Attorney General's Office. This may include fines or penalties of up to $1,000 per day.

Please be aware, however, that applying for a tie-in permit does not guarantee being granted one and an internal review will be performed in order to determine if the connection or discharge should be permitted.

Thank you for your anticipated cooperation in resolving this matter. Please contact the District __ Permits Engineer, _____, at _____ at your earliest convenience within the 90-day period.

Sincerely,

[District Highway Director's Signature]

[District Highway Director's Name]
District __ Highway Director

Attachment: Standard Operating Procedure No. HMD-02-02-2-000 (dated 3/19/2012)

cc: Tracy W. Klay, Deputy General Counsel, MassDOT and MBTA
Henry Barbaro (w/o attachment), MassDOT Environmental Services Section

[i] In the case of a pre-existing permit, MassDOT will consider rescinding the NOV.

Appendix D: Impaired Waters Program – Summary of NPDES Permit Year 15

Appendix D

Impaired Waters Program

Summary of NPDES Permit Year 15

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List of Tables

Attachment A: IWP Project Summary Sheets

Project No. 605588.1 – Indian Lake Phase I

Project No. 605588.2 – Indian Lake Phase I

Project No. 605592 – I-84 at Quinebaug River

Project No. 606279 – Route 146 at Blackstone River

Project No. 606995 – Retrofits in Concord, Chelmsford, and Peabody

Project No. 607175 – Rt. 3 at Plymouth Harbor

Project No. 607479 – I-290 in Shrewsbury

Project No. 608059 – Route 107 in Salem

Project No. 608133 – Rt. 140 at Mill River

Project No. 608192 – Connecticut River

1.0 Introduction

MassDOT's Impaired Waters Program (IWP) is a robust program addressing roadway stormwater runoff discharging to impaired waters across the state. The program is both part of MassDOT's commitment to improving the quality of stormwater runoff from its highways and our compliance with the NPDES Phase II Small MS4 General Permit and commitments in the EPA enforcement order to MassDOT dated April 22, 2010. "Impaired" water bodies are those listed as Category 4a or 5 in MassDEP's Integrated List of Waters (referred to as the 303(d) list).

Starting in June 2010, MassDOT made a five-year commitment to assess all impaired water body segments that receive (or potentially receive) stormwater runoff from MassDOT roadways located in urban areas. As of June 2015, MassDOT has completed assessments of 684 water bodies across the State based on a water body estimate submitted as part of the EPA enforcement and referred to as Appendix L-1. MassDOT also assessed water bodies that were not on the Appendix L-1 list (expanded to encompass the additional urban area identified in the latest census, impaired waters listed on the 2012 final 303(d) list, and MassDOT property acquired (e.g., Mass. Turnpike) since the enforcement) as part of MassDOT's good-faith commitment to improve stormwater runoff quality from its highways bringing the final number of assessments completed to 826. Performing a water body assessment includes identifying if runoff from the roadways drains to the water body, whether stormwater is contributing to the impairment, and whether existing Best Management Practices (BMPs) effectively treat runoff from the roadways. The assessment then sets a pollutant removal target for the specific receiving water. When the treatment target is not currently met, MassDOT will design and construct additional water quality BMPs where site conditions allow. To most effectively utilize tax dollars, MassDOT is implementing this program through two initiatives: Retrofit and Programmed Projects.

The Retrofit Initiative is designed to identify locations where adding BMPs along existing roadways is warranted and will lead to a significant reduction in water quality impacts. This effort is aimed at reducing the impacts of MassDOT's runoff on impaired water bodies through the implementation of structural BMP retrofits. MassDOT proactively constructs these stormwater improvements as stand-alone projects or along with resurfacing projects. BMP design and construction is approximately half way done with the planned construction projects and plans to continue the design and construction expeditiously with an anticipated completion date of the final projects advertising in 2023. Significant funding has been allocated for retrofit construction projects to meet this goal.

Alternatively, improvements occur as part of programmed projects which are those projects where significant improvements are planned for a roadway or intersection (e.g., intersection improvement, highway widening) and MassDOT can include stormwater treatment upgrades. MassDOT's Programmed Projects Initiative is implemented for construction projects where roadways discharge to impaired waters and may also include municipal projects undertaken by MassDOT for local municipalities. MassDOT performs an evaluation of the project area draining to the impaired water body and installs additional structural stormwater BMPs to the maximum extent practicable as part of the roadway construction. MassDOT implemented a water quality data form and associated database to capture information regarding the improvements included in the programmed projects so they can be evaluated as part of the overall IWP program.

Of the 826 watershed assessments completed by MassDOT, projects to provide structural BMPs for 113 of the waterbodies have moved forward into design as retrofit projects, programmed projects, or both. In some cases, BMPs to a single receiving water body are constructed under separate projects, pulling from retrofit and/or from programmed-project funding based on timing, the locations of contributing roadways, and on the

work that MassDOT already has planned. To date, 19 instances have occurred in which more than one project has been advertised or planned for a single water body, bringing the total number of IWP water body projects to132.

Table 1 Assessment/Design/Construction Impaired Waters Summary

EPA Submittal	Final Program Outcome
# of Water Bodies Assessed	826
Impaired water bodies moving forward with design as part of retrofit, programmed projects or combination project	132
Impaired waters projects determined no longer feasible due to site constraints during design	10
Impaired waters with projects in design	30
Impaired waters with projects in construction	30
Impaired waters with construction complete	62

MassDOT continues to use six different consulting design firms to assist with meeting the aggressive goals pertaining to design and construction oversight of IWP projects.

All of the newly constructed BMPs will have a beneficial impact on the runoff from MassDOT roads. An estimated 206 acres of impervious cover (IC) will be treated by the BMPs currently under construction or constructed this past year and 212 lbs/year of phosphorus will be removed in phosphorus Total Maximum Daily Load (TMDL) watersheds.

In addition to structural BMPs, MassDOT has taken many steps to further strengthen the Impaired Waters Program this year. MassDOT has continued to maintain and update the IWP geospatial database to track structural BMPs being designed and constructed by our design consultants and the status of water body assessments. This IWP geospatial database is a powerful tool in the analysis of MassDOT's program and future planning/ water quality analysis.

2.0 Retrofit Initiative Stormwater BMPs

The following is a summary of MassDOT's actions through the Retrofit Initiative.

2.1 Overview of Progress in Permit Year 15

MassDOT has completed all of the impaired waters assessments and is designing many water quality BMPs that will provide pollutant treatment, while advancing effective construction of the BMPs.

2.1.1 Design

For assessments where moving forward with BMP design is suggested, MassDOT assigns the project to one of the six IWP designers under contract to MassDOT. The designer performs a more detailed review of the MassDOT urban area roads directly draining to the impaired receiving water to identify site constraints

(soils, wetlands, utility conflicts, etc.) that may limit potential BMP locations, and requests survey and geotechnical information as needed. The designer develops the design of BMPs to meet the target impervious cover or pollutant load reduction to the maximum extent practicable, receives permits, and prepares construction plans for the retrofit project.

During designs this year BMPs associated with three projects were determined to be infeasible when site constraints were reviewed. Table 10 of this report provides more details on the individual projects and the reasons BMPs were determined to be infeasible.

Currently, there are 30 impaired waters with projects in a variety of stages of design. Table 2 provides a summary of the design project status for the overall program and illustrates how many impaired waters have moved through the design stages during this year and on to advertising/ construction.

Table 2 Design Stage Summary

Design Stage	Permit Year 13	Permit Year 14	Permit Year 15
Pre-Design	31	15	4
Pre-25/75%	16	6	7
25/75%	12	4	2
100%	4	5	11
PS&E	8	15	6
Total	71	45	30

Table 10 of this report provides more details on the individual projects and their progress this year. Summary sheets in Attachment A highlight the projects that have reached final design and/or construction this year that have not previously been included in annual report summaries.

As part of the design of the BMPs, MassDOT consultants calculate the pollutant load that will be removed by the proposed BMPs and therefore will not reach the impaired waters. BMPs in construction or constructed this year are estimated to remove 206 acres of effective IC and 212 lbs/yr of phosphorus from the phosphorus impaired watersheds. 216 of the 286 BMPs currently under construction or constructed this past year treat roadway runoff that discharges directly to impaired waters. The effective IC and phosphorus reduction provided by these BMPs treating direct discharges to impaired waters are 151 acres and 112 lbs/yr, respectively.

Table 3 BMP Pollutant Removal Estimate Summary

Pollutant Type	Permit Year 15	Overall Program
Effective IC (acres)	206	**621**
Phosphorus (lbs/yr)	212	**679**

Table 11 provides a BMP pollutant removal summary of individual BMPs treating stormwater directly discharging to impaired waters on retrofit projects which were constructed or started construction this year. Table 12 provides a BMP pollutant removal summary of additional BMPs treating indirect discharges to watersheds of impaired waters on retrofit projects. Projects completed in previous permit years have not been included for simplicity but are tracked in MassDOT's database.

2.1.2 Construction

Once the designs are completed, the projects are advertised and await construction. Table 4 summarizes the status of IWP construction projects this year in comparison to last permit year. Thirty impaired waters have projects currently under construction and 13 impaired waters have construction projects completed this permit year.

Table 4 Construction Project Summary

Construction Stage	Permit Year 13	Permit Year 14	Permit Year 15
Construction On-going	29	32	30
Construction Completed	5	18	13

Table 11 provides details on the projects currently being constructed. More than one Impaired Waters Program project may occur to address a water body for different reasons. Sometimes it's due to a resurfacing project that will cover a portion of the directly discharging area to the receiving water, and so BMPs are included within the project limits of the resurfacing project. Other times it's due to the shape and length of the water body which may cross under MassDOT property at multiple locations so it may make sense geographically to have separate projects.

In order to showcase some of the many improvements that have progressed to construction or have been completed this year as part of the retrofit initiative, Attachment A includes detailed summary sheets including pictures, pollutant removal estimates, and costs for projects that have reached final design and/or construction this year and had not been highlighted in annual reports previously. The projects include:

1. Project No. 606995 – Retrofits in Concord, Chelmsford, and Peabody
2. Project No. 608059 – Route 107 in Salem
3. Project No. 606279 – Route 146 at Blackstone River
4. Project No. 608133 – Rt. 140 at Mill River
5. Project No. 608192 – Connecticut River

As of March 2018, MassDOT has completed sixty-two construction project implementing stormwater BMPs as part of the overall IWP.

Funding is provided through a mixture of Federal Highway Administration (FHWA) transportation improvements program funds and state funds for stand-alone retrofit projects and programmed resurfacing projects coupled with the IWP. MassDOT advertised approximately $6.8 million in stormwater improvements in federal fiscal year (FFY) 2017 (October 1, 2016 to September 31, 2017). MassDOT plans to advertise $6.6 million in stormwater improvements by the end of FFY 2018.

Table 5 Construction Project Funding Summary

Federal Fiscal Year	FY9-16	FY17	FY18
Contract Values ($M)	30.4	6.8	6.6

2.1.3 Other

In addition to structural BMPs, MassDOT has implemented many programmatic tasks that further strengthen the Impaired Water Program. MassDOT maintains and updates the IWP geospatial database to

track the many structural BMPs being designed and constructed by its design consultants and the status of water body assessments. The BMP database includes recording BMP characteristics and inspection and maintenance tracking. MassDOT piloted the BMP inspection tracking system and plans to more widely implement the inspections and maintenance scheduling and tracking in the upcoming year.

In addition, MassDOT has expanded the BMP database to include parameters necessary to better characterize the water quality performance of each BMP. MassDOT plans on implementing a consistent BMP accounting methodology based on EPA's methodology using these additional parameters to estimate water quality treatment. MassDOT, through its consultant, has been in discussions with EPA to finalize this methodology. This methodology will be embedded into MassDOT's WQDF and also be a stand-alone tool for MassDOT designers to help select, size and calculate the treatment of their BMPs.

2.2 Planned Activities for Permit Year 16

MassDOT will continue to implement the Impaired Waters Program in Permit Year 16 to move the many projects identified with potential and need for BMPs through the design stages and develop bundled construction projects for advertisement. In addition to the BMPs constructed as part of the Retrofit Projects Initiative, MassDOT will further develop and populate the impaired waters database.

2.2.1 Design

MassDOT will continue to work with the six firms under contract to assist with design of stormwater BMPs.

Table 6 Design Project Schedule Summary

Construction Stage	Permit Year 15	Permit Year 16
Design	30	13
Construction	30	47

2.2.2 Construction

MassDOT will advertise and construct BMPs as designs are completed. MassDOT plans to advertise $6.6 million in stormwater improvements by the end of FFY 2018 (October 1, 2017 to September 31, 2018). Funding will be provided through the Federal Highway Administration (FHWA) transportation improvements program. The $6.6 million will go toward stand-alone retrofit projects and programmed resurfacing projects where IWP BMPs are coupled with the resurfacing project. Funding has been allocated to construct stormwater BMPs as part of the IWP through Federal Fiscal Year 2023.

Table 7 IWP Construction Project Funding

Federal Fiscal Year	FY9-FY17	FY18	FY19	FY20	FY21	FY22	FY23
Stormwater Improvement Construction Funding ($M)	37.2	6.6	2.4	4.3	4.0	1.2	5.0

3.0 Programmed Projects Initiative Stormwater BMPs

Projects included in the Statewide Transportation Improvement Plan (TIP) or otherwise included in MassDOT's program for construction provide an excellent opportunity to incorporate stormwater BMPs and provide significant water quality improvements. Unlike retrofit BMPs, these projects allow for holistic site planning, where drainage can be redirected and stormwater management can be included in the overall plan for the site. Also, programmed projects allow for the potential to increase the right-of-way and/or move conflicting utilities. Therefore, MassDOT has included stormwater BMPs in contracts for planned projects that discharge stormwater runoff to impaired waters including municipal projects undertaken by MassDOT for local municipalities and projects outside the permit (i.e., urbanized) area.

3.1 Overview of Progress in Permit Year 15

Many stormwater improvements were incorporated into programmed projects over the past year. Attachment A includes summary sheets showcasing the following projects as part of the programmed project initiative that included stormwater improvements:

1. Project No. 607175 – Rt. 3 at Plymouth Harbor
2. Project No. 605588.1 – Indian Lake Phase I
3. Project No. 605588.2 – Indian Lake Phase I
4. Project No. 605592 – I-84 at Quinebaug River
5. Project No. 607479 – I-290 in Shrewsbury

MassDOT's Environmental Section identifies projects discharging to impaired waters through water quality data forms. MassDOT employees and consultants complete a water quality data form for regularly scheduled (programmed) projects at the 25% design phase, and then again at the 75% design phase. The form provides designers with general guidance for implementing BMPs given project type and receiving water body characteristics, gathers water quality and stormwater improvement data, and conducts data validation. The form solicits specific location information for each proposed BMP, which allows for simple integration in the IWP geospatial database. The accompanying web map application allows designers to quickly determine which impaired water body their project drains to and whether the project lies in a watershed with a TMDL.

The table below summarizes the information received from data forms this year about programmed projects.

Table 8 Permit Year 15 Program Projects BMPs Summary

	25% Design	75% Design	Total
Data Forms Received	55	44	99
Impaired Receiving Waters Identified	43	N/A	43
Receiving Waters with a Final TMDL	20	N/A	20
Stormwater BMPs Identified (Existing and Proposed)	N/A	39	39
Deep Sump Catch Basins Identified	N/A	686	686

N/A: Information not collected with the corresponding WQDF

Additionally, sensitive site design elements for these projects were documented and included measures such as preserving existing vegetation, natural drainage patterns, and riparian buffers; minimizing disturbance to wetland resource areas; promoting sheet flow to vegetated areas; and reducing existing impervious cover.

3.2 Planned Activities for Permit Year 16

MassDOT will continue to include stormwater improvements to the maximum extent practicable within programmed projects, require designers to complete water quality forms on the projects and capture the stormwater control information in the IWP database. Additionally, MassDOT plans to update the Water Quality Data Form to include a BMP credit calculator. This will allow MassDOT designers to estimate loading and pollutant treatment for proposed BMPs, refine BMP selection and design to maximize treatment, and will allow MassDOT to include treatment information on all BMPs inventoried in its database.

4.0 Design Status of TMDL Watersheds

As discussed in the June 8th, 2015 submittal to EPA, the EPA enforcement required that "*all TMDL waters in urbanized areas to which MassDOT discharges must have been evaluated to determine if existing BMPs are sufficient and, if not, MassDOT must have identified additional controls that should be implemented".*

As of the June 2015 submittal, MassDOT had met this requirement for all but three Appendix L-1 TMDL waterbodies. BMPs to address these water bodies are currently either under construction or in design and the status is shown in the table below. MassDOT met all of the remaining EPA enforcement requirements.

Table 9 Appendix L-1 TMDL Water Bodies with Design Potential Still to be Identified Status

Water Body ID	Water Body Name	Project Name	June 8, 2015 Submittal Design Status	June 8, 2015 Submittal Ad Date	Current Design Status	Current Ad Date
MA73-30	Gulliver Creek	I-93	Pre-proposal	5/19	Pre-25/75%	10/19
MA82B-07	Assabet River	Rt 2, 2A (Project 606995)	Pre-proposal	5/20	In Construction	--
MA84A-03	Merrimack River	Rt. 110, I-93,113 (Resurfacing Contract 607561)	Pre-proposal	12/16	In Construction	--
MA82B-04*	Assabet River	I-290 (Project 607181)	In Construction*	--	In Construction	--

*This project was mistakenly included as being in the pre-proposal phase in the June 8, 2015 submittal. This project was in the construction phase at the time of the June 8, 2015 submittal and is currently still in construction.

Table 10 Retrofit Project in Design Status

Project Number	Water Body ID	Water Body Name	Project Name	Project Type	District	Year 15 % Design Complete	Estimated Ad Date	Year 14 % Design Complete
-	MA51135	Lake Ripple	Rt. 140 at Lake Ripple	Retrofit	3	Not feasible[1]	N/A	25%/75%
-	MA71043	Upper Mystic Lake	Rt. 3 at Upper Mystic Lake	Retrofit	4	Not feasible[2]	N/A	Pre-Design
	MA95-67	Nasketucket River	Rt. 6, 240 at Nasketucket River	Retrofit	5	Not feasible[3]	N/A	Pre-Design
-	MA61-06	Mount Hope Bay	I-195 at Mount Hope Bay	Retrofit	5	Pre-Design	10/1/2023	Pre-Design
-	MA70-02	Boston Inner Harbor	Boston Inner Harbor	Retrofit	6	Pre-Design	TBD	Pre-Design
608239	MA82B-14	Nashoba Brook	I-495 at Nashoba Brook	Retrofit	3	Pre-Design	TBD	Pre-Design
608598	MA96050	Crystal Lake	Rt. 28 at Crystal Lake	Retrofit	5	Pre-Design	3/7/2020	Pre-Design
608057	MA51073	Indian Lake	Rte 122A at Indian Lake (Phase II)	Retrofit	3	Pre-25/75%	10/1/2019	Pre-25/75%
608057	MA51-08	Unnamed Tributary	I-290, I-90, Rt. 146, Rt. 12 at Unnamed Trib.	Retrofit	3	Pre-25/75%	10/1/2019	Pre-25/75%
608602	MA62-04	Taunton River	I-195, Rt. 79, 24, 103, 138 at Taunton River	Retrofit	5	Pre-25/75%	10/1/2023	Pre-Design
608218	MA73-01	Neponset River	I-95 at Neponset River	Retrofit	5	Pre-25/75%	10/1/2018	Pre-Design
608213	MA73-26	Unquity Brook	I-93, Randolf Ave at Unquity Brook	Retrofit	6	Pre-25/75%	10/1/2019	Pre-25/75%
608213	MA73-30	Gulliver Creek	I-93 at Gulliver Creek	Retrofit	6	Pre-25/75%	10/1/2019	Pre-25/75%
608216	MA92-06	Ipswich River	I-95/I-93 at Ipswich River	Retrofit	4	Pre-25/75%	10/1/2020	Pre-Design
608241	MA41-05	Cady Brook	I-90 at Cady Brook	Retrofit	3	25%/75%	TBD	25%/75%
608241	MA42-03	French River	I-90 at French River	Retrofit	3	25%/75%	TBD	Pre-25/75%
607560	MA34-05	Connecticut River	Chicopee Holyoke Interstate Maintenance	Resurfacing	2	100%	12/29/2018	25%/75%
607993	MA51-02	Middle River	I-290, Rt. 146 at Middle River	Retrofit	3	100%	7/7/2018	Pre-25/75%
608379	MA72-28	Beaver Brook	Rt. 2 at Beaver Brook (Lexington)	Retrofit	4	100%	5/26/2018	100%
607993	MA81-02	North Nashua River	Rt. 2 at North Nashua River	Retrofit	3	100%	7/7/2018	Pre-Design
607993	MA81046	Fort Pond	Rt. 2 and Rt. 70 at Fort Pond	Retrofit	3	100%	7/7/2018	Pre-Design
607993	MA81-05	Nashua River	Route 2 at Nashua River	Resurfacing	3	100%	7/7/2018	Pre-Design
607993	MA81053	Grove Pond	Rt. 2A, 110, 111 at Grove Pond	Retrofit	3	100%	7/7/2018	Pre-Design
607993	MA82125	Lake Cochituate	Rt. 9 at Lake Cochituate Middle Basin	Resurfacing	3	100%	7/7/2018	Pre-Design
607993	MA82127	Lake Cochituate	Rt. 9 at Lake Cochituate South Basin	Retrofit	3	100%	7/7/2018	Pre-Design
607995	MA82A-08	Concord River	Rt. 3A, I-495 at Concord River	Retrofit	4	100%	5/5/2018	Pre-Design

Project Number	Water Body ID	Water Body Name	Project Name	Project Type	District	Year 15 % Design Complete	Estimated Ad Date	Year 14 % Design Complete
607995	MA83-04	Rogers Brook	Rt. 28 at Rogers	Retrofit	4	100%	5/5/2018	Pre-Design
607566	MA53-01	Runnins River	I-195, Rt. 44 at Runnins River	Resurfacing	5	PSE	5//26/18	25%/75%
608317	MA82020	Lake Cochituate	I-90 at Lake Cochitutate North Basin	Resurfacing	3	PSE	6/28/2018	PSE
608317	MA82097	Saxonville Pond	I-90 at Saxonville Pond	Resurfacing	3	PSE	6/28/2018	PSE
608317	MA82125	Lake Cochituate	I-90 at Lake Cochituate Middle Basin	Resurfacing	3	PSE	6/28/2018	PSE
608317	MA82A-22	Unnamed Tributary	I-90 at Cochituate Brook	Resurfacing	3	PSE	6/28/2018	PSE
608317	MA82A-26	Sudbury River	I-90 at Sudbury River	Resurfacing	3	PSE	6/28/2018	PSE

[1] The BMP was determined to be infeasible due to topographic constraints, inability to provide appreciable treatment, and safety concerns due to the BMPs proximity to the roadway.

[2] There was only one potential BMP location in the contributing area. The BMP would not be able to provide appreciable treatment and would cost an exhorbitant amount of money due to the necessity to relocate multiple utilities to place the BMP.

[3] The MassDOT contributing area was re-assessed where it was determined that MassDOT did not have any directly discharing area to the waterbody segment. Furthermore, the potential BMPs investigated provided little treatment (less than a tenth of an acre). It was decided the project would not meet the Impaired Waters Program suitability criteria and thus the project did not move forward.

Table 11 Retrofit/Resurfacing Projects under Construction Status

Project Number	Water Body ID	Water Body Name	Project Name	Project Type	District	Year 15 Construction Status	Estimated Construction Start Date	Estimated Construction End Date	Year 14 Construction Status
608192	MA34-05	Connecticut River	I-91, I-90 at Connecticut River (Subbasins A & B)	Retrofit	2	In Construction	Fall 2017	Spring 2018	In Construction
605592	MA41-02	Quinebaug River	I-84 at Quinebaug River	Resurfacing	3	In Construction	Spring 2017	5/18/2019	In Construction
608394	MA41057	Pistol Pond	I-84, I-90, And Route 20 at Pistol Pond	Retrofit	3	In Construction	Fall 2017	Fall 2020	100%
606290	MA51039	Dorothy Pond	I-90 at Dorothy Pond	Retrofit	3	In Construction	Fall 2016	5/18/2019	In Construction
605588	MA51-08	Unnamed Tributary	I-190 at Indian Lake	Resurfacing	3	In Construction	Summer 2016	8/4/2019	In Construction
607479	MA51105	Mill Pond	Shrewsbury/Boylston/Northborough Maintenance	Resurfacing	3	In Construction	Spring 2017	8/16/2019	In Construction
607479	MA51125	Lake Quinsigamond	Shrewsbury/Boylston/Northborough Maintenance	Resurfacing	3	In Construction	Spring 2017	8/16/2019	In Construction
607479	MA51196	Shirley Street Pond	Shrewsbury/Boylston/Northborough Maintenance	Resurfacing	3	In Construction	Spring 2017	8/16/2019	In Construction
606176	MA62-47	Wading River	I-495 at Wading River	Resurfacing	5	In Construction	Winter 2016	4/25/2018	In Construction
606176	MA72092	Lake Pearl	Foxborough Plainville Wrenthem Maintenance	Resurfacing	5	In Construction	Winter 2016	4/25/2018	In Construction
606176	MA72-14	Mine Brook	I-495 at Mine Brook, Phase II	Resurfacing	3	In Construction	Winter 2016	4/25/2018	In Construction
608217	MA82055	Grist Mill Pond	Rt. 20 at Grist Mill Pond	Retrofit	3	In Construction	Spring 2018	Fall 2018	100%
607992	MA82A-07	Concord River	Rt. 3 at Concord River	Retrofit	4	In Construction	Spring 2018	Fall 2018	PSE
608217	MA82A-16	Unnamed Tributary	Rt. 20 at Hager Road	Retrofit	3	In Construction	Spring 2018	Fall 2018	100%
607176	MA82B-02	Assabet River	Rt. 9 at Assabet River	Retrofit	3	In Construction	Summer 2017	3/16/2019	In Construction
607479	MA82B-03	Assabet River	Shrewsbury/Boylston/Northborough Maintenance	Resurfacing	3	In Construction	Spring 2017	8/16/2019	In Construction
607181	MA82B-04	Assabet River	I-290 at Assabet River	Resurfacing	3	In Construction	Summer 2015	9/1/2018	In Construction

Project Number	Water Body ID	Water Body Name	Project Name	Project Type	District	Year 15 Construction Status	Estimated Construction Start Date	Estimated Construction End Date	Year 14 Construction Status
606995	MA82B-07	Assabet River	Rt. 2, 2A at Assabet River	Retrofit	4	In Construction	Spring 2017	Spring 2018	In Construction
607992	MA83-17	Shawsheen River	Rt. 3, 3A at Shawsheen River	Retrofit	4	In Construction	Spring 2018	Fall 2018	PSE
607992	MA83-18	Shawsheen River	I-93 at Shawsheen River	Retrofit	4	In Construction	Spring 2018	Fall 2018	PSE
607561	MA84A-03	Merrimack River	Rt. 110, I-93, and 113 at Merrimack River	Resurfacing	5	In Construction	Spring 2017	Fall 2018	PSE
607561	MA84A-10	Spicket River	Andover-Methuen Interstate Maintenance	Resurfacing	3	In Construction	Spring 2017	11/2/2018	In Construction
607476	MA84A-10	Spicket River	I-93 at Spicket River	Resurfacing	4	In Construction	Spring 2017	11/2/2018	In Construction
607476	MA84A-18	Bare Meadow Brook	I-495 at Bare Meadow Brook	Resurfacing	4	In Construction	Spring 2017	11/2/2018	In Construction
607175	MA94-16	Plymouth Harbor	Plymouth Resurfacing work	Resurfacing	5	In Construction	Winter 2016	10/16/2018	In Construction
607563	MA95115	Parker Mills Pond	Wareham Rochester Milleboro Interstate Maintenance	Resurfacing	5	In Construction	Spring 2017	Fall 2018	PSE
608201	MA96-51	Muddy Creek	Dennis Harwich Brewster Orleans Resurfacing	Resurfacing	5	In Construction	Fall 2017	Fall 2020	PSE
608201	MA96-70	Areys Pond	Dennis Harwich Brewster Orleans Resurfacing	Resurfacing	5	In Construction	Fall 2017	Fall 2020	PSE
608201	MA96-77	Pleasant Bay	Dennis Harwich Brewster Orleans Resurfacing	Resurfacing	5	In Construction	Fall 2017	Fall 2020	PSE
608201	MA96-88	Cedar Pond	Dennis Harwich Brewster Orleans Resurfacing	Resurfacing	3	In Construction	Fall 2017	Fall 2020	PSE
608133	MA51-10	Mill River	Rt. 140 at Mill River	Retrofit	3	Constructed	Winter 2016	10/31/2017	In Construction
607002	MA51-14	Mumford River	Rt. 146 at Mumford River	Retrofit	3	Constructed	1/15/2016	7/8/2017	In Construction
607002	MA51-15	Tatnuck Brook	Rt. 122 at Tatnuck Brook	Retrofit	3	Constructed	1/15/2016	7/8/2017	In Construction
608132	MA61-02	Lee River	I-195 at Lee River	Retrofit	5	Constructed	Fall 2016	5/9/2017	In Construction
608132	MA62-39	Rumford River	I-495 at Rumford River	Retrofit	5	Constructed	Fall 2016	5/9/2017	In Construction
608131	MA71-02	Mystic River	I-93 at Mystic River	Retrofit	4	Constructed	4/13/2016	11/14/2017	In Construction

Project Number	Water Body ID	Water Body Name	Project Name	Project Type	District	Year 15 Construction Status	Estimated Construction Start Date	Estimated Construction End Date	Year 14 Construction Status
606995	MA84A-17	Black Brook	Rt. 3/3A at Black Brook	Retrofit	4	Constructed	Spring 2017	9/30/2017	In Construction
607891	MA93-07	Bass River	Rt. 128 at Bass River	Resurfacing	4	Constructed	Spring 2015	Spring 2017	In Construction
608131	MA93-37	Beaver Brook	I-95 at Beaver Brook (Danvers)	Retrofit	4	Constructed	4/13/2016	11/14/2017	In Construction
606995	MA93-39	Proctor Brook	Rt. 128 at Proctor Brook	Retrofit	4	Constructed	Spring 2017	9/30/2017	In Construction
608059	MA93-42	North River	Rt. 107 at North River	Retrofit	4	Constructed	Summer 2017	9/2/2017	In Construction
608135	MA95-42	New Bedford Inner Harbor	Rt. 6, 18 at New Bedford Inner Harbor	Retrofit	5	Constructed	Fall 2016	6/11/2017	In Construction
608132	MA95-42	New Bedford Inner Harbor	I-195 at New Bedford Inner Harbor	Retrofit	5	Constructed	Fall 2016	5/9/2017	In Construction

Table 11 Summary of Retrofit BMPs under Construction or Constructed (Direct Discharge)

Blackstone Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51039	Dorothy Pond	21.9	N/A	23.0
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	4.2	2.0	5.0
	Infiltration Swale	3.8	1.3	3.4
	Infiltration Swale	0.9	0.4	1.2
	Infiltration Swale	1.3	0.8	2.1
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	10.2	4.5	11.6
	Remaining Red. to Meet Target:		N/A	11.4
Waterbody ID	**Waterbody Name**	**Direct IC WS (acres)**	**Target IC Red. (acres)**	**Target P Red. (lbs/yr)**
MA51-03	Blackstone River	116	69	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	2.6	0.8	2.2
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	2.6	0.8	2.2
	Remaining Red. to Meet Target:		68.2	N/A
Waterbody ID	**Waterbody Name**	**Direct IC WS (acres)**	**Target IC Red. (acres)**	**Target P Red. (lbs/yr)**
MA51125	Lake Quinsigamond	22.2	N/A	8.8
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	2.0	1.9	5.6
	Infiltration Basin	3.5	3.4	9.9
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	2	5.5	5.3	15.5
	Remaining Red. to Meet Target:		N/A	0
Waterbody ID	**Waterbody Name**	**Direct IC WS (acres)**	**Target IC Red. (acres)**	**Target P Red. (lbs/yr)**
MA51196	Shirley Street Pond	15.7	N/A	14.6
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.9	1.8	5.5
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	1.9	1.8	5.5
	Remaining Red. to Meet Target:		N/A	9.1

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51135	Lake Ripple	3.3	0.9	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.0	0.9	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	1.0	0.9	N/A
	Remaining Red. to Meet Target:		0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51073	Indian Lake	3.9	N/A	6.6
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.8	N/A	1.3
	Infiltration Swale	0.6	N/A	1.3
	Infiltration Swale	0.6	N/A	1.5
	Infiltration Basin	2.6	N/A	6.9
	Infiltration Swale	1.7	N/A	2.5
	Infiltration Swale	1.8	N/A	3.4
	Infiltration Swale	0.4	N/A	0.9
	Infiltration Basin	2.6	N/A	7.0
	Infiltration Swale	0.8	N/A	1.6
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	9	11.9	N/A	26.4
	Remaining Red. to Meet Target:		N/A	0.0

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51-08	Unnamed Tributary	124	102	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.2	0.6	N/A
	Infiltration Basin	0.6	0.6	N/A
	Infiltration Basin	1.1	1.1	N/A
	Infiltration Basin	0.4	0.4	N/A
	Infiltration Basin	0.1	0.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	5	3.4	2.8	N/A
	Remaining Red. to Meet Target:		99.2	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51-10	Mill River	N/A	N/A	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.1	0.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	0.1	0.1	N/A
	Remaining Red. to Meet Target:		N/A	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51-05	Blackstone River	9.7	2.7	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Bioretention	4.6	4.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	4.6	4.1	N/A
	Remaining Red. to Meet Target:		0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51-14	Mumford River	19.5	7.8	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.7	0.5	N/A
	Infiltration Basin	1.4	1.0	N/A
	Infiltration Basin	0.7	0.5	N/A
	Infiltration Basin	0.4	0.4	N/A
	Infiltration Basin	0.5	0.5	N/A
	Other	1.6	1.5	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	6	5.3	4.4	N/A
	Remaining Red. to Meet Target:		3.4	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51-15	Tatnuck Brook	2.0	0.2	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.6	0.4	N/A
	Leaching Catch Basin	0.3	0.2	N/A
	Leaching Catch Basin	0.1	0.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	3	1.0	0.6	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Buzzard's Bay Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA95-42	New Bedford Inner Harbor	37.0	32.0	N/A
	Rt. 6 and Rt. 18 at New Bedford Inner Harbor			
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.3	0.2	N/A
	Infiltration Swale	0.3	0.1	N/A
	Infiltration Swale	0.1	0.1	N/A
	Infiltration Basin	0.4	0.3	N/A
	Infiltration Basin	0.5	0.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	5	1.6	1.1	N/A
	I-195 at New Bedford Inner Harbor			
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Constructed Stormwater Wetland	0.7	0.4	N/A
	Constructed Stormwater Wetland	0.7	0.3	N/A
	Constructed Stormwater Wetland	3.4	1.7	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	3	4.8	2.4	N/A
	Remaining Red. to Meet Target:		28.5	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA95115	Parker Mills Pond	N/A	N/A	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Leaching Catch Basin	0.3	0.3	N/A
	Leaching Catch Basin	0.3	0.3	N/A
	Leaching Catch Basin	0.2	0.2	N/A
	Leaching Catch Basin	0.1	0.1	N/A
	Leaching Catch Basin	0.2	0.2	N/A
	Leaching Catch Basin	0.1	0.1	N/A
	Leaching Catch Basin	0.3	0.1	N/A
	Leaching Catch Basin	0.2	0.1	N/A
	Leaching Catch Basin	0.1	0.1	N/A
	Leaching Catch Basin	0.2	0.1	N/A
	Leaching Catch Basin	0.2	0.1	N/A
	Leaching Catch Basin	0.2	0.1	N/A
	Infiltration Swale	0.6	0.6	N/A
	Infiltration Swale	0.4	0.4	N/A
	Infiltration Basin	1.4	1.3	N/A
	Infiltration Basin	1.3	1.2	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	16	6.1	5.3	N/A
	Remaining Red. to Meet Target:		N/A	N/A

Charles Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA72-14	Mine Brook	79.2	36.7	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.3	0.3	0.8
	Infiltration Swale	0.9	1.0	17.3
	Infiltration Swale	0.1	0.1	0.3
	Infiltration Swale	0.1	0.1	0.3
	Infiltration Swale	0.4	0.4	3.1
	Infiltration Swale	0.5	0.5	4.1
	Infiltration Swale	1.1	1.1	15.4
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	7	3.3	3.3	41.1
	Remaining Red. to Meet Target:		33.4	N/A

Concord Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82A-07	Concord River	27.5	2.6	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	4.1	1.3	N/A
	Infiltration Swale	4.5	1.6	N/A
	Infiltration Swale	2.2	1.0	N/A
	Infiltration Basin	1.2	0.9	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	12.0	4.8	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82B-02	Assabet River	9.8	2.9	18.8
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Leaching Basin	2.5	0.1	0.6
	Leaching Basin	0.4	0.1	0.3
	Leaching Basin	4.3	0.1	0.6
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	3	7.2	0.3	1.5
	Remaining Red. to Meet Target:		2.6	17.3

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82B-04	Assabet River	18.0	8.2	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	2.5	2.3	N/A
	Infiltration Swale	5.2	4.7	N/A
	Infiltration Swale	1.5	1.4	N/A
	Infiltration Swale	0.9	0.8	N/A
	Infiltration Basin	0.3	0.3	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	5	10.4	9.5	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82B-07	Assabet River	9.0	4.0	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.2	0.1	N/A
	Infiltration Basin	0.2	0.2	N/A
	Infiltration Swale	0.4	0.4	N/A
	Infiltration Swale	0.5	0.5	N/A
	Infiltration Swale	0.6	0.6	N/A
	Infiltration Swale	0.4	0.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	6	2.2	2.2	N/A
	Remaining Red. to Meet Target:		1.8	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82B-14	Nashoba Brook	30.6	8.5	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.2	0.2	N/A
	Subsurface Infiltration Structure	0.4	0.3	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	2	0.5	0.5	N/A
	Remaining Red. to Meet Target:		8.0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82055	Grist Mill Pond	1.9	0.6	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.1	0.1	N/A
	Infiltration Swale	0.2	0.1	N/A
	Infiltration Swale	0.1	0.1	N/A
	Infiltration Swale	0.1	0.1	N/A
	Infiltration Swale	0.04	0.04	N/A
	Infiltration Swale	0.2	0.1	N/A
	Infiltration Swale	0.1	0.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	7	0.8	0.6	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Connecticut Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA34-05	Connecticut River	237.8	164.3	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.7	0.7	N/A
	Infiltration Swale	0.7	0.7	N/A
	Infiltration Swale	0.5	0.5	N/A
	Infiltration Swale	1.2	1.2	N/A
	Infiltration Swale	0.6	0.6	N/A
	Infiltration Basin	0.2	0.2	N/A
	Infiltration Basin	1.1	1.1	N/A
	Infiltration Basin	0.5	0.5	N/A
	Infiltration Basin	0.6	0.6	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	9	6.0	6.0	N/A
	Remaining Red. to Meet Target:		158.3	N/A

Merrimack Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA84A-03	Merrimack River	56.3	31.5	N/A
	Rt. 110, I-93, and 113 at Merrimack River (Project 607561)			
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Trench	0.7	0.4	N/A
	Infiltration Trench	0.3	0.2	N/A
	Infiltration Swale	0.5	0.2	N/A
	Infiltration Swale	0.2	0.1	N/A
	Infiltration Trench	0.4	0.3	N/A
	Infiltration Swale	0.3	0.1	N/A
	Infiltration Trench	0.5	0.3	N/A
	Infiltration Swale	0.3	0.2	N/A
	Infiltration Trench	0.3	0.2	N/A
	Infiltration Trench	0.2	0.2	N/A
	Infiltration Trench	0.3	0.2	N/A
	Infiltration Swale	0.8	0.6	N/A
	Infiltration Trench	0.1	0.1	N/A
	Infiltration Swale	0.1	0.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	14	5.0	3.2	N/A
	Remaining Red. to Meet Target:		28.3	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA84A-17	Black Brook	14.8	10.4	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Extended Detention Basin	6.8	5.4	N/A
	Extended Detention Basin	4.0	3.7	N/A
	Infiltration Swale	0.3	0.3	N/A
	Infiltration Swale	0.2	0.2	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	11.3	9.6	N/A
	Remaining Red. to Meet Target:		0.9	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA84A-18	Bare Meadow Brook	18.7	11.4	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.2	0.2	N/A
	Infiltration Swale	0.3	0.3	N/A
	Infiltration Swale	0.5	0.4	N/A
	Infiltration Swale	0.6	0.4	N/A
	Infiltration Swale	0.2	0.2	N/A
	Infiltration Swale	0.5	0.5	N/A
	Infiltration Swale	0.2	0.2	N/A
	Infiltration Swale	0.4	0.3	N/A
	Infiltration Swale	0.2	0.1	N/A
	Infiltration Basin	0.8	0.8	N/A
	Infiltration Basin	0.4	0.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	11	4.3	3.8	N/A
	Remaining Red. to Meet Target:		7.6	N/A

Mount Hope Bay Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA61-02	Lee River	30.4	15.5	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	4.5	3.7	N/A
	Infiltration Basin	0.7	0.6	N/A
	Infiltration Basin	5.6	4.6	N/A
	Bioretention Basin	0.1	0.1	N/A
	Infiltration Basin	0.2	0.2	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	5	11.0	9.2	N/A
	Remaining Red. to Meet Target:		6.4	N/A

Mystic River Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA71-02	Mystic River	125	104	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.3	1.3	N/A
	Infiltration Basin	1.2	1.1	N/A
	Infiltration Basin	2.3	1.9	N/A
	Infiltration Basin	1.1	1.1	N/A
	Infiltration Swale	0.8	0.7	N/A
	Infiltration Basin	1.0	0.9	N/A
	Infiltration Swale	0.6	0.6	N/A
	Infiltration Basin	0.1	0.1	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	8	8.4	7.7	N/A
	Remaining Red. to Meet Target:		96.3	N/A

North Coastal Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA93-07	Bass River	6.7	5.0	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	Not Calculated	Not Calculated	N/A
	Infiltration Basin	1.1	1.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	2	1.1	1.1	N/A
	Remaining Red. to Meet Target:		3.9	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA93-37	Beaver Brook	57.1	40	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.5	0.5	N/A
	Infiltration Basin	0.8	0.8	N/A
	Infiltration Swale	5.9	5.9	N/A
	Subsurface Infiltration Structure	0.6	0.3	N/A
	Subsurface Infiltration Structure	0.7	0.4	N/A
	Subsurface Infiltration Structure	1.9	0.8	N/A
	Infiltration Swale	2.2	2.2	N/A
	Subsurface Infiltration Structure	2.9	1.9	N/A
	Infiltration Swale	0.8	0.8	N/A
	Infiltration Basin	0.7	0.7	N/A
	Infiltration Basin	0.6	0.6	N/A
	Infiltration Basin	0.3	0.3	N/A
	Subsurface Infiltration Structure	0.5	0.4	N/A
	Subsurface Infiltration Structure	0.5	0.5	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	14	18.9	16.1	N/A
	Remaining Red. to Meet Target:		23.9	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA93-42	North River	4.0	0.8	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.4	1.2	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	1.4	1.2	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA93-39	Proctor Brook	12.4	8.9	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.3	0.2	N/A
	Infiltration Basin	1.0	0.8	N/A
	Subsurface Infiltration Structure	0.3	0.2	N/A
	Infiltration Swale	2.0	1.3	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	3.6	2.5	N/A
	Remaining Red. to Meet Target:		6.4	N/A

Quinebaug Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA41-02	Quinebaug River	7.2	2.7	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	5.8	5.8	N/A
	Infiltration Basin	5.2	5.1	N/A
	Infiltration Basin	1.0	1.0	N/A
	Infiltration Basin	1.3	1.3	N/A
	Infiltration Basin	0.4	0.4	N/A
	Infiltration Basin	0.9	0.9	N/A
	Infiltration Basin	1.6	1.6	N/A
	Infiltration Basin	0.8	0.8	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	8	17.0	16.8	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA41057	Pistol Pond	5.5	2.5	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.3	0.2	N/A
	Infiltration Swale	1.2	0.9	N/A
	Infiltration Basin	0.2	0.2	N/A
	Infiltration Basin	0.7	0.5	N/A
	Infiltration Basin	0.8	0.6	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	5	3.2	2.4	N/A
	Remaining Red. to Meet Target:		0.1	N/A

Shawsheen Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA83-17	Shawsheen River	23.1	9.0	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.8	0.1	N/A
	Infiltration Swale	0.7	0.2	N/A
	Infiltration Swale	0.5	0.1	N/A
	Infiltration Swale	1.0	0.2	N/A
	Infiltration Swale	1.2	0.3	N/A
	Infiltration Swale	0.8	0.3	N/A
	Infiltration Swale	1.5	0.1	N/A
	Infiltration Swale	0.7	0.2	N/A
	Infiltration Swale	0.6	0.2	N/A
	Removal of Pavement	0.1	0.1	N/A
	Infiltration Trench	0.7	0.5	N/A
	Infiltration Trench	0.2	0.2	N/A
	Infiltration Trench	0.3	0.2	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	13	9.1	2.7	N/A
	Remaining Red. to Meet Target:		6.3	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA83-18	Shawsheen River	11.5	6.5	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	1.4	0.8	N/A
	Infiltration Swale	2.9	1.7	N/A
	Infiltration Swale	0.6	0.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	3	4.9	2.9	N/A
	Remaining Red. to Meet Target:		3.6	N/A

Taunton Watershed

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA62-39	Rumford River	20.2	9.0	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.2	0.2	N/A
	Infiltration Swale	0.8	0.8	N/A
	Infiltration Swale	0.4	0.3	N/A
	Infiltration Swale	0.4	0.4	N/A
	Infiltration Basin	2.9	2.8	N/A
	Infiltration Basin	1.6	1.4	N/A
	Infiltration Basin	1.3	1.2	N/A
	Infiltration Basin	0.2	0.2	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	8	7.8	7.3	N/A
	Remaining Red. to Meet Target:		1.7	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA62-47	Wading River	12.0	3.8	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.1	0.1	0.3
	Infiltration Swale	0.1	0.1	0.2
	Infiltration Swale	0.1	0.1	0.2
	Infiltration Swale	0.2	0.2	0.6
	Infiltration Swale	0.1	0.1	0.1
	Infiltration Swale	0.1	0.1	0.3
	Infiltration Swale	0.2	0.2	0.4
	Infiltration Swale	0.2	0.2	0.4
	Infiltration Swale	0.6	0.5	1.3
	Infiltration Swale	0.3	0.3	0.7
	Infiltration Swale	0.5	0.4	1.1
	Infiltration Swale	0.2	0.2	0.6
	Infiltration Swale	0.1	0.1	0.2
	Infiltration Swale	0.4	0.4	1.0
	Infiltration Swale	0.3	0.3	0.7
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	15	3.1	3.0	7.9
	Remaining Red. to Meet Target:		0.8	N/A

Table 12 Summary of Retrofit BMPs under Construction or Constructed (Indirect Discharge)

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51-03	Blackstone River	116.0	69.0	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.2	1.2	3.1
	Infiltration Basin	0.4	0.4	1.1
	Infiltration Swale	1.0	1.0	2.7
	Infiltration Swale	1.4	1.4	3.8
	Infiltration Basin	0.6	0.6	1.6
	Infiltration Basin	0.1	0.1	0.3
	Infiltration Swale	1.1	1.1	3.0
	Infiltration Basin	1.5	1.5	4.1
	Infiltration Basin	2.8	2.8	7.5
	Infiltration Basin	0.4	0.4	1.1
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	10	10.5	10.5	28.3
	Remaining Red. to Meet Target:		58.5	N/A
Waterbody ID	**Waterbody Name**	**Direct IC WS (acres)**	**Target IC Red. (acres)**	**Target P Red. (lbs/yr)**
MA51071	Howe Reservoirs	N/A	N/A	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	1	1	2.6
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	1	1	2.6
	Remaining Red. to Meet Target:		N/A	N/A
Waterbody ID	**Waterbody Name**	**Direct IC WS (acres)**	**Target IC Red. (acres)**	**Target P Red. (lbs/yr)**
MA51039	Dorothy Pond	21.9	N/A	23.0
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	1	1	2.6
	Infiltration Swale	0.6	0.6	1.6
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	2	1.6	1.6	4.2
	Remaining Red. to Meet Target:		N/A	18.8
Waterbody ID	**Waterbody Name**	**Direct IC WS (acres)**	**Target IC Red. (acres)**	**Target P Red. (lbs/yr)**
MA51188	Flint Pond	14.4	N/A	3.5
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.3	0.3	0.71
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	0.3	0.3	0.7
	Remaining Red. to Meet Target:		N/A	2.8

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA51105	Mill Pond	N/A	N/A	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	1.1	0.9	N/A
	Infiltration Basin	3.9	3.5	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	2	5.0	4.4	N/A
	Remaining Red. to Meet Target:		N/A	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA72092	Lake Pearl	N/A	N/A	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.4	0.3	1.0
	Infiltration Swale	0.2	0.2	0.7
	Infiltration Swale	0.6	0.4	1.4
	Infiltration Swale	0.3	0.2	0.5
	Infiltration Basin	0.9	0.9	2.5
	Infiltration Swale	0.4	0.4	3.7
	Infiltration Swale	0.6	0.4	1.4
	Infiltration Swale	0.1	0.1	0.3
	Infiltration Swale	0.2	0.2	0.5
	Infiltration Swale	0.3	0.3	0.7
	Infiltration Swale	0.6	0.4	1.3
	Infiltration Swale	0.8	0.8	2.2
	Infiltration Swale	1.1	1.1	2.9
	Infiltration Swale	0.4	0.4	1.0
	Infiltration Swale	0.5	0.5	4.2
	Infiltration Swale	1.0	0.8	2.6
	Infiltration Swale	0.7	0.7	2.0
	Infiltration Swale	0.2	0.2	0.5
	Infiltration Basin	7.6	5.6	19.1
	Infiltration Swale	0.5	0.5	1.2
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	20	17.4	14.4	49.5
	Remaining Red. to Meet Target:		N/A	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA72-14	Mine Brook	79.2	36.7	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.3	0.3	1.4
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	0.3	0.3	1.4
	Remaining Red. to Meet Target:		36.4	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82B-02	Assabet River	9.8	2.9	18.8
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Basin	0.7	0.7	2.0
	Infiltration Basin	0.3	0.3	0.8
	Infiltration Basin	0.2	0.2	0.6
	Infiltration Basin	2.5	1.9	N/A
	Other	0.9	0.9	N/A
	Infiltration Basin	2.7	2.5	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	7.3	6.5	3.4
	Remaining Red. to Meet Target:		0.0	15.4

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA82B-03	Assabet River	2.8	1.3	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	1.5	1.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	1	1.5	1.4	N/A
	Remaining Red. to Meet Target:		0.0	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA34-05	Connecticut River	237.8	164.3	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Extended Detention Basin	0.3	0.31	N/A
	Extended Detention Basin	0.4	0.4	N/A
	Extended Detention Basin	0.4	0.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	3	1.1	1.1	N/A
	Remaining Red. to Meet Target:		163.2	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA84A-10	Spicket River	41.6	31.8	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	1.6	1.4	N/A
	Infiltration Swale	2.4	2.2	N/A
	Infiltration Swale	0.3	0.2	N/A
	Wet Pond	0.4	0.4	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	4.7	4.1	N/A
	Remaining Red. to Meet Target:		27.7	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA84A-18	Bare Meadow Brook	18.7	11.4	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.5	0.4	N/A
	Infiltration Swale	0.2	0.1	N/A
	Infiltration Swale	1.5	1.4	N/A
	Wet Pond	1.1	1.1	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	3.3	3.0	N/A
	Remaining Red. to Meet Target:		8.4	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA94-16	Plymouth Harbor	171.0	N/A	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	1.3	1.2	N/A
	Infiltration Basin	0.3	0.3	N/A
	Infiltration Swale	1.2	1.2	N/A
	Infiltration Swale	0.5	0.5	N/A
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	4	3.3	3.2	N/A
	Remaining Red. to Meet Target:		N/A	N/A

Waterbody ID	Waterbody Name	Direct IC WS (acres)	Target IC Red. (acres)	Target P Red. (lbs/yr)
MA62-47	Wading River	12.0	3.8	N/A
	BMP Type	**BMP IC WS (acres)**	**IC Reduction (acres)**	**P Reduction (lbs/yr)**
	Infiltration Swale	0.5	0.5	1.2
	Infiltration Swale	0.3	0.3	0.8
	Infiltration Swale	0.1	0.1	0.4
	Infiltration Swale	0.5	0.5	1.1
	Infiltration Swale	0.1	0.1	0.2
	Infiltration Swale	0.3	0.3	0.9
	Infiltration Swale	0.2	0.2	0.6
	Infiltration Swale	0.4	0.4	1.1
	Infiltration Swale	0.1	0.1	0.3
	Infiltration Swale	0.2	0.2	0.6
	Infiltration Swale	0.2	0.2	0.6
	Infiltration Swale	0.4	0.3	1.1
	Infiltration Swale	0.5	0.3	1.1
	Total No. of BMPs	**Total IC Area to BMP(s) (acres)**	**Total IC Red. (acres)**	**Total BMP P Red. (lbs/yr)**
	13	3.8	3.6	10.0
	Remaining Red. to Meet Target:		0.22	N/A

[1] In some cases, the predicted effective IC is determined by comparing the BMP's calculated median annual discharge volume, runoff flow/duration relationship, median annual phosphorus load, and median annual total suspended solids load to predicted discharge values for benchmark watersheds with the same size and varying percent IC. For cases following this approach where analysis predicts that BMPs would discharges less runoff volume and pollutant mass than those predicted for a 0% IC (pervious, woods in good condition) benchmark watershed, then the predicted effective IC removal would be greater than 100% and reduction of effective IC area will be greater than the BMP contributing IC area.

Attachment A: IWP Project Summary Sheets

Drainage Improvements and Related Work along Interstates 91 and 391, and Routes 5 and 57

MassDOT Project #:	**608192**	**Water Body Name:**	**Connecticut River**
Project Town:	**Agawam, Chicopee, Holyoke, and West Springfield**	**Water Body ID:**	**MA34-05**
MassDOT District:	**2**		

Project Description:

Sections of MassDOT's Interstate Routes 91 and 391 as well as Routes 5 and 57 in Agawam, Chicopee, Holyoke, and West Springfield discharge stormwater to Connecticut River (MA34-05). As part of the Impaired Waters Program, the assessment of Connecticut River identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) reduction.

Site Description:

This project is located within Subbasins A and B to the Connecticut River at four distinct sites. In Holyoke, the project is located along I-391, north of the Connecticut River; in Chicopee at the merge of I-91 and I-391; in Agawam at the intersect between Rt. 57 and Rt. 5; and in West Springfield at the I-90/I-91 Connector with Rt. 5. Stormwater runoff from the project's roadways is collected via various stormwater collection systems that discharge to outfalls, some of which discharge directly to Connecticut River. Connecticut River is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbody requires a TMDL. Based on the *2014 ILW*, Connecticut River is impaired for Escherichia coli, PCB in Fish Tissue, and Total Suspended Solids (TSS) although TSS was removed in the draft *2016 ILW*.

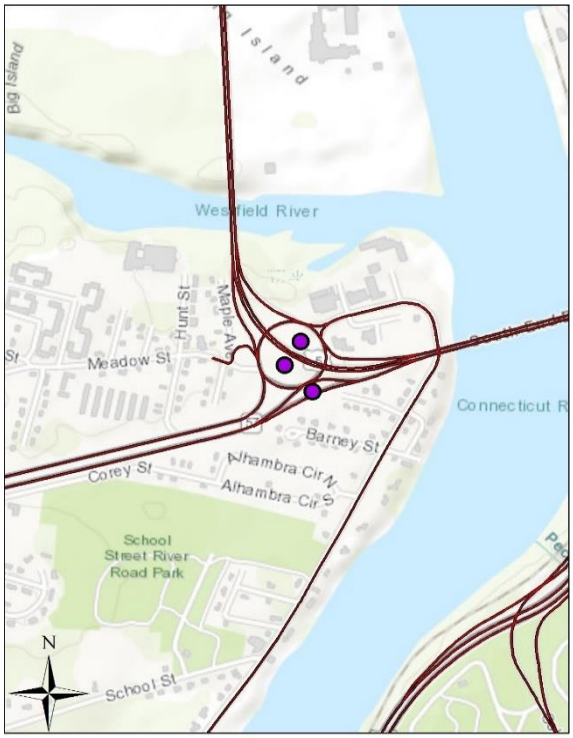
Project Goal:

MassDOT's directly discharging IC area to the impaired segment of the Connecticut River is 237.8 acres and no existing BMPs are in place to reduce the impervious cover from MassDOT properties to the Connecticut River. In order to meet the effective IC reduction target, the assessment recommended MassDOT to reduce its effective IC within the directly contributing IC area by 164.3 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **12 new stormwater BMPs** including **three bioretention basins, four water quality swales, and five infiltration basins 608192** to treat stormwater from the roadways draining to the Connecticut River.

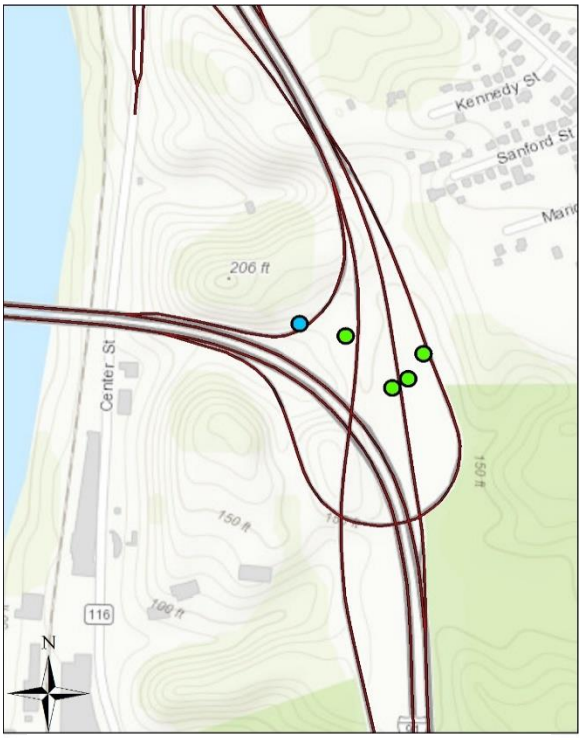
The retrofit project began in the spring of 2017 and is currently in construction, scheduled to be completed in the spring of 2018. The BMPs provide approximately 7.0 acres of effective IC reduction that would otherwise drain directly to Connecticut River. Other projects designed to treat stormwater to the same segment of the Connecticut River (MA34-05) provide a total of 9.7 acres of effective IC reduction. Once these BMPs are complete, MassDOT will need an additional reduction of 147.6 acres of effective IC to meet the target reduction of effective IC. The construction cost of the retrofit project is estimated to be $1,400,000.



Project Limits and BMP Locations:
Town of Agawam

MassDOT BMP

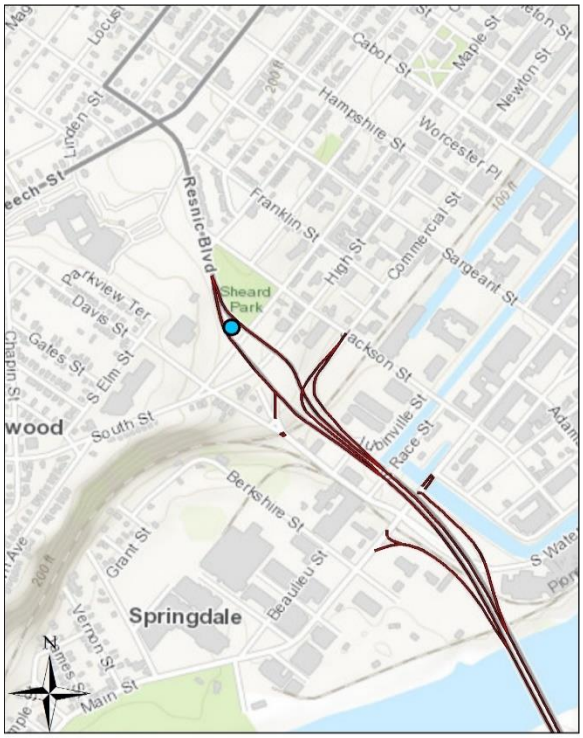
- Extended Detention Basin



Project Limits and BMP Locations:
City of Chicopee

MassDOT BMP

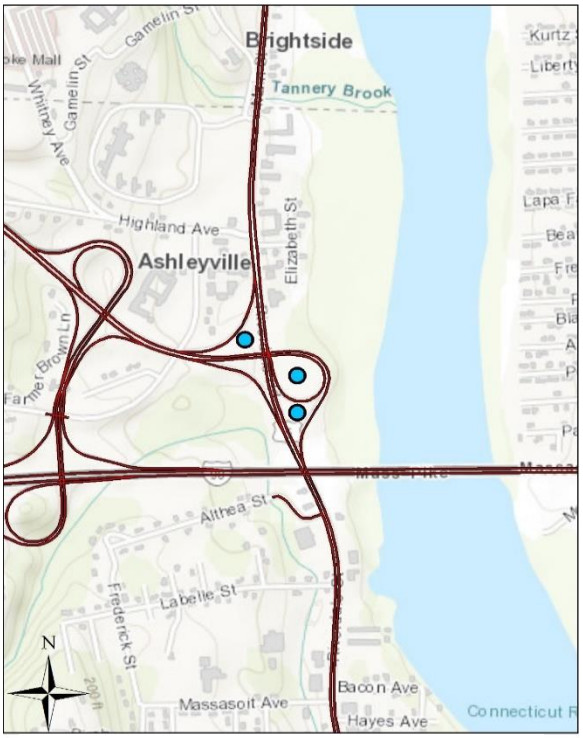
- Infiltration Basin
- Infiltration Swale



Project Limits and BMP Locations:
City of Holyoke

MassDOT BMP

- Infiltration Basin



Project Limits and BMP Locations:
Town of West Springfield

MassDOT BMP

- Infiltration Basin

Drainage Repairs and Improvements Along Sections of Route 140

MassDOT Project #: 608133
Project Town: Hopedale
MassDOT District: 3

Water Body Name: Mill River
Water Body ID: MA51-35 (previously MA51-10)

Project Description:

A section of MassDOT's Route 140 (Milford Road) directly discharges stormwater to Mill River (MA51-35). As part of the Impaired Waters Program, the assessment of Mill River identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC).

Site Description:

This project is located along Route 140 in Hopedale. Stormwater from MassDOT's property in the eastbound lane of Route 140 enters Mill River through an asphalt channel on the southern side of the bridge over Mill River, while stormwater from the westbound lane of Route 140 enters Mill River from an asphalt channel on the northern side of the bridge. Mill River is listed on the *2014 Integrated List of Waters (ILW)* and the draft *2016 ILW* as a Category 5 impaired water, indicating the waterbody requires a TMDL. Mill River is impaired for non-native aquatic plants, aquatic plants (macrophytes), PCBs in fish tissue, and other (unspecified metals).

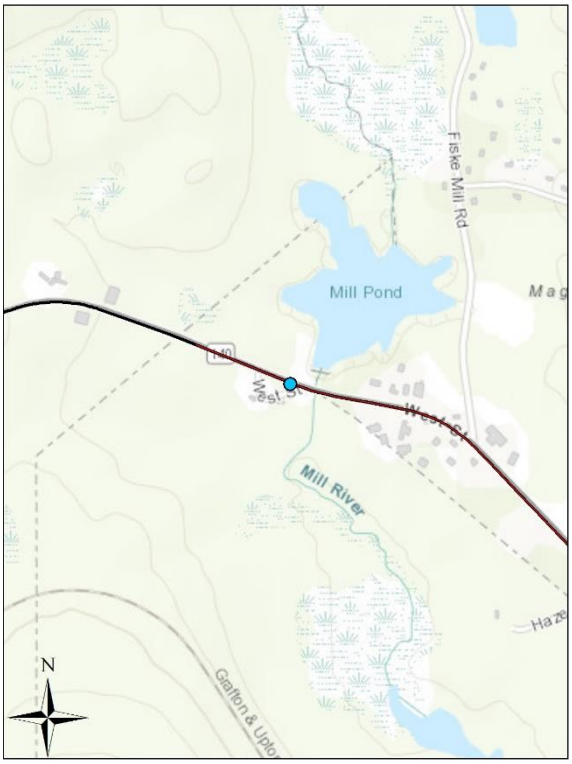
Project Goal:

MassDOT's directly discharging area to Mill River is comprised of approximately 1,000 feet of Route 140. MassDOT's directly discharging area to Mill River is 0.7 acres and no existing BMPs are in place to treat stormwater runoff from MassDOT properties. In order to meet the water quality goal, the assessment recommended MassDOT to reduce its effective IC within the directly contributing watershed by 0.07 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design one **infiltration basin** to increase the effective impervious cover reduction from Route 140 prior to draining to Mill River. The designed BMP reduces effective IC cover by 0.1 acres.

The retrofit project began in the Winter of 2016 and was completed in the Fall of 2017. The retrofit BMP provides an additional 0.1 acres of effective IC reduction that would otherwise drain to Lake Ripple. The construction cost of the retrofit project is estimated to be $116,000.



Project Limits and BMP Locations

Stormwater Improvements along Route 107 (Salem Bypass Road)

MassDOT Project #: 608059
Project Town: Salem
MassDOT District: 4

Water Body Name: North River
Water Body ID: MA93-42

Project Description:

A section of MassDOT's Route 107 and Route 114 in Salem discharges stormwater to North River (MA93-42). As part of the Impaired Waters Program, the assessment of North River identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC).

Site Description:

This project is located along Route 107 in Salem. Stormwater runoff from an approximately 0.6 mile stretch of Route 107 flows to catch basins and is directed to two of three outfalls discharging to the North River. Another section of Route 107, approximately 1,100 feet in length, is piped to a basin/depression adjacent to the roadway. North River is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbody requires a TMDL. North River is covered under the *Final Pathogen TMDL for North Coastal Watershed*. North River is impaired for un-ionized ammonia, dissolved oxygen saturation, and fecal coliform.

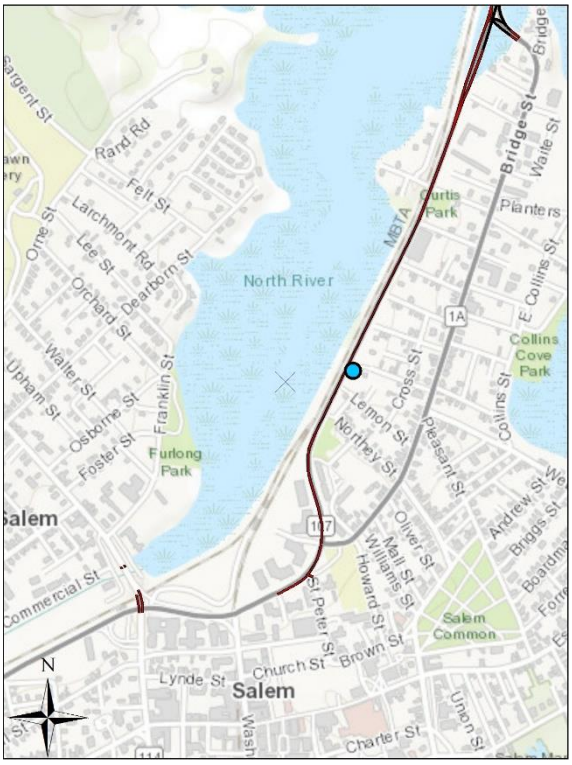
Project Goal:

MassDOT's directly discharging area to North River is 4.0 acres. The existing basin/depression on Route 107 was shown to not be providing treatment. In order to meet the water quality goal, the assessment recommended MassDOT to reduce its effective IC within the directly contributing watershed by 3.2 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. During the review, MassDOT identified the existing basin/depression as a potential site for a retrofit BMP to reduce effective IC area. MassDOT was able to retrofit one basin to function as an **infiltration basin** to treat stormwater from Route 107 to North River.

The retrofit project began construction in the summer of 2017 and was completed in Fall of 2017. The BMP provides 1.2 acres of effective IC reduction that would otherwise drain directly to North River. The construction cost of the retrofit project is estimated to be $310,000.



Project Limits and BMP Locations

MassDOT BMP
- Infiltration Basin

Interstate Maintenance and Related Work on Interstate Route 290

MassDOT Project #:	**607479**	**Water Body Name:**	**Lake Quinsigamond and Mill Pond**
Project Town:	**Shrewsbury**	**Water Body ID:**	**MA51125 and MA51105**
MassDOT District:	**3**		

Project Description:
A section of MassDOT's Interstate Route 290 and Route 9 in Shrewsbury discharges stormwater directly to Lake Quinsigamond (MA51125) and indirectly to Mill Pond (MA51105). As part of the Impaired Waters Program, the assessment of Lake Quinsigamond and Mill Pond identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of total phosphorus (TP) reduction.

Site Description:
This project is located along Interstate 290, from Milepoint 9.9 to 16.1, in Shrewsbury. Stormwater runoff from I-290 is either collected by catch basins that discharge directly to Lake Quinsigamond or contributes indirectly to the Mill Pond. Lake Quinsigamond and Mill Pond are both listed on the *2014 Integrated List of Waters (ILW)* as Category 4a impaired waters, indicating the waterbodies have completed TMDLs. Lake Quinsigamond is covered under the *Total Maximum Daily Load of Phosphorus for Lake Quinsigamond and Flint Pond* (CN 115). Lake Quinsigamond is impaired for Eurasian Water Milfoil and Myriophyllum spicatum, non-native aquatic plants, excess algal growth and dissolved oxygen. Mill Pond is covered under the *Total Maximum Daily Load of Phosphorus for Selected Northern Blackstone Lakes* and is impaired for turbidity. The draft *2016 ILW* added enterococcus to the list of impairments of Lake Quinsigamond and indicates it is a water requiring a TMDL for this impairment.

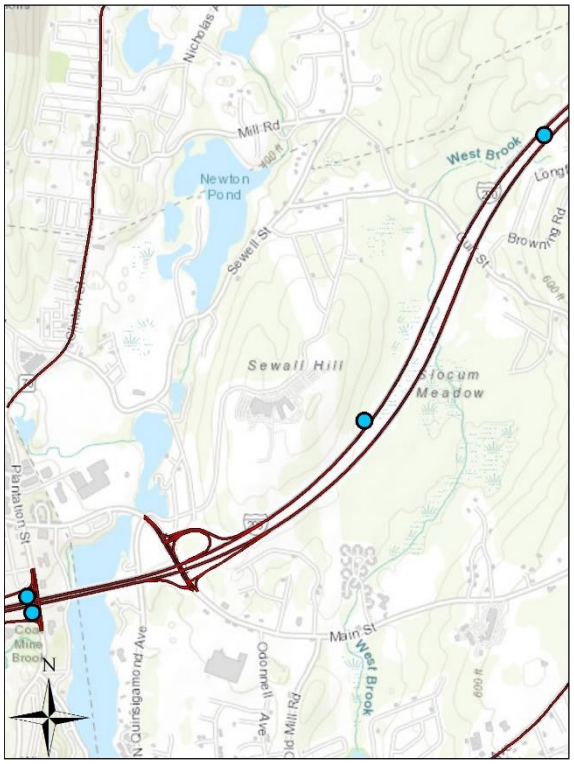
Project Goal:

MassDOT's directly discharging area to Lake Quinsigamond is 48.8 acres. Two existing BMPs are in the MassDOT direct drainage area to Lake Quinsigamond along Route 9 and provide a load reduction of 4.4 lbs/yr of TP. In order to meet the TP load reduction target developed in the TMDL, the receiving water assessment recommended an additional reduction of 8.8 lbs/yr of TP.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **four new infiltration basins** to treat stormwater from I-290 prior to draining to Lake Quinsigamond or Mill Pond.

The project started construction in the spring 2017 and schedules to be completed the summer of 2019. Two infiltration basins will provide approximately 16.5 lbs of TP reduction per year and 5.3 acres of effective IC reduction that would otherwise drain directly to Lake Quinsigamond. The other two infiltration basins will provide 4.4 acres of effective IC reduction that would otherwise drain indirectly to Mill Pond. Once the BMPs are constructed, MassDOT will have exceeded its goal of TP reduction. The construction cost of the project is estimated to be $1,000,000.



Project Limits and BMP Locations

MassDOT BMP
Infiltration Basin

Resurfacing and Related Work along a Section of Route 3 (Pilgrims Highway)

MassDOT Project #: 607175
Project Town: Plymouth
MassDOT District: 5

Water Body Name: Plymouth Harbor
Water Body ID: MA94-16

Project Description:

A section of MassDOT's Route 3 in Plymouth discharges stormwater to Plymouth Harbor (MA94-16). As part of the Impaired Waters Program, the assessment of Plymouth Harbor identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) and Nitrogen (N) reduction.

Site Description:

This project is located along Route 3 in Plymouth between Exit 6 and Exit 7, where Route 3 intersects with Route 44. The project extends for a length of 8.5 miles. Stormwater runoff from Route 3 is collected by stormwater collection systems that discharge to depressions along the road where it infiltrates within the Plymouth Harbor groundwatershed. Plymouth Harbor is listed on the *2014 Integrated List of Waters* and draft *2016 Integrated List of Waters* as a Category 5 impaired water, indicating the waterbody requires a TMDL. Plymouth Harbor is impaired for fecal coliform and nutrient/eutrophication biological indicators.

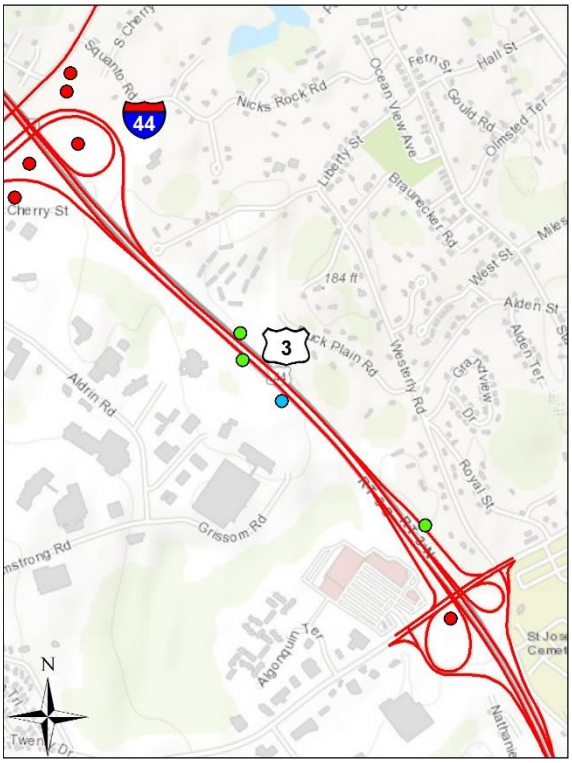
Project Goal:

MassDOT's directly discharging area to Plymouth Harbor is 402.3 acres and there are nine total existing BMPs (six existing BMPs along Route 3) in place to treat stormwater runoff from MassDOT properties to Plymouth Harbor. Although the nitrogen load from MassDOT property is considered negligible to Plymouth Harbor and there is no recommended reduction target, stormwater BMPs were implemented to the maximum extent practicable along Route 3 to provide additional stormwater treatment.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **three new infiltration swales** and **one new infiltration basin** to treat stormwater from Route 3 between Exits 6 and 7 prior to draining to Plymouth Harbor.

The resurfacing project began in Fall of 2016 and is currently in construction scheduled to be completed in the Fall of 2018. The BMPs will provide approximately 3.2 acres of effective IC reduction that would otherwise discharge runoff directly into Plymouth Harbor's groundwatershed. The stormwater construction cost of the project is estimated to be $350,000.



Project Limits and BMP Locations

MassDOT BMPs

- Infiltration Basin
- Infiltration Swale
- Existing Wet Pond/Swale

Drainage Improvements and Related Work along Sections of Routes 2, 3, and 128 (Sheet 1 of 3)

MassDOT Project #: 606995
Project Town: Concord
MassDOT District: 4

Water Body Name: Nashoba Brook, Assabet River
Water Body ID: MA82B-14, MA82B-07

Project Description:

Sections of MassDOT's Routes 2 in Concord discharges to the Assabet River (MA82B-07) and Nashoba Brook (MA82B-14). As part of the Impaired Waters Program, the assessment of the project waterbodies identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) reduction.

Site Description:

This project is located at along Route 2 in Concord. Stormwater runoff from Route 2 is collected via catch basins in the roadway and drop inlets within the pervious shoulder right of way then piped to the Assabet River. Route 2 also discharges to Nashoba Brook using drainage infrastructure. The two waterbodies are listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbodies require a TMDL. Nashoba Brook is impaired for low flow alterations and fishes bioassessments. The Assabet River is impaired for fecal coliform and Total Phosphorus. The draft *2016 ILW* adds the impairment of Escherichia coli to Nashoba Brook and Assabet River.

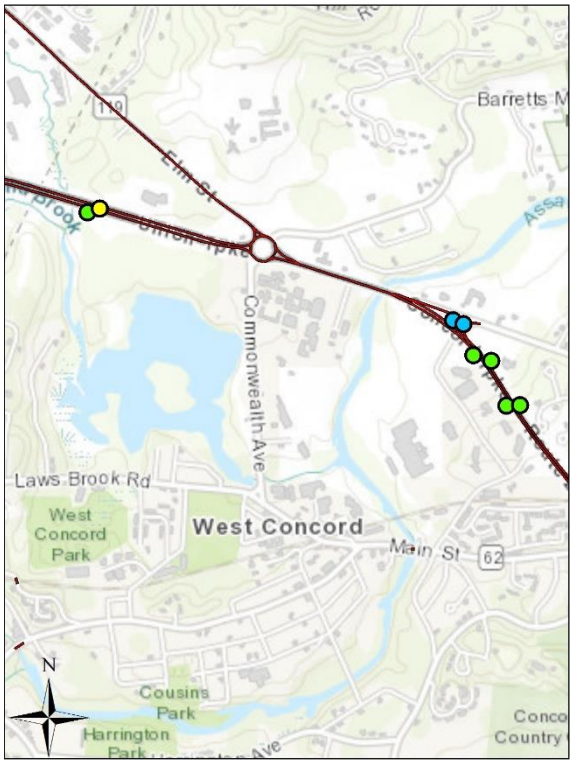
Project Goal:

MassDOT's directly discharging area to Nashoba Brook is 30.6 IC acres and to Assabet River is 8.8 IC acres. There are currently no existing BMPs in place to reduce the effective impervious cover from MassDOT properties to the project's waterbodies. In order to meet the effective IC reduction target for each waterbody, the assessments recommended MassDOT to reduce its effective IC within the directly contributing watershed to Nashoba Brook by 8.5 acres and to Assabet River by 4.0 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing areas for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **eight new stormwater BMPs** including **four infiltration swales**, **two infiltration basins**, and **one underground infiltration structure/systems** to treat stormwater from Route 2 prior to draining to the Assabet River and Nashoba Brook.

The project began in the winter of 2016/2017 and is currently in construction scheduled to be completed in the spring of 2018. The BMPs provide a reduction of approximately 0.5 acres of effective IC that would discharge to Nashoba Brook, and 1.8 acres of effective IC that would discharge to Assabet River. The construction cost of the retrofit project is estimated to be $700,000.



Project Limits and BMP Locations

MassDOT BMPs

- Infiltration Basin
- Infiltration Swale
- Underground Infiltration Structure/System

Drainage Improvements and Related Work along Sections of Routes 2, 3, and 128 (Sheet 2 of 3)

MassDOT Project #: 606995
Project Town: Chelmsford and Lowell
MassDOT District: 4
Water Body Name: Black Brook
Water Body ID: MA84A-17

Project Description:

Sections of MassDOT's Routes 3 in Chelmsford discharges stormwater to Black Brook (MA84A-17). As part of the Impaired Waters Program, the assessment of the project waterbodies identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) reduction.

Site Description:

This project is located along Route 3 in Chelmsford. Stormwater runoff from Route 3 is collected by a stormwater drainage system and discharges to Black Brook. Two existing extended detention basins treat much of the stormwater before reaching Black Brook. Black Brook is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbodies require a TMDL. Black Brook is impaired for the following: debris/floatables/trash, physical substrate habitat alterations, aquatic macroinvertebrate bioassessments, Escherichia coli, fishes bioassessments, sedimentation/siltation, and turbidity.

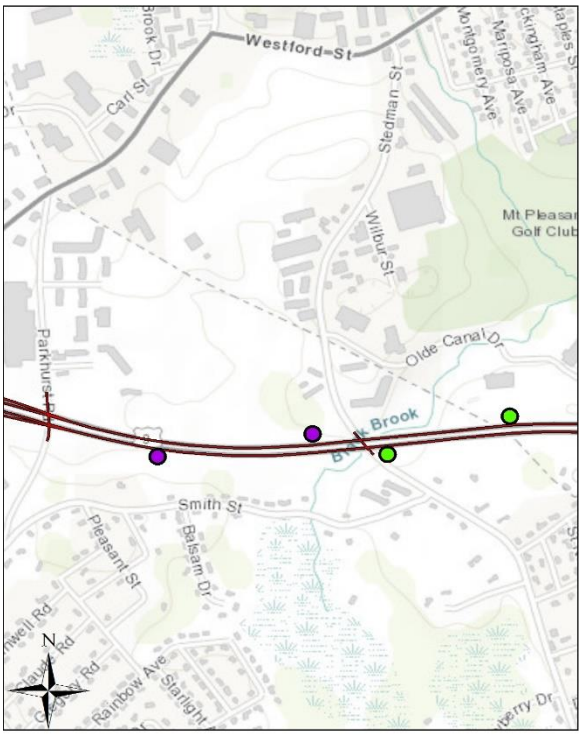
Project Goal:

MassDOT's directly discharging area to Black Brook is 14.8 IC acres. There are currently two existing BMPs are in place that reduce the effective impervious cover from MassDOT properties to the project's waterbodies by 5.3 acres. In order to meet the effective IC reduction target, the assessment recommended MassDOT to reduce its effective IC within the directly contributing watershed to Black Brook by 10.4 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing areas for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **four new stormwater BMPs** including **two infiltration swales** and **two extended detention basins** to treat stormwater from Route 3 prior to draining to Black Brook.

The project began in the winter of 2016/2017 and completed construction in the fall of 2017. The BMPs provide approximately 9.5 acres of effective IC reduction that would otherwise discharge directly to Black Brook. The construction cost of the retrofit project is estimated to be $350,000.



Project Limits and BMP Locations

MassDOT BMPs
- Extended Detention Basin
- Infiltration Swale

Drainage Improvements and Related Work along Sections of Routes 2, 3, and 128 (Sheet 3 of 3)

MassDOT Project #: 606995
Project Town: Peabody
MassDOT District: 4

Water Body Name: Proctor Brook
Water Body ID: MA93-39

Project Description:

Sections of MassDOT's Route 128 in Peabody discharge stormwater directly to Proctor Brook (MA93-39). As part of the Impaired Waters Program, the assessment of the project waterbodies identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) reduction.

Site Description:

This project is located along Route 128 in Peabody. Stormwater runoff from Route 128 is conveyed to Proctor Brook through a system of catch basins, drainage pipes, paved swales, and unnamed streams. Proctor Brook is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbodies require a TMDL. Proctor Brook is impaired for the following: debris/floatables/trash, aquatic macroinvertebrate bioassessments, fecal coliform, foam/flocs/scum/oil slicks, Total Nitrogen, Total Phosphorus, sedimentation/siltation, and taste and odor. The draft *2016 ILW* adds the impairment of Escherichia coli for Proctor Brook.

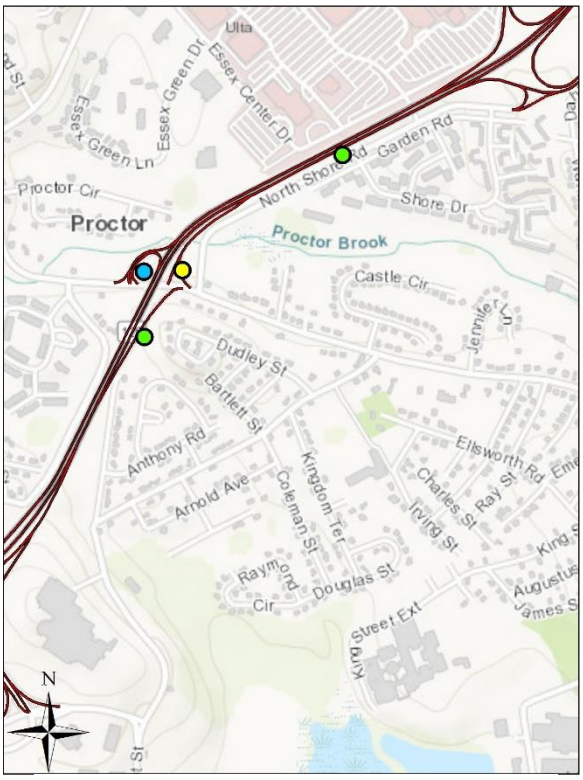
Project Goal:

MassDOT's directly discharging area to Proctor Brook is 12.4 IC acres. There is currently one existing BMP in place to reduce the effective impervious cover from MassDOT properties to the project's waterbody which provides 0.4 acres of IC reduction. In order to meet the effective IC reduction target, the assessment recommended MassDOT to reduce its effective IC within the directly contributing watershed to Proctor Brook by 9.3 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing areas for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **four new stormwater BMPs** including **two infiltration swales**, **one infiltration basin**, and **one underground infiltration structure/systems** to treat stormwater from Route 128 prior to draining to Proctor Brook.

The project began in the winter of 2016/2017 and completed construction in the fall of 2017. The BMPs provide approximately 2.5 acres of effective IC reduction that would otherwise discharge to Proctor Brook. The construction cost of the retrofit project is estimated to be $350,000.



Project Limits and BMP Locations

MassDOT BMPs

- Infiltration Basin
- Infiltration Swale
- Underground Infiltration Structure/System

Drainage Repairs and Improvements Along Sections of Route 146

MassDOT Project #: 606279
Project Town: Millbury and Worcester
MassDOT District: 3
Water Body Name: Blackstone River
Water Body ID: MA51-03

Project Description:

A section of MassDOT's Route 146 in Millbury and Worcester discharges stormwater to Blackstone River (MA51-03). As part of the Impaired Waters Program, the assessment of Blackstone River identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC).

Site Description:

This project is located along Route 146 in Millbury and Worcester. Blackstone River is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbody requires a TMDL. Blackstone River is impaired for the following: ambient bioassays- chronic aquatic toxicity, aquatic macroinvertebrate bioassessments, Escherichia coli, excess algal growth, fishes bioassessment, foam/flocs/scum/oil slicks, lead, nutrient/ eutrophication biological indicators, other, dissolved oxygen, Total Phosphorus, sedimentation/siltation, taste and odor, and turbidity. Blackstone River is also impaired for debris/floatables/trash, other flow regime alterations, and physical substrate habitat alterations which are considered non-pollutants, not requiring a TMDL.

Project Goal:

MassDOT's directly discharging area to Blackstone River is 116 acres and there are 23 existing BMPs in place that treat stormwater runoff from MassDOT properties to the Blackstone River. Considering the reduction provided by the existing BMPs, the remaining target of effective IC reduction to be mitigated with proposed BMPs is 0.9 acres.

Stormwater Management Improvements:

MassDOT reviewed the 23 existing stormwater BMPs (including detention basins, water quality swales, dry ponds, and infiltration basins) and identified potential improvements to the existing BMPs to enhance water quality treatment and address the target IC reduction of 0.9 acres. MassDOT modified to the outlet control structure at **one infiltration basin** to increase storage and the effective impervious cover reduction from Route 146 prior to draining to Blackstone River. MassDOT also performed maintenance and repair to five existing detention basins to improve the function of those BMPs.

The retrofit project began in the Winter of 2016 and was completed Autumn 2017. The retrofit BMP provided an additional 2.6 acres of effective IC reduction that would otherwise drain to Blackstone River. The completion of the retrofit BMP exceeds the target reduction needed to meet the goal, so there is no need for additional BMPs. The construction cost of the retrofit project is estimated to be $600,000.

Project Limits and BMP Locations

MassDOT BMPs
- Infiltration Basin

Resurfacing and Related Work and Drainage along a Section of Interstate 84

MassDOT Project #: 605592
Project Town: Holland, Sturbridge
MassDOT District: 3
Water Body Name: Quinebaug River
Water Body ID: MA41-02

Project Description:

A section of MassDOT's Interstate 84 in Holland and Sturbridge discharges stormwater to Quinebaug River (MA41-02). As part of the Impaired Waters Program, the assessment of Plymouth Harbor identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) reduction.

Site Description:

This project is located along Interstate 84 in Holland and Sturbridge, including the ramps at Exits 1, 2, 3, extending for a length of 8.5 miles. Stormwater runoff from Interstate Route 84 is collected in catch basins and routed through drain pipes and grass swales to an unnamed stream running parallel to the highway before discharging to Quinebaug River Segment MA41-02. Quinebaug River is listed on the *2014 Integrated List of Waters (ILW)* and the draft *2016 ILW* as a Category 5 impaired water, indicating the waterbody requires a TMDL. Quinebaug River is impaired for debris/floatables/trash, excess algal growth, and turbidity.

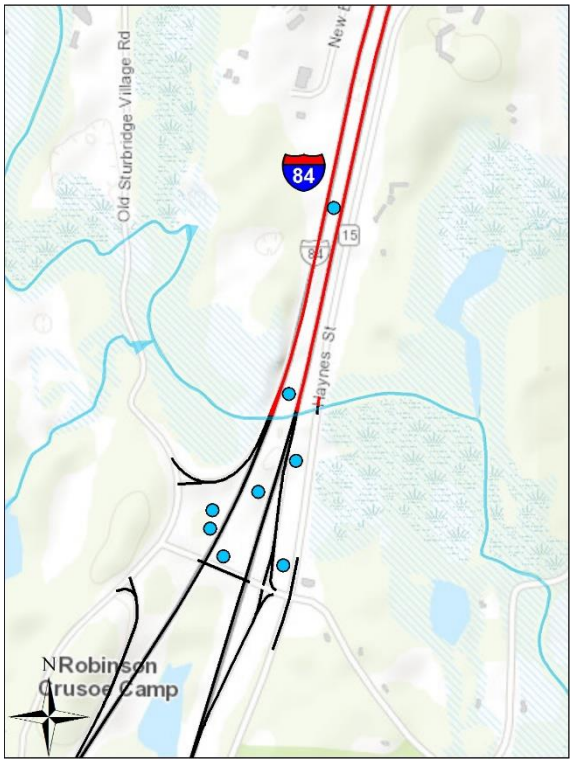
Project Goal:

MassDOT's directly discharging area to Quinebaug River is 7.2 acres and no existing BMPs are in place to reduce the effective impervious cover from MassDOT properties to the Quinebaug River. In order to meet the water quality goal, the assessment recommended MassDOT to reduce its effective IC within the directly contributing watershed by 2.7 acres.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **eight new infiltration basins** to treat stormwater from Interstate Route 84 between Exit 1 and Exit 3 prior to draining to Quinebaug River.

The resurfacing project began in Winter 2016/2017 and is currently in construction scheduled to be completed in Spring 2019. The BMPs will provide approximately 16.8 acres of effective IC reduction that would otherwise discharge directly to the Quinebaug River. Once the BMPs are constructed, MassDOT will have exceeded its goal of effective IC reduction. The construction cost of the project is estimated to be $1,800,000.



Project Limits and BMP Locations

Indian Lake Phase I: Interstate Maintenance and Related Work on I-190

MassDOT Project #: 605588.1
Project Town: Worcester
MassDOT District: 3

Water Body Name: Indian Lake
Water Body ID: MA51073

Project Description:
A section of MassDOT's Interstate I-190 in Worcester discharges stormwater to Indian Lake (MA51073). As part of the Impaired Waters Program, the assessment of Indian Lake identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) and total phosphorus (TP) reduction.

Site Description:
This project is located along a section of Interstate 190 north of Indian Lake in Worcester. Stormwater runoff from the I-190 Shore Drive overpass and points north on I-190, drain directly and indirectly to Indian Lake (MA51073). Indian Lake is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 4a impaired water, indicating the waterbody has a completed TMDL. Indian Lake is covered under the *Total Maximum Daily Load of Phosphorus for Indian Lake*. Indian Lake is impaired for Eurasian Water Milfoil (Myriophyllum spicatum), which doesn't require a TMDL, aquatic plants (macrophytes), and dissolved oxygen. On the draft *2016 ILW*, Eurasian Water Milfoil (Myriophyllum spicatum) and dissolved oxygen were removed, and Nutrient/Eutrophication Biological Indicators and harmful algal bloom were added to the list of impairments.

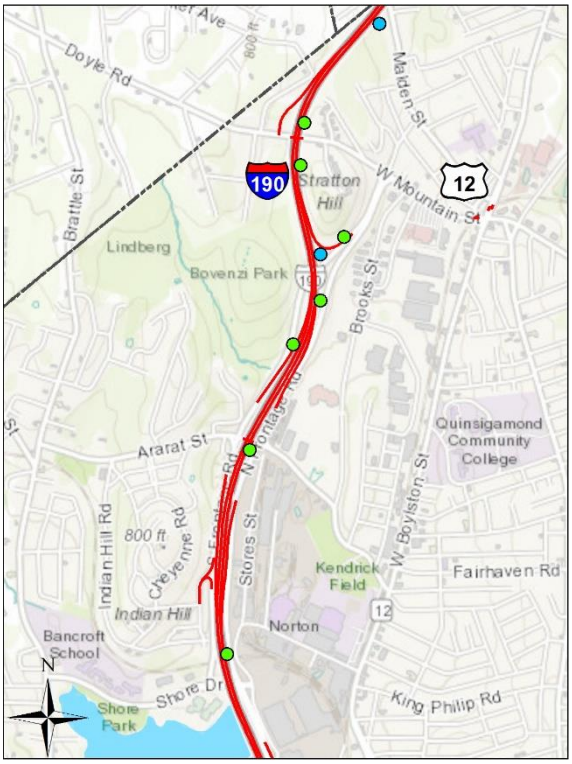
Project Goal:

MassDOT's directly discharging area to Indian Lake is 7.1 acres and no existing BMPs are in place to reduce the phosphorus load from MassDOT properties to Indian Lake. MassDOT should reduce its Total Phosphorus (TP) loading within the directly contributing watershed by 6.6 lb/yr to achieve the targeted reduction.

Stormwater Management Improvements:

MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **nine new stormwater BMPs** consisting of **seven infiltration swales and two infiltration basins** to treat stormwater from I-190 prior to draining to Indian Lake. The constructed BMPs provide a reduction of 26.4 lb/yr of TP from MassDOT property and also an effective IC reduction of 10.8 acres.

The construction project began in the summer of 2016 and is scheduled to be completed in the summer of 2019. The BMPs will provide approximately 26.4 lbs/yr of TP reduction that would otherwise drain to Indian Lake. Once the BMPs are constructed, MassDOT will have exceeded its goal of TP reduction. The stormwater construction cost of the project is estimated to be $792,880.



Project Limits and BMP Locations

MassDOT BMPs
- Infiltration Basin
- Infiltration Swale

Indian Lake Phase I: Interstate Maintenance and Related Work on I-190 (Including W-44-124, I-190 over Route 12 and Ramp B)

MassDOT Project #:	**605588.2**	**Water Body Name:**	**Unnamed Tributary (Mill Brook)**
Project Town:	**Worcester**	**Water Body ID:**	**MA51-08**
MassDOT District:	**3**		

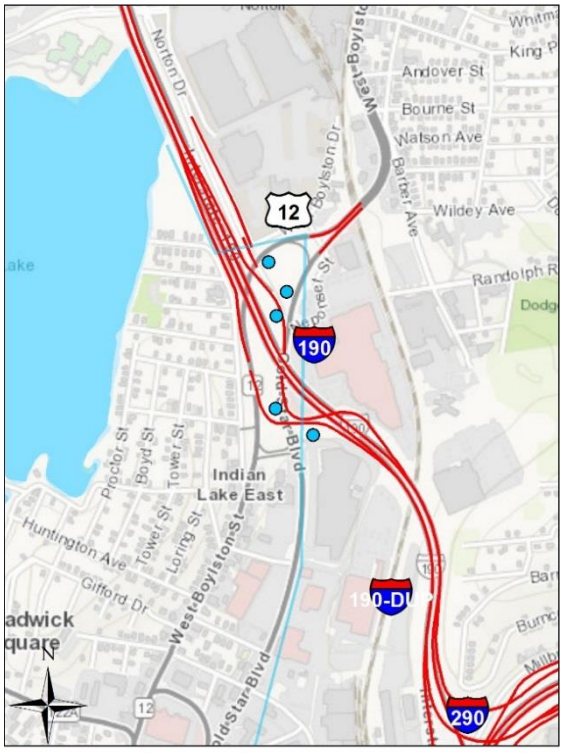
Project Description:
A section of MassDOT's Interstate I-190 in Worcester discharges stormwater to an Unnamed Tributary (commonly called Mill Brook (MA51-08)). As part of the Impaired Waters Program, the assessment of the Unnamed Tributary identified water quality impairments and any existing stormwater Best Management Practices (BMPs) and identified recommendations for proposed BMPs to provide additional stormwater runoff treatment to meet the program goal of effective impervious cover (IC) reduction.

Site Description:
This project is located along a section of Interstate 190, including W-44-124, I-190 over Route 12 and ramp B. Stormwater runoff from Route 190, drains directly to Unnamed Tributary. Unnamed Tributary is listed on the *2014 Integrated List of Waters (ILW)* and draft *2016 ILW* as a Category 5 impaired water, indicating the waterbody requires a TMDL. According to the *2014 ILW*, the Unnamed Tributary was determined to be impaired for the following: nutrient/eutrophication biological indicators, physical substrate habitat alterations, other, aquatic plants (macrophytes), fecal coliform, ammonia (un-ionized), foam/flocs/scum/oil slicks, turbidity, taste and odor, sedimentation/siltation, and debris/floatables/trash. The draft *2016 ILW* removed aquatic plants (macrophytes) and added Escherichia coli to the list of impairments.

Project Goal:
MassDOT's directly discharging area to the Unnamed Tributary is 124 acres and no existing BMPs are in place to in place to treat stormwater runoff from MassDOT properties to Indian Lake. In order to meet the water quality goal, the assessment recommended MassDOT to reduce its effective IC within the directly contributing watershed by 102 acres.

Stormwater Management Improvements:
MassDOT reviewed the directly contributing area for potential locations to install treatment BMPs and performed survey of the project area. MassDOT was able to design **five new infiltration basins** to treat stormwater from I-190 (including W-44-124, I-190 over Route 12 and Ramp B).

The programmed project began in the summer of 2016 and is scheduled to be completed in the summer of 2019. The BMPs will provide approximately 2.8 acres of effective IC reduction and 7.3 lbs/yr of Total Phosphorus that would otherwise drain directly the Unnamed Tributary. Although there is a remaining 99.2 acres to meet to reduction target, BMPs were implemented to the maximum extent practicable. The stormwater construction cost of the project is estimated to be $440,489.



Project Limits and BMP Locations

Appendix E: Water Quality Data Forms Submitted in Permit Year 15

Project Number	Project Type	Project Description	Road(s)	Location	District	Final Ownership	TMDL Watershed	Number of Waterbodies	Waterbody 1 ID	Waterbody 1 Name	Waterbody Impairment Status	Impairments	Waterbody 1 TMDL	Waterbody 2 ID	Waterbody 2 Name	Waterbody Impairment Status	Impairments	Waterbody 2 TMDL	Waterbody 3 ID	Waterbody 3 Name	Waterbody Impairment Status	Impairments	Waterbody 3 TMDL	Waterbody 3 Conceptual BMPs	Submittal Date	MassDOT Reviewer
607127	Bridge	Hubbardston- Bridge replacement, H-24-009, Evergreen Road over Mason Brook	Evergreen Road	Hubbarston	3	MassDOT	No	1	MA36020	Brigham Pond	Not Impaired	N/A	N/A												7/31/2017	
608088	Highway Reconstruction	Corridor improvements on Route 123 (Belmont Street) from Angus Beaton Drive to West Street	Route 123 (Belmont Street), Angus Beaton Drive, Forest Avenue, West Street	Brockton	5	MassDOT	Yes	1	MA62208	West Meadow Pond	Impairment Not Caused By Pollutant	(Non-Native Aquatic Plants*)	N/A												3/14/2017	
605094	Bridge	Fitchburg- Bridge replacement, F-04-003, State Route 31 Over Phillips Brook	State Route 31	Fitchburg	3	MassDOT	Yes	2	MA81-12	Phillips Brook	Not Impaired	N/A	N/A	MA81-01	North Nashua River	Impaired	Escherichia coli	Bacteria/Pathogens, Phosphorus							3/3/2017	Bryan Cordeiro
606317	Bridge	Worcester - Bridge replacement, W-44-30, Plantation Street over CSX Railroad	Plantation Street	Worcester	3	MassDOT	Yes	2	MA51125	Lake Quinsigamond	Impaired	(Eurasian Water Milfoil, Myriophyllum spicatum*), (Non-Native Aquatic Plants*), Excess Algal Growth, Oxygen, Dissolved	Phosphorus	MA51-08	Unnamed Tributary	Impaired	(Debris/Floatables/Trash*), (Physical substrate habitat alterations*), Ammonia (Un-ionized), Aquatic Plants (Macrophytes), Fecal Coliform, Foam/Floc/Scum/Oil Slicks, Nutrient/Eutrophication Biological Indicators, Other, Sedimentation/Siltation, Taste and Odor, Turbidity	Bacteria/Pathogens, Phosphorus							3/31/2017	
606518	Bridge	Quincy - Construction of new connection (bridge) from Burgin Parkway over MBTA	Burgin Parkway	Quincy	6	Municipality	No	1	MA74-09	Town Brook	Impaired	(Other flow regime alterations*), (Physical substrate habitat alterations*), Aquatic Macroinvertebrate Bioassessments, Fecal Coliform	Bacteria/Pathogens												12/6/2016	Bryan Cordeiro
607570	Other	Lee Bikeway	N/A	Lee	1	Municipality	No	1	MA21-19	Housatonic River	Impaired	(Zebra mussel, Dreissena polymorph*), Excess Algal Growth, PCB in Fish Tissue, Phosphorus (Total), Polychlorinated biphenyls	N/A												5/2/2017	Bryan Cordeiro
607736	Other	Chicopee- Signal & intersection improvements at 13 intersections along Route 33 (Memorial Drive), from Fuller Road to Abbey Street	Route 33 (Memorial Drive)	Chicopee, South Hadley	2	MassDOT	No	1	MA34-05	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue, Total Suspended Solids (TSS)	N/A												4/7/2017	Bryan Cordeiro
608319	Resurfacing	Warren - Brimfield - Intersate pavement preservation & related work on Route I-90, from MM 68.0 to MM 74.3 (6.3 miles)	Interstate 90	Warren, Brimfield	2	MassDOT	No	0																	1/22/2016	
600936	Bridge	Lyman Street over First Level Canal (Bridge No. H-21-018)	Lyman Street	Holyoke	2	MassDOT	Yes	1	MA34-05	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue, Total Suspended Solids (TSS)	N/A												4/7/2017	Bryan Cordeiro
604203	Intersection	Agawam - Intersection Improvements at Route 187 & Route 57	Routh 187 & Route 57	Agawam	2	Municipality	No	1	MA32-27	Miller Brook	Not Impaired	N/A	N/A												3/15/2017	Bryan Cordeiro
608263	Bridge	Sheffield - Bridge replacement, S-10-019, Berkshire School Road over Schenob Brook	Berkshire School Road	Sheffield	1	MassDOT	No	1	MA21-15	Hubbard Brook	Impairment Not Caused By Pollutant	(Eurasian Water Milfoil, Myriophyllum spicatum*), (Non-Native Aquatic Plants*)	N/A												4/11/2017	
608236	Highway Reconstruction	Reconstruction of Damon Road, From Route 9 to Route 5, includes drainage system repairs & slope stabilization at the Norwottuck Rail Trail	Damon Road	Northampton	2	MassDOT	No	1	MA34-04	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue	N/A												8/5/2016	Bryan Cordeiro
608432	Highway Reconstruction	Rutland - Reconstruction of Route 56 (Pommogussett Road)	Pommogussett Road	Rutland	3	Municipality	No	1	MA36098	Moulton Pond	Not Impaired	N/A	N/A												2/24/2017	Bryan Cordeiro
605608	Highway Reconstruction	Resurfacing & related work on Route 9	Ames Street and Bridge Street	Dedham	6	MassDOT	Yes	1	MA72-07	Charles River	Impaired	(Fish-Passage Barrier*), (Non-Native Aquatic Plants*), (Other flow regime alterations*), DDT, Escherichia coli, (Eurasian Water Milfoil, Myriophyllum spicatum*), Fishes Bioassessments, Nutrient/Eutrophication Biological Indicators, PCB in Fish Tissue, Phosphorus (Total)	Bacteria/Pathogens, Phosphorus												4/29/2016	
607435	Intersection	Barnstable - Intersection improvements @ Falmouth Road (Route 28) & Osterville-West Barnstable Road	Falmouth Road (Route 28), Osterville-West Barnstable Road	Town of Barnstable	5	MassDOT	Yes	1	MA96-07	Prince Cove	Impaired	Estuarine Bioassessments, Estuarine Bioassessments, Estuarine Bioassessments, Fecal Coliform	Bacteria/Pathogens												4/28/2017	
608193	Other	Fitchburg - Leominster- Rail Trail construction (Twin Cities Rail Trail)	Bikeway, Bike Path Construction	Leominster, Fitchburg	3	MassDOT	Yes	2	MA81-13	Monoosnuc Brook	Impaired	Escherichia coli	N/A	MA81-02	North Nashua River	Impaired	Ambient Bioassays – Chronic Aquatic Toxicity, Aquatic Macroinvertebrate Bioassessments, Escherichia coli	Bacteria/Pathogens, Phosphorus							3/10/2017	Bryan Cordeiro
608346	Intersection	Intersection improvements at Main Street, Salem Road, and South Street	Main Street, Salem Road, South Street	Tewksbury	4	Municipality	Yes	1	MA92059	Silver Lake	Impaired	DDT, Mercury in Fish Tissue	N/A												4/5/2017	Bryan Cordeiro
604434	Highway Reconstruction	Reconstruction & related work on Fuller Road, from Memorial Drive (Route 22) to Shawinigan Drive.	Fuller Road	Chicopee	2	Municipality	No	2	MA36-24	Chicopee River	Impaired	Fecal Coliform	N/A	MA36-38	Cooley Brook	Not Impaired	N/A	N/A							2/15/2017	Bryan Cordeiro
607329	Other	Wakefield - Lynnfield - Rail Trail extension, from the Galvin Middle School to Lynnfield/Peabody T.L.	MBTA Railroad Right of Way	Wakefield and Lynnfield	4	Municipality	Yes	2	MA93-31	Mill River	Impaired	Fecal Coliform, Oxygen, Dissolved, Total Suspended Solids (TSS), Turbidity	Bacteria/Pathogens	MA93-34	Saugus River	Impaired	(Fish-Passage Barrier*), (Physical substrate habitat alterations*), Aquatic Plants (Macrophytes), Excess Algal Growth, Fecal Coliform, Nitrogen (Total), Phosphorus (Total), Turbidity	Bacteria/Pathogens							4/14/2017	Bryan Cordeiro
606718	Intersection	New Bedford - Intersection improvements at Hathaway Road, Mount Pleasant Street, and Nauset Street	Mount Pleasant Street, Nauset Street, and Hathaway Road	New Bedford	5	MassDOT	Yes	1	MA95-33	Acushnet River	Impaired	(Debris/Floatables/Trash*), Color, Fecal Coliform, Nitrogen (Total), Oil and Grease, Other, Oxygen, Dissolved, Polychlorinated biphenyls, Taste and Odor	Bacteria/Pathogens												4/28/2017	Bryan Cordeiro
608179	Bridge	Royalston - Bridge replacement, R-12-009, North Fitzwilliam Road over Lawrence Brook	North Fitzwilliam Road	Royalston	2	MassDOT	No	1	MA35-13	Lawrence Brook	Impaired	PCB in Fish Tissue	N/A												3/31/2017	Bryan Cordeiro
607502	Intersection	Northampton - Intersection improvements at King Street, North Street & Summer Street and at King Street & Finn Street	King Summer North, King Finn	Northampton	2	Municipality	No	1	MA34-04	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue	N/A												4/13/2017	Bryan Cordeiro
607572	Highway Reconstruction	Taunton - Corridor Improvements & related work on Broadway (Route 138), from Leonard Street Northerly to Purchase Street (Phase 1)	Broadway (Route 138)	Taunton	5	Municipality	Yes	2	MA62-29	Mill River	Not Impaired	N/A	N/A	MA62-02	Taunton River	Impaired	Fecal Coliform	Bacteria/Pathogens							5/12/2017	Bryan Cordeiro
605789	Highway Reconstruction	Boston - Reconstruction of Melnea Cass Boulevard	Melnea Cass Boulevard	Boston	6	Municipality	No	0																	6/26/2017	Bryan Cordeiro
606043	Highway Reconstruction	Hopkinton - Signal & intersection improvements on Route 135	Route 135 (Main Street)	Hopkinton	3	MassDOT	Yes	1	MA82A-23	Indian Brook	Not Impaired	N/A	N/A												12/23/2014	Bryan Cordeiro
608188	Intersection	Gardner - Leominster - Sterling- Intersection improvements at 3 locations	Route 2 / Route 68 rotary	Gardner	3	MassDOT	No	1	MA35-06	Otter River	Not Impaired	N/A	N/A												7/28/2017	
608188	Intersection	Gardner - Leominster - Sterling- Intersection improvements at 3 locations	Leominster Connector / Nashua Street	Leominster	3	MassDOT	Yes	1	MA81-04	North Nashua River	Impaired	Escherichia coli, Taste and Odor	Bacteria/Pathogens, Phosphorus												7/28/2017	
608747	Resurfacing	New Bedford - Improvements at Ashley and Lincoln Elementary schools (SRTS)	Ashley Boulevard	New Bedford	5	Municipality	Yes	1	MA95-33	Acushnet River	Impaired	(Debris/Floatables/Trash*), Color, Fecal Coliform, Nitrogen (Total), Oil and Grease, Other, Oxygen, Dissolved, Polychlorinated biphenyls, Taste and Odor	Bacteria/Pathogens												8/31/2017	
607245	Highway Reconstruction	Resurfacing & related work on a section of North Main Street (Route 47), from Route 116 to Claybrook Drive	North Main Street (Route 47)	Sunderland	2	Municipality	No	1	MA34-04	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue	N/A												4/18/2017	
607254	Other	North Adams - Williamstown - Mohawk Bicycle/Pedestrian Trail	N/A - Bicycle/pedestrian trail	Williamstown - North Adams	1	Municipality	No	2	MA11-05	Hoosic River	Impaired	(Alteration in stream-side or littoral vegetative covers*), (Other flow regime alterations*), Aquatic Macroinvertebrate Bioassessments, Fecal Coliform, PCB in Fish Tissue	N/A	MA11-06	Green River	Impaired	Fecal Coliform	N/A							5/26/2017	
608190	Bridge	East Brookfield - Bridge replacement, E-02-001, South Pond Road over South Pond Inlet	South Pond Road	East Brookfield, Brookfield	3	MassDOT	Yes	2	MA36131	Quacumquasit Pond	Impaired	(Eurasian Water Milfoil, Myriophyllum spicatum*), (Non-Native Aquatic Plants*), Mercury in Fish Tissue	N/A	MA36130	Quaboag Pond	Impaired	(Eurasian Water Milfoil, Myriophyllum spicatum*), (Non-Native Aquatic Plants*), Excess Algal Growth, Mercury in Fish Tissue, Phosphorus (Total)	Phosphorus							6/14/2017	Bryan Cordeiro

Project Number	Project Type	Project Description	Road(s)	Location	District	Final Ownership	TMDL Watershed	Number of Waterbodies	Waterbody 1 ID	Waterbody 1 Name	Waterbody Impairment Status	Impairments	Waterbody 1 TMDL	Waterbody 2 ID	Waterbody 2 Name	Waterbody Impairment Status	Impairments	Waterbody 2 TMDL	Waterbody 3 ID	Waterbody 3 Name	Waterbody Impairment Status	Impairments	Waterbody 3 TMDL	Waterbody 3 Conceptual BMPs	Submittal Date	MassDOT Reviewer
608412	Highway Reconstruction	Belchertown- Improvements & related work on Routes 202 & 21, from Turkey Hill Road to South Main Street (1.2 miles)	State Street, Maple Street	Belchertown	2	Municipality	Yes	0																	10/26/2017	
604209	Highway Maintenance	Holyoke-West Springfield - Rehabilitation of Route 5 (Riverdale Road), From I-91 (Interchange 13) to Main Street in Holyoke & from Elm Street to North Elm Street in West Springfield (3.2 Miles)	Route 5 (Riverdale Road)	City of Holyoke, Town of West Springfield	2	MassDOT	No	1	MA34-05	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue, Total Suspended Solids (TSS)	N/A												9/11/2017	Brian Denk
607444	Intersection	Falmouth-Intersection improvements & related work at North Falmouth Highway (Route 28A) & Nathan Ellis Highway (Route 151)	Route 28A, Route 151	Falmouth	5	Municipality	Yes	0																	9/28/2017	Bryan Cordeiro
608007	Highway Reconstruction	Cohasset/Scituate- Corridor improvements and related work on Justice Cushing Highway (Route 3A), from Beechwood Street to Henry Turner Bailey Road	Route 3A, Beachwood Street, Henry Turner Bailey Road	Cohasset, Scituate	5	MassDOT	Yes	1	MA94-18	Bound Brook	Impaired	(Fish-Passage Barrier*), Turbidity	N/A												4/18/2017	Bryan Cordeiro
605032	Highway Reconstruction	Reconstruction on Route 9, from Middle Street to Maple/South Maple Street	Russel Street (Route 9)	Hadley	2	MassDOT	Yes	2	MA34-04	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue	N/A	MA34-27	Fort River	Impaired	Escherichia coli	N/A							10/6/2017	
608347	Intersection	Intersection improvements at three locations	Essex Bridge, Cabot Water, McKay, Balch, Dodge, Cabot, County	Beverly	4	Municipality	Yes	4	MA93-07	Bass River	Impaired	(Fish-Passage Barrier*), Turbidity	N/A	MA93-09	Danvers River	Impaired	Fecal Coliform	Bacteria/Pathogens	MA93-20	Beverly Harbor	Impaired	Fecal Coliform	Bacteria/Pathogens	The project is a resurfacing project with minor adjustments to the existing drainage structures. Silt sacks will be included in existing and proposed catch basins. New catch basins installed as part of this project will have deep sumps. Basin to basin connections will be eliminated.	6/2/2017	
608612	Bridge	Athol- Bridge replacement, A-15-008, Crescent Street over Millers River	Crescent Street	Athol	2	Municipality	No	1	MA35-04	Millers River	Impaired	Fecal Coliform, PCB in Fish Tissue, Phosphorus (Total)	N/A												12/21/2017	
606895	Intersection	Granby- Improvements @ 2 locations on Route 202: School Street & Five Corners	Pleasant St, West State St, Amherst St, East State St, School St	Granby	2	MassDOT	Yes	2	MA34024	Forge Pond	Impaired	(Non-Native Aquatic Plants*), Nutrient/Eutrophication Biological Indicators	N/A	MA34-19	Stony Brook	Impaired	(Non-Native Aquatic Plants*), Escherichia coli, Turbidity	N/A							11/21/2017	
608243	Bridge	New Marlborough Bridge replacement - Umpachene Falls Road over Konkapot River, Bridge No. N-08-010 (06F)	Umpachene Falls Road	Town of New Marlborough	1	Municipality	No	1	MA21-25	Konkapot River	Impaired	Mercury in Fish Tissue	N/A												10/2/2017	
608259	Bridge	Townsend - Bridge replacement, T-07-013, West Meadow Road Over Locke Brook	West Meadow Road	Townsend	3	Municipality	Yes	1	MA81-18	Squannacook River	Impaired	Escherichia coli, Lack of a coldwater assemblage, pH, Low, Temperature, water	N/A												11/20/2017	
608467	Highway Reconstruction	Marlborough - Resurfacing and related work on Route 20	Route 20	Marlborough	3	MassDOT	Yes	2	MA82055	Grist Mill Pond	Impaired	(Non-Native Aquatic Plants*), Aquatic Plants (Macrophytes), Dissolved oxygen saturation, Excess Algal Growth, Fecal Coliform, Phosphorus (Total)	Bacteria/Pathogens	MA82056	Hager Pond	Impaired	(Non-Native Aquatic Plants*), Aquatic Plants (Macrophytes), Dissolved oxygen saturation, Excess Algal Growth, Fecal Coliform, Phosphorus (Total), Turbidity	Bacteria/Pathogens							10/26/2017	
606715	Highway Reconstruction	Lakeville- Reconstruction and related work on Rhode Island Road (Route 79), from the Taunton City Line to Clear Pond Road	Rhode Island Road, Myricks Street (Route 79)	Lakeville	5	Municipality	Yes	3	MA62011	Big Bearhole Pond	Impaired	(Non-Native Aquatic Plants*), Oxygen, Dissolved	N/A	MA62030	Cain Pond	Impaired	Oxygen, Dissolved, Turbidity	N/A	MA62-01	Taunton River	Not Impaired	N/A	N/A	(2) Bioretention Basins, Deep Sump Catch Basins	5/13/2016	
608374	Highway Reconstruction	Reconstruction of Memorial Avenue (Route 147) From Colony Road to Memorial Avenue Rotary	Memorial Avenue, Union Street, Bresnahan Street, Main Street,	West Springfield	2	Municipality	No	2	MA34-05	Connecticut River	Impaired	Escherichia coli, PCB in Fish Tissue, Total Suspended Solids (TSS)	N/A	MA32-07	Westfield River	Not Impaired	N/A	N/A							10/13/2017	Zachary Armand
608079	Bridge	Sharon-Bridge replacement, S-09-003 (4DN), Maskwonicut Street over Amtrak/MBTA	Maskwonicut Street	Sharon	5	MassDOT	No	1	MA73-19	Beaver Brook	Impaired	Aquatic Macroinvertebrate Bioassessments, Oxygen, Dissolved	N/A												12/6/2017	Zachary Armand
608835	Other	Medford- Improvements at Brooks Elementary School (SRTS)	High Street	Medford	4	Municipality	No	1	MA71-02	Mystic River	Impaired	(Fish-Passage Barrier*), Arsenic, Chlordane, Chlorophyll-a, DDT, Dissolved oxygen saturation, Escherichia coli, PCB in Fish Tissue, Phosphorus (Total), Secchi disk transparency, Sediment Bioassays -- Chronic Toxicity Freshwater	Bacteria/Pathogens												11/14/2017	Zachary Armand
607319	Highway Reconstruction	Mashpee-Corridor Improvements & related work on Nathan Ellis Highway (Route 151), From Mashpee Rotary to Falmouth T.L.	Route 151	Mashpee	5	MassDOT	Yes	2	ma96-90	Quashnet River	Not Impaired	N/A	N/A	ma96157	Johns Pond	Impaired	Mercury in Fish Tissue	N/A							11/6/2017	Bryan Cordeiro
604962	Highway Reconstruction	Holland - Resurfacing & related work on Brimfield Road, from the Brimfield/Holland town line to Wales Road (1.4 Miles - Phase 1)	Brimfield Road, Wales Road	Holland	2	Municipality	No	3	MA41-07	Mill Brook	Impairment Not Caused By Pollutant	(Non-Native Aquatic Plants*)	N/A	MA41022	Holland Pond	Impaired	Mercury in Fish Tissue	N/A	MA41-01	Quinebaug River	Impaired	Ambient Bioassays – Chronic Aquatic Toxicity, Fecal Coliform, Fishes Bioassessments, Lack of a coldwater assemblage, Mercury in Fish Tissue	N/A	Existing catch basins will be replaced with new hooded catch basins. Gravel bags and silt sacks will be used during construction for inlet protection.	10/31/2017	
608051	Highway Reconstruction	Wilmington - Reconstruction on Route 38 (Main Street), from Route 62 to the Woburn C.L.	Main Street (Route 38)	Wilmington	4	MassDOT	Yes	2	MA92-04	Maple Meadow Brook	Impairment Not Caused By Pollutant	(Low flow alterations*)	N/A	MA92041	Mill Pond	Impaired	Mercury in Fish Tissue	N/A							10/20/2017	Zachary Armand
117106	Highway Reconstruction	Wareham - Reconstruction of Route 6 & 28	Route 6 & 28 (Cranberry Highway)	Wareham	5	MassDOT	Yes	1	MA95038	Dicks Pond	Not Impaired	N/A	N/A												6/23/2014	Zachary Armand
607560	Resurfacing	Chicopee, Holyoke Interstate 391 Resurfacing and related work	Interstate 391	Chicopee, Holyoke	2	MassDOT	No	2	MA33-30	Green River	Impaired	Fecal Coliform	N/A	MA34-33	Fall River	Not Impaired	N/A	N/A							6/16/2017	
608084	Highway Reconstruction	Amherst - Improvements & related work on Routes 9 & 116, from University Drive to South Pleasant Street (0.8 miles)	Northampton Road (Route 9 & 116)	Amherst	2	MassDOT	Yes	2	MA34-27	Fort River	Impaired	Escherichia coli	N/A	MA34-25	Mill River	Impaired	Escherichia coli	N/A							10/6/2017	Bryan Cordeiro
607446	Intersection	Westminster - Intersection Improvements, Route 2A at Route 140	Hager Park Road/(Route 140/2A) at East Main Street (Route 2A)/Route 2 Ramps	Westminster, Massachusetts	3	MassDOT	Yes	1	MA81114	Round Meadow Pond	Not Impaired	N/A	N/A												4/28/2016	
606900	Highway Reconstruction	Bourne - Traffic and Multi-Modal Improvements @ Belmont Circle at Routes 6/25/28	Route 6, 25, 28	Bourne	5	MassDOT	Yes	0																	7/11/2017	
608188	Intersection	Gardner - Leominster - Sterling - Intersection improvements at 3 locations	Route 12/Pratts Junction/North Row Road	Sterling	3	MassDOT	Yes	1	MA81-61	Unnamed Tributary	Impaired	Escherichia coli	N/A												7/28/2017	

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607922	Bridge	Leicester - Bridge replacement, L-06-017, Rawson Street over the Cedar Meadow Pond Inlet	Rawson Street	Town of Leicester	3	Bridge Exempt	2200	MA42009	Cedar Meadow Pond	Impaired	2	0	The project site is limited to an existing causeway that is just a few feet above the surrounding body of water (Cedar Meadow Pond). Immediately past the edge of the typical roadway section, the ground surface slopes down to the pond. A closed drainage system is not present at the site.													4/17/2017	Bryan Cordeiro
608003	Highway Reconstruction	Weymouth- Improvements at Pingree Elementary School (SRTS)	Commercial Street, Cottage Street, School Driveway	Weymouth	6	None	0	MA74-05	Weymouth Back River	Impaired	0	3	This is a limited scope proejct and we are restricted within the project area. We are proposing to bump out sidewalks and adjust drainage structures as required. Three deep sump catch basins are proposed to collect stormwater adjacent to relocated curbing. All proposed work is within existing developed area and no impervious surface is added. A grass buffer between the sidewalk and roadway was originally proposed, but the Town prefers asphalt.													5/22/2017	Bryan Cordeiro
605384	Bridge	Agawam - West Springfield - Bridge replacement, A-05-002=W-21-014, Route 147 over the Westfield River & intersection & signal improvements @ 3 locations	Memorial Avenue (Route 147)	City of Agawam and Town of West Springfield	2	Bridge Exempt	23300	MA32-07	Westfield River	Not Impaired	0	60	Not feasible due to slopes, space, and grades as well as extensive existing drainage system.													12/15/2016	Bryan Cordeiro
604761	Other	Boston - Multi-use trail construction (South Bay Harbor), from Ruggles Station to Fort Point Channel	Frontage Rd	Boston	6	RDA	-144	MA70-02	Boston Inner Harbor	Impaired	0	4	Proposed trail follows existing roadways and paths, site constraints include extensive subsurface utilites and bridge structures.													3/27/2017	Bryan Cordeiro
606440	Resurfacing	Reconstruction of Route 140, from Sterling T.L. through East Princeton Village to Route 31, including rehab of P-16-017	Route 140	Princeton	3	NOI	46161	MA81-40	Keyes Brook	Not Impaired	1	31	All proposed reconstruction work on Route 140 within the Keyes Brook watershed will be captured by deep sump catch basins prior to discharging. Right of way constraints and the proximity to adjacent BVW resource areas prohibits construction of significant structural BMPs along the roadway. A constructed stormwater wetland with a sediment forebay is proposed to provide treatment to the maximum extent practicable.	MA81-41	Justice Brook	Not Impaired	2	25	All proposed reconstruction work on Route 140 within the Justice Brook watershed will be captured from the roadway by deep sump catch basins prior to discharging. BMPs are proposed to mitigate peak flows and provide stormwater treatment to the maximum extent practicable.							12/2/2016	Bryan Cordeiro
608792	Highway Reconstruction	Newburyport - Improvements at Nock Middle School & Molin Upper Elentary School (SRTS)	High Street	Newburyport	4	None	-3000	MA84A-26	Merrimack River	Impaired	0	10	The proposed pedestrian safety improvement project includes reconstructinon of approximately 2,650 square yards of sidewalk within an urban area, introducing curb bump-outs, pavement resurfacing, a HAWK signal, new traffic signs and pavement markings, and minor drainage improvements. There is a decrease of approximately 3000 square feet in impervious area. The installation of BMP's is not feasible due to right-of-way and adjacent urban development.													10/20/2017	Bryan Cordeiro
607551	Bridge	Lee - Lenox - Bridge replacement, L-05-020=L-07-003, Valley Street over Housatonic River	Valley Street	Lee, Lenox	1	Bridge Exempt	-951	MA21-19	Housatonic River	Impaired	0	2	Due to the proximity of the Housatonic River, the implementation of a BMP, such as an infiltration system, would not fit prior to discharge. Each proposed headwall to be installed has stone to prevent erosion of the banks of the river. Deep sump catch basins are being used to reduce the amount of sediment entering the river.													12/5/2016	Bryan Cordeiro
607133	Bridge	Quincy - Superstructure Replacement, Q-01-039, Robertson Street over I-93/US 1/SR 3	Robertson Street	Quincy	6	Bridge Exempt	-624	MA74-10	Furnace Brook	Impaired	0	8	The project scope is limited to superstructure replacement with minimal approach roadway work. The approach roadway work will consist of Micro-milling with HMA Overlay, Reconstruction of sidewalks and wheelchair ramps, and Replacement of existing catch basins with deep sump catch basins.													11/18/2016	Bryan Cordeiro
607421	Intersection	Chelmsford - Intersection improvements at Route 4 & I-495 (Exit 33)	North Road, I-495	Chelmsford	4	RDA	572	MA82A-10	River Meadow Brook	Impaired	0	0	The scope of work does not propose significant drainage system improvements. The project does not propose the introduction of "substantial" impervious area; BMPs were not recommended for inclusion with this project.													4/14/2017	Bryan Cordeiro
605150	Highway Reconstruction	Goshen - Resurfacing & Related Work on West Street	West Street	Goshen	1	NOI	28200	MA32040	Hammond Pond	Not Impaired	12	7														5/12/2017	Bryan Cordeiro
602165	Intersection	Signal & intersection improvements at Route 28/North Street	Main Street (Route 28), North Street	Stoneham	4	None	1885	MA71-01	Aberjona River	Impaired	0	7	Shallow to ledge, extremely limited ROW, dense commercial and residential development, extensive existing utilities in the ROW.													3/17/2017	Bryan Cordeiro
606701	Bridge	Sturbridge - Culvert replacement @ Route 20 & Snell Street	Main St, Snell St.	Sturbridge	3	NOI	872	MA41-04	Quinebaug River	Impaired	0	8	Silt sacks will be used in existing and proposed catch basins during construction along with compost filter tubes and dewatering bag to prevent sedimentation.													9/22/2017	Bryan Cordeiro
608001	Resurfacing	Fall River - Improvements at Viveiros Elementary School (SRTS)	Dwelly Street, Slade Street, South Main Street	Fall River	5	None	0	MA61-06	Mount Hope Bay	Impaired	0	14	The proposed pedestrian safety improvement project includes reconstruction of approximately 1400 feet of sidewalk within an urban area, introducing curb bump-outs at various intersections within the project limits, pavement resurfacing, new signs and pavement markings and minor drainage improvements. There is no incerase in impervious area. The implementation of BMP's is not feasible due to right-of-way and adjacent urban development.													4/19/2017	Bryan Cordeiro

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607550	Bridge	Lee - Superstructure replacement L-05-034 Chapel Street over Greenwater brook. Full bridge replacement project with moderate approach work.	Chapel Street	Lee	1	Bridge Exempt	813	MA21-27	Greenwater Brook	Not Impaired	0	2	The proximity of US Route 20 and Chapel Street to Greenwater Brook and the resulting lack of available space make construction of a structural BMP impractical without wetland impacts. As compliance with Standard 4 for a redevelopment project must only be met to the maximum extent practicable, a structural BMP has not been proposed. Deep sump catch basins connected to the existing stormwater outfall are propsed to capture portions of the pavement that previously discharged directly to the brook and will provide pretreatment. No new outfalls will be constructed.														5/18/2017	Bryan Cordeiro
607435	Intersection	Barnstable- Intersection improvements @ Falmouth Road (Route 28) & Osterville-West Barnstable Road	Falmouth Road (Route 28), Osterville-West Barnstable Road	Town of Barnstable	5	None	43880	MA96-07	Prince Cove	Impaired	0	16	Runoff from the intersection of Route 28 and Osterville West Barnstable Road does not directly discharge into Prince Cove. The draingage from the site infiltrates into the ground and is considered contributing through groundwater.														5/1/2017	Bryan Cordeiro
606272	Intersection	Barnstable - Intersection improvements at Iyanough Road (Route 28) and Yarmouth Road	Iyanough Road (Route 28) and Yarmouth Road	Town of Barnstable	5	RDA	39285	MA96-80	Mill Creek	Impaired	2	44	Designer to evaluate alternative BMP locations for the proposed infiltration basin, at the 42" outfall, and potentiallly add leaching basins.														3/3/2017	Bryan Cordeiro
605011	Highway Reconstruction	Ludlow - Reconstruction of Center Street (Route 21), from 35' West of Beachside Drive Westerly to Gas Line beside MTA Overpass (3,500 Feet)	Center Street,	Ludlow	2	RDA	15246	MA36-42	Higher Brook	Not Impaired	1	20	Drainage is directed to the road. Existing roadway right-of-way limits implementation of structural BMPs.														5/30/2017	Bryan Cordeiro
607578	Bridge	Shelburne - Bridge replacement, S-11-006, Bardwell Ferry Road over Dragon Brook	Bardwell Ferry Road	Shelburne	1	Bridge Exempt	0	MA33-20	Dragon Brook	Not Impaired	0	0	The project is being designed with country drainage--no paved waterways, no closed stormwater system. None in existence now.														4/7/2017	Bryan Cordeiro
608420	Bridge	Lowell - Reconstruction and rehabilitation of six bridges (Enel Bridges) Tiger Grant	Pawtucket Street, Merrimack Street, Suffolk Street, Central Street	City of Lowell	4	Bridge Exempt	-100	MA84A-29	Lowell Canals	Impaired	0	2	For each of the six (6) bridge locations, due to the urban area there is limited to no available space to install treatment, conveyance, or infiltration type BMP's. Source control and structural pretreatment BMP's such as deep sump catch basins will be provided to replace the existing catch basins that do not contain deep sumps and hoods. The City of Lowell will maintain the streets through their annual street sweeping program. The catch basins will be maintained by the City of Lowell through their catch basin cleaning program.														6/27/2017	Bryan Cordeiro
607548	Bridge	Shelburne - Bridge replacement, S-11-006, Bardwell Ferry Road over Dragon Brook	Bardwell Ferry Road	Shelburne	1	Bridge Exempt	0	MA33-20	Dragon Brook	Not Impaired	0	0	The project is being designed with country drainage--no paved waterways, no closed stormwater system. None in existence now.														4/7/2017	Bryan Cordeiro
607549	Bridge	Chesterfield - Bridge Replacement, C-12-009, Ireland Street over West Branch Bronson Brook	Ireland Street	Chesterfield	1	Bridge Exempt	2600	MA32-04	Westfield River	Not Impaired	0	1	No BMP warrants														7/5/2017	Bryan Cordeiro
602418	Highway Reconstruction	Reconstruction of Elm Street	Elm Street	Amesbury	4	NOI	6033	MA84A-30	Unnamed Tributary	Impaired	0	16	The project site consists of high density development with commercial properties to the west of the drainage area and residental properties to the east of the drainage area. In many cases, retaining walls exist adjacent to the layout line, leaving no room to construct additional BMP's.	MA84A-08	Powwow River	Impaired	0	80	Due to limited ROW, additional BMP's were not selected.							6/2/2017	Bryan Cordeiro
606159	Highway Reconstruction	North Andover - Intersection and signal improvements at Route 125 & Massachusetts Avenue	Route 125, Massachusetts Avenue	North Andover	4	NOI	43384	MA83-19	Shawsheen River	Impaired	0	30	Along Massachusetts Avenue on either side of its intersection with Route 125, limited rights-of-way along the roadway, along with the short set-backs of residences from the street, substantially prevents the installation of nearly any types of structural stormwater BMPs. Due to the limited space, the maximum amount of detention within a permanent easement was designed in order to offset downstream effects. A retaining wall was utilized to maximize the amount of space within the permanent easement. Due to the existing inverts and D soils within most of the project limits, infiltration and wet pond type of BMP were not able to be utilized.	MA84A-04	Merrimack River	Impaired	0	1	Only the northernmost 400 feet of Route 125 (Chickering Road) contributes runoff to the Merrimack River watershed. Impervious area increases by 920 square feet (0.021 acre) along this segment of the project. The impervious area increase is caused by installation of a proposed sidewalk along the eastern side of Route 125 for pedestrian accommodations for the four schools in the immediate area. Land along the eastern edge of Route125 is stepped above the roadway and consequently not useful for implementation of structural stormwater BMPs. Land along the western edge of the roadway is part of a Town public elementary/middle school campus, and the Town of North Andover is the property owner of nearly all land parcels in this area.							6/8/2017	Bryan Cordeiro
602564	Bridge	Carver - Middleborough - Bridge replacement, C-04-004=M-18-025, Rochester Road Over Weweantic River	Rochester Road, Pine Street, East Street	Carver and Middleborough	5	Bridge Exempt	11122	MA95-04	Weweantic River	Not Impaired	0	6	No BMP warrants														8/25/2017	Bryan Cordeiro
608747	Resurfacing	New Bedford - Improvements at Ashley and Lincoln Elemenatary Scools (SRTS)	Ashley Boulevard	New Bedford	5	None	-6200	MA95-33	Acushnet River	Impaired	0	6	The proposed pedestrian safety improvement project includes reconstrcution of approximately 16,500 square feet of sidewalk within an urban area, introducting curb bump-outs at various intersections within the project limits, pavement resurfacing, new traffic signs and pavement markings and minor drainage improvements. There is no increase in impervious area. The installation of BMP's is not feasbile due to right-of-way and adjacent urban development.														8/31/2017	Bryan Cordeiro
608236	Highway Reconstruction	Reconstruction of Damon Road, from Route 9 to Route 5, includes drainage system repairs & slope stabilization at the Norwottuck Rail Trail	Damon Road	Northampton	2	NOI	70056	MA34-04	Connecticut River	Impaired	1	57	The project intends to pull back one outfall from wetlands. In addition, one outfall will be constructed that discharges to a sediment forebay to a grass channel to a level spreader. The project proposes to reconstruct a large drain pipe and propose riprap to prevent the stormflow from continuing to erode banks and slopes.														9/15/2017	Bryan Cordeiro

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606635	Highway Reconstruction	Needham - Newton - Reconstruction of Highland Avenue, Needham Sreet & Charles River Bridge, N-04-002, from Webster Street (Needham) to Route 9 (Newton)	Highland Avenue & Needham Street	Needham & Newton	6	NOI	52200	MA72-24	South Meadow Brook	Impaired	2	30	We note conditions effecting the selection of BMP's include physical features such as soil conditions, groundwater, land use area topography. Other items of consideration include impacts to existing utilities, aestetics, setback requirements, right of way, maintenance and permitting requirements.	MA72-07	Charles River	Impaired	7	21	We note conditions effecting the selection of BMP's include physical features such as soil conditions, groundwater, land use area and topography. Other items of consideration include impacts to existing utilities, aestetics, setback requirements, right of way, maintenance and permitting requirements. The Impervious area of 52,200 square feet contributing to the Charles River and South Meadow Brook includes runoff from MassDOT Project NO's. 608137, 607889, and 606635.							8/31/2017	Bryan Cordeiro
604655	Bridge	Marshfield - Bridge replacement, M-07-007, Beach Street Over the Cut River	Beach Street	Marshfield	5	Bridge Exempt	1500	MA94-11	Green Harbor	Impaired	0	4	Site constraints include coastal environment with limited land available for BMP's.													9/23/2016	Bryan Cordeiro
607304	Intersection	Intersection improvements & related work at Chase Road & Old Westport Road	Chase Road/Old Westport Road	Dartmouth	5	None	542	MA95-11	Paskamanset River	Not Impaired	0	2	Project site is adjacent to an historic cemetary. The receiving body of water lies on the far side of the cemetary and the project area. BMP installation would require ROW and distrubance in the cemeterary, and has been deemed not feasible.	MA95-34	Slocums River	Impaired	0	2	Project site is adjacent to an historic cemetary. The receiving body of water lies on the far side of the cemetary and the project area. BMP installation would require ROW and distrubance in the cemeterary, and has been deemed not feasible.							8/18/2017	Bryan Cordeiro
607256	Resurfacing	Resurfacing & related work on heritage Street, Front Street & Dwight Street from Maple St.to the 1st Level Canal (.54 Miles)	Heritage Street, Front Street & Dwight Street	Holyoke	2	NOI	-100	MA34-05	Connecticut River	Impaired	9	36	The three streets within the project locus are comprised of a fully developed urban setting that features almost entirely impervious roadway and sidewalk area. Stormwater runoff is currently collected in a combined municipal sewer system that conveys stormwater and sewer flow to the existing municipal treatment plant for treatment prior to discharge to the Connecticut River. The City of Holyoke desires to separate the stormwater runoff that combined sewer system where possible to help reduce treatment and reduce the peak demand of effluent requiring treatment during storm events. In addition to deep sump catch basins, the project proposed to install nine combination catch basin/tree box bio filter structures at strategic locations throughout the project. These structures provide bio filtration for captured stormwater prior to discharge into the municipal drainage system.												3/13/2018	Bryan Cordeiro
607250	Highway Reconstruction	Paxton- Reclamantion on Route 31 (Holden Road)	Holden Road	Paxton	3	NOI	32908	MA51082	Kettle Brook Reservoir No. 4	Not Impaired	0	11	Limited ROW / Slope restrictions	MA81002	Asnebumskit Pond	Not Impaired	1	14	Limited ROW / Slope restrictions							9/8/2017	Bryan Cordeiro
606632	Bridge	Hopkinton - Westborough - Bridge Replacement, H-23-006-W-24-01, Fruit Street over CSX & Sudbury River	Fruit Street	Hopkinton & Westborough	3	Bridge Exempt	5440	MA82A-25	Sudbury River	Impaired	0	12	There is limited available right-of-way to install BMPs other than deep sump catch basins, with the addition of retaining walls along the raised roadbed. These retaining walls are being added to prevent impacts into the adjacent wetlands and minimize impacts to existing trees beyond the right-of-way.												10/2/2017	Bryan Cordeiro
117106	Highway Reconstruction	Wareham - Reconstruction of Route 6 & 28	Route 6 & 28 (Cranberry Highway)	Wareham	5	NOI	98245	MA95038	Dicks Pond	Not Impaired	2	23	At the lowpoint of the road, directly adjacent to Dicks Pond, the elevations of the drainage system is very low and is unable to be treated in a BMP. At this location approximately 1.2 acres is discharged directly to the wetland.												6/23/2014	Bryan Cordeiro
608179	Bridge	Royalston - Bridge replacement, R-12-009, North Fitzwilliam Road over Lawrence Brook	North Fitzwilliam Road	Royalston	2	Bridge Exempt	2510	MA35-13	Lawrence Brook	Impaired	0	0	This is a small footprint bridge replacement project. There is currently no closed drainage system within the project area, and the intent was to maintain the existing drainage pattern. While there is curb being added to the bridge, it is for a short distance (87 feet on the downstream side and 125 feet on the upstream side. Based on the close proximity of the Brook and wetlands to the roadway there isn't enough room to add surface/conveyance BMPs. While it may be possible to add deep sump catch basins, they may pose maintenance issues for the Town, and the installation of the outlet may add impacts to the wetlands.												12/6/2017	Bryan Cordeiro
606669	Other	Amesbury - Powwow Riverwalk construction Main Street to Water Street	Park Adjacent to Water Street	Amesbury	4	NOI	6500	MA84A-30	Unnamed Tributary	Impaired	0	0	In accordance with Volume 1 of the Stormwater Handbook and 310 CMR 10.05 6 (m), "footpaths, bike paths, and other paths for pedestrian and/or non-motorized vehicle access" need to comply with the Stormwater Management Standards "to the maximum extent practicable". As a bikeway, and due to site limitations, this project proposes that stormwater runoff from the trail will infiltrate naturally along the adjacent grass shoulders.	MA84A-08	Powwow River	Impaired	0	0	In accordance with Volume 1 of the Stormwater Handbook and 310 CMR 10.05 6 (m), "footpaths, bike paths, and other paths for pedestrian and/or non-motorized vehicle access" need to comply with the Stormwater Management Standards "to the maximum extent practicable". As a bikeway, and due to site limitations, this project proposes that stormwater runoff from the trail will infiltrate naturally along the adjacent grass shoulders.							4/17/2017	Bryan Cordeiro

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607428	Intersection	Milford - Resurfacing & Intersection Improvements on Route 16 (Main Street), from Water Street to the Hopedale T.L.	Route 16 (Main Street)	Milford	3	NOI	1700	MA72-33	Charles River	Impaired	0	0	The project does not include any major changes to the existing drainage system other than rehabilitating the existing pipe with Cured-in-place Pipe. The existing system consists of deep sump catch basins that outlets to a tributary stream to the Charles River. The stream stretches 1.5 miles and crosses two wetland areas between the outlet point on Main Street and the Charles River. Although infiltration methods are recommended to remove phosphorus contamination and BMP's with bio-uptake capabilities are recommended to treat any bacteria/pathogen contamination, the urban environment and limit right of way limits the applicability of these BMP's to this project.													9/29/2017	Bryan Cordeiro
608835	Other	Medford- Improvements at Brooks Elementary School (SRTS)	High Street	Medfrod	4	None	-900	MA71-02	Mystic River	Impaired	0	4	The proposed pedestrian safety improvement project includes reconstructinon of approximately 500 square yards of sidewalk within an urban area, introducing curb bump-outs, pavement resurfacing, new traffic signs and pavement markings, and minor drainage improvements. There is a decrease of approximately 900 square feet in impervious area. The installation of BMP's is not feasible due to right-of-way and adjacent urban development.													11/14/2017	Bryan Cordeiro
607732	Other	Framingham - Natick - Cochituate Rail Trail construction including pedestrian bridge, N-03-014, over Route 9 & F-07-033=N-03-029 over Route 30	N/A	Natick, Framingham	3	NOI	38068	MA82125	Lake Cochituate	Impaired	2	3	The project is the construction of a bike path and is subject to the Stormwater Management Standards only to the maximum extent practicable (Standard 7).	MA82126	Lake Cochituate	Impaired	2	0	The project is the construction of a bike path and is subject to the Stormwater Management Standards only to the maximum extent practicable (Standard 7).	MA82127	Lake Cochituate	Impaired	0	0	The project is the construction of a bike path and is subject to the Stormwater Management Standards only to the maximum extent practicable (Standard 7).	11/27/2017	Bryan Cordeiro
608478	Resurfacing	Concord- Resurfacing and related work on Route 2	Route 2A / Route 2	Concord	4	RDA	0	MA82B-14	Nashoba Brook	Impaired	0	0	Infiltration swale already present in potential BMP location.	MA82B-07	Assabet River	Impaired	0	0	Potential area is occupied as a wetland.	MA82A-04	Sudbury River	Impaired	0	0	Watbody is not impaired for stormwater related issues (Non-Native Aquatic Plants, Mercury in Fish Tissue).	9/25/2017	Bryan Cordeiro
608346	Intersection	Intersection improvements at Route 38 (Main Street, Salem Road, and South Street)	Route 38 (Main Street), Salem Road, South Street	Tewksbury	4	RDA	9788	MA92059	Silver Lake	Impaired	0	24	Project limits are within a fully developed area with linear ROW. The project generally flows from north to south with a possible outlet into the Cedar Swamp located southeast of the Tewksbury Fire Station on South Street.													1/12/2018	Bryan Cordeiro
607560	Resurfacing	Chicopee, Holyoke Interstate 391 Resurfacing and Related Work	Interstate 91	Chicopee, Holyoke	2	Other	0	MA33-30	Green River	Impaired	0	0	No structural BMPs are proposed for this project. See appendix for additional information about this water body. The scope of the project does not propose additional impervious area. To maintain the current drainage structures, existing featues will be cleaned and/or repaired as follows: drainage structures will be cleaned, adjusted and repaired where necessary; compost filter tubes will be used during construction; culvert will be relined as part of efforts to repair a sink hole and prevent the potential for future sink hole.	MA34-33	Fall River	Not Impaired	0	0	No structural BMPs are proposed for this project. The receiving water body is not impaired, and the scope of the project does not propose additional impervious area. To maintain the current drainage structures, existing features will be cleaned and/or repaired as follows: drainage structures will be cleaned, adjusted and repaired where necessary; compost filter tubes will be used during construction; culvert will be relined as part of efforts to repair a sink hole and prevent the potential for future sink hole.							1/12/2018	Bryan Cordeiro
607446	Other	Westminster - Intersection Improvements, Route 2A at Route 140	Route 2A, Route 140, Route 2 Ramps	Westminster	3	NOI	4700	MA81114	Round Meadow Pond	Not Impaired	1	1	The project is limited to intersection and signal improvements within the existing right-of-way. There are wetlands within the loop of the Route 2 ramps and adjacent to East Main Street. There is a slope in three of the four corners which limit the installation of a BMP.													3/9/2018	Bryan Cordeiro
604989	Highway Reconstruction	Reconstruction of Main Street (Route 30), From Sears Road to Park Street	Main Street (Route 30), Cordaville Road (Route 85), Marlborough Road (Route 85)	Southboroug h	3	NOI	20038	MA82106	Sudbury Reservoir	Impaired	1	39														1/15/2016	Bryan Cordeiro

Project Number	WBID	BMP ID/Description	Existing or Proposed	Latitude	Longitude	BMP Ownership	Impervious WS (sq.ft.)	Pervious WS (sq. ft.)	Total WS (sq. ft.)	Type of BMP Installed
607922	MA42009	Grass Swale	Proposed	42.23308	-71.94286	Municipality	13	221	234	Infiltration Swale
607922	MA42009	Grass swale	Proposed	42.23296	-71.94284	Municipality	13	197	210	Infiltration Swale
606440	MA81-40	Constructed Stormwater Wetlands	Proposed	42.47677	-71.84455	MassDOT	29116	49	29165	Other
605150	MA32040	Water Quality Basin Sta. 89+40 ± RT	Proposed	42.4333	-72.80236	Municipality	71100	410950	482050	Wet Pond/Swale
605150	MA32040	Water Quality Basin Sta. 42+55 ± RT	Proposed	42.42878	-72.81266	Municipality	96800	2792539	2889339	Wet Pond/Swale
605150	MA32040	Water Quality Basin Sta. 23+05 ± RT	Proposed	42.42358	-72.82282	Municipality	24500	115400	139900	Wet Pond/Swale
605150	MA32040	Scour Hole FE-130 Swale End Sta. 61+20 L	Proposed	42.429	-72.81158	Municipality	10200	103500	113700	Other
605150	MA32040	Scour Hole FE-131A Sta. 69+90 R	Proposed	42.43033	-72.80911	Municipality	4400	23100	27500	Other
605150	MA32040	Scour Hole FE-133 Sta. 70+30 L	Proposed	42.43048	-72.80914	Municipality	12000	15200	27200	Other
605150	MA32040	Scour Hole Unnamed Swale End Sta. 75+10 L	Proposed	42.43141	-72.80766	Municipality	4800	50100	54900	Other
605150	MA32040	Scour Hole Unnamed Swale End Sta. 80+10 L	Proposed	42.43354	-72.802	Municipality	9200	19500	28700	Other
605150	MA32040	Scour Hole FE-146 Swale End Sta. 84+60 R	Proposed	42.43383	-72.80079	Municipality	10500	2600	13100	Wet Pond/Swale
605150	MA32040	Scour Hole Unnamed Swale End Sta. 84+90 L	Proposed	42.434	-72.80083	Municipality	4100	34900	39000	Other
605150	MA32040	Scour Hole Unnamed Swale End Sta. 86+80 L	Proposed	42.43421	-72.80024	Municipality	3900	6600	10500	Other
605150	MA32040	Scour Hole Unnamed Swale End Sta. 86+80 R	Proposed	42.43409	-72.80014	Municipality	3900	4100	8000	Other
606272	MA96-80	Proposed Infiltration Basin	Proposed	41.66083	-70.27594	MassDOT	16579	12646	29225	Infiltration Basin
606272	MA96-80	74LB - Leaching Basin	Proposed	41.66163	-70.27506	MassDOT	14106	1029	15135	Underground Infiltration Structure/System
605011	MA36-42	Swale STA 31+00 RT	Proposed	42.17011	-72.47959	MassDOT	21780	0	21780	Infiltration Swale
608236	MA34-04	Level Spreader	Proposed	42.33553	-72.62194	Municipality	53997	4215	58212	Other
606635	MA72-24	Infiltration Trench #6	Proposed	42.31598	-71.2098	MassDOT	20735	0	20735	Underground Infiltration Structure/System
606635	MA72-24	Infiltration Trench #7	Proposed	42.31813	-71.2085	MassDOT	3835	0	3835	Underground Infiltration Structure/System
607256	MA34-05	Catch Basin/Tree Box Bio - Dwight 1 (ST27)	Proposed	42.20734	-72.60815	Municipality	8276	0	8276	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Dwight 2 (ST14)	Proposed	42.20655	-72.60665	Municipality	7841	0	7841	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Dwight 3 (ST 10)	Proposed	42.20633	-72.60629	Municipality	3920	0	3920	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Dwight 4 (ST 5)	Proposed	42.20602	-72.60571	Municipality	6534	0	6534	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Heritage 1 (ST 72)	Proposed	42.205	-72.60808	Municipality	2614	0	2614	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Heritage 2 (ST 76)	Proposed	42.20533	-72.60777	Municipality	27443	0	27443	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Heritage 3 (ST 64)	Proposed	42.20558	-72.60752	Municipality	10454	0	10454	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Front 1 (ST 36)	Proposed	42.20698	-72.60508	Municipality	18295	0	18295	Bioretention Basin
607256	MA34-05	Catch Basin/Tree Box Bio - Front 2 (ST 40)	Proposed	42.20719	-72.60487	Municipality	32670	0	32670	Bioretention Basin
607250	MA81002	Gravel Wetland	Proposed	42.31893	-71.90982	Municipality	73620	0	73620	Gravel Wetland
117106	MA95038	Basin 1	Proposed	41.75931	-70.66182	MassDOT	48552	0	48552	Wet Pond/Swale
117106	MA95038	Basin 2	Proposed	41.75875	-70.66056	MassDOT	64485	0	64485	Wet Pond/Swale
607732	MA82125	SW 1	Proposed	42.306	-71.3777	Municipality	6326	27364	33690	Infiltration Swale
607732	MA82125	SW 2	Proposed	42.3057	-71.3766	Municipality	1062	6028	7090	Infiltration Swale
607446	MA81114	Bioretention Basin	Proposed	42.54219	-71.89755	MassDOT	7803	0	7803	Bioretention Basin
604989	MA82106	Bioretention Basin	Proposed	42.30558	-71.53944	Municipality	370395	767435	1137830	Bioretention Basin

Appendix F: Design Public Hearings Table

Design Public Hearings

Project Number	Project Description	Municipality	Stenographer	Project Manager	Meeting Type
606555	NORTHAMPTON- Roundabout construction at intersection Routes 5/10 (North King Street) & Hatfield Street	Northampton	Walter Mantani - 413 297-2583	Shawn Holland	Design Public Hearing
607754	MILTON- Intersection & signal improvements at Granite Avenue & Squantum Street	Milton	Tammy Hillery - 781-690-3569	Carrie Lavallee	Design Public Hearing
607550	LEE- Superstructure replacement, L-05-034, Chapel Street over Greenwater Brook	Lee	Walter Mantani - 413 297-2583	William Brown	Design Public Hearing
608004	WATERTOWN- Improvements at Hosmer Elementary School (SRTS)	Watertown	Tammy Hillery - 781-690-3569	David Shedd	Design Public Hearing
607533	WALTHAM- Bridge Replacement, W-04-006, Woerd Avenue over Charles River	Waltham	Anne Carrington - 781 363-0368	Hema Bhatt	Design Public Hearing
608084	AMHERST- Improvements & related work on Routes 9 & 116, from University Drive to South Pleasant Street (0.8 miles)	Amherst	Walter Mantani - 413 297-2583	Carrie Lavallee	Public Information Meeting
607589	SPRINGFIELD- North End Pedestrian Path construction (under the Connecticut River Railroad), between Plainfield Street and Birnie Avenue, includes construction of new underpass S-24-044	Springfield	Walter Mantani - 413 297-2583	Michael Papadopoulos	Design Public Hearing
608038	WEBSTER- Resurfacing & related work of Klebart Avenue & Lake Parkway	Webster	Anne Carrington - 781 363-0368	Fil Yee	Design Public Hearing
605110	BROOKLINE- Intersection & signal improvements @ Route 9 & Village Square (Gateway East)	Brookline	Anne Carrington - 781 363-0368	Ammie Rogers	Design Public Hearing
607999	REVERE- Improvements at Garfield Elementary & Middle School (SRTS)	Revere	Greg Tarbox - 603-247-6117	Albert Miller	Design Public Hearing
606518	QUINCY- Construction of new connection (bridge) from Burgin Parkway over MBTA	Quincy	Tammy Hillery - 781-690-3569	Joseph Pavao Jr	Design Public Hearing
602165	STONEHAM- Signal & intersection improvements at Route 28/North Street	Stoneham	Anne Carrington - 781 363-0368	Kimberley Sloan	Public Information Meeting
607309	HINGHAM- Reconstruction & related work on Derby Street, from Pond Park Road to Cushing Street	Hingham	Tammy Hillery - 781-690-3569	William Chi	Public Information Meeting
608540	DISTRICT 6- Pedestrian and bicycle facility upgrades at various locations	Quincy	Anne Carrington - 781 363-0368	Gautam Sen	Design Public Hearing
607737	AMESBURY- SALISBURY- Trail Connector @ I-95	Amesbury/Salisbury	Greg Tarbox - 603-247-6117	Gonul Duren	Design Public Hearing
608732	DISTRICT 4- Pedestrian and bicycle facility upgrades at various locations	Lynn	Anne Carrington - 781 363-0368	Gautam Sen	Design Public Hearing
608236	NORTHAMPTON- Reconstruction of Damon Road, from Route 9 to Route 5, includes drainage system repairs & slope stabilization at the Norwottuck Rail Trail	Northampton	Walter Mantani - 413 297-2583	Shahpar Negah	Design Public Hearing
607954	DANVERS- Bridge Replacement, D-03-018, ST 128 over Waters River	Danvers	Anne Carrington - 781 363-0368	Paul King	Design Public Hearing
606632	HOPKINTON- WESTBOROUGH- Bridge replacement, H-23-006=W-24-016, Fruit Street over CSX & Sudbury River	Hopkinton/Westborough	Tammy Hillery - 781-690-3569	Matt Hopkinson	Design Public Hearing
604761	BOSTON- Multi-use trail construction (South Bay Harbor), from Albany Street at Union Park Street to Dorchester Avenue, includes Traveler Street and West 4th Street	Boston	Kurt Gagliardi 508 344-0506	Sreelatha Allam	Design Public Hearing
608298	GROVELAND- Groveland Community Trail, from Main Street to King Street	Groveland	Greg Tarbox - 603-247-6117	Fil Yee	Design Public Hearing
608539	DISTRICT 5- Pedestrian and bicycle facility upgrades at various locations	New Bedford	Tammy Hillery - 781-690-3569	Gautam Sen	Design Public Hearing
608352	SALEM- Canal Street Rail Trail construction (Phase 2)	Salem	Greg Tarbox - 603-247-6117	David Shedd	Design Public Hearing

Design Public Hearings

Project Number	Project Description	Municipality	Stenographer	Project Manager	Meeting Type
608235	GREENFIELD- Bridge Replacement G-12-006, Nash's Mill Road over Green River	Greenfield	Kurt Gagliardi 508 344-0506	James Dalton	Design Public Hearing
608261	LAWRENCE- Intersection improvements at Marston Street & Ferry Street/Commonwealth Drive	Lawrence	Greg Tarbox - 603-247-6117	Shawn Holland	Design Public Hearing
608540	DISTRICT 6- Pedestrian and bicycle facility upgrades at various locations	Newton	Kurt Gagliardi 508 344-0506	Gautam Sen	Design Public Hearing
608125	SHEFFIELD- Bridge Replacement, S-10-002, Route 7A (Ashley Falls Rd.) over the Housatonic River	Sheffield	Walter Mantani - 413 297-2583	William Brown	Design Public Hearing
607446	WESTMINSTER- Intersection improvements, Route 2A at Route 140	Westminster	Kurt Gagliardi 508 344-0506	Brian Chapman	Design Public Hearing
605313	NATICK- Bridge Replacement, N-03-020, Route 27 (North Main Street) Over Route 9 (Worcester Street) and interchange improvements	Natick	Kurt Gagliardi 508 344-0506	Lawrence Cash	Design Public Hearing
608732	DISTRICT 4- Pedestrian and bicycle facility upgrades at various locations	Haverhill	Greg Tarbox - 603-247-6117	Gautam Sen	Design Public Hearing
608467	MARLBOROUGH- Resurfacing and related work on Route 20	Marlborough	Tammy Hillery - 781-690-3569	Muazzez Reardon	Public Information Meeting
608864	GARDNER- Bridge replacement, G-01-008, Pleasant Street over the B&M Railroad	Gardner	Greg Tarbox - 603-247-6117	Joseph Pavao Jr	Design Public Hearing
602587	WESTMINSTER- Bridge replacement, W-28-017, Route 12 (Ashburnham Road) Over Phillips Brook	Westminster	Greg Tarbox - 603-247-6117	Tracy Osimboni	Design Public Hearing
607428	HOPEDALE- MILFORD- Resurfacing & intersection improvements on Route 16 (Main Street), from Water Street west to approximately 120 feet west of the Milford/Hopedale T.L and the intersection of Route 140.	Milford	Anne Carrington - 781 363-0368	Shawn Holland	Design Public Hearing
605034	NATICK- Reconstruction of Route 27 (North Main Street), from North Avenue to the Wayland T.L.	Natick	Kurt Gagliardi 508 344-0506	David Shedd	Design Public Hearing
608006	FRAMINGHAM- Pedestrian hybrid beacon installation at Route 9 and Maynard Road	Framingham	Anne Carrington - 781 363-0368	Muazzez Reardon	Design Public Hearing
608124	MIDDLEBOROUGH- Interim improvements at Routes 18/28/44 (rotary)	Middleborough	Tammy Hillery - 781-690-3569	Joshua Bartus	Public Information Meeting
607531/608162	NORTON- Corridor improvements & related work on East Main Street (Route 123), from Pine Street to I-495 NORTON- Traffic signal Installation on Route I-495 (NB & SB) ramps at East Main Street (Route 123)	Norton	Tammy Hillery - 781-690-3569	Kimberley Sloan	Design Public Hearing
606903	HOLYOKE- Improvements to Lower Westfield Road on I-91 (Interchange 15)	Holyoke	Walter Mantani - 413 297-2583	Koby Lemrise	Public Information Meeting
607754	MILTON- Intersection & signal improvements at Granite Avenue & Squantum Street	Milton	Anne Carrington - 781 363-0368	Carrie Lavallee	Public Information Meeting
607987	WARE- Intersection improvements @ Main Street, West Street, North Street, South Street & Church Street	Ware	Walter Mantani - 413 297-2583	William Chi	Design Public Hearing
605035	NEW BRAINTREE- Reconstruction & Improvements on Ravine Road and Hardwick Road from Hardwick T.L. to Route 67 (Barre Rd.) (2.6 miles)	New Braintree	Walter Mantani - 413 297-2583	Ammie Rogers	Design Public Hearing
606317	WORCESTER- Bridge Replacement, W-44-030, Plantation Street over CSX Railroad	Worcester	Anne Carrington - 781 363-0368	Matt Hopkinson	Design Public Hearing
606134	BOSTON- Traffic signal improvements on Blue Hill Avenue and Warren Street	Boston	Tammy Hillery - 781-690-3569	Shahpar Negah	Design Public Hearing

Design Public Hearings

Project Number	Project Description	Municipality	Stenographer	Project Manager	Meeting Type
604961	CLINTON- Resurfacing & related work on Route 110 (High Street)	Clinton	Anne Carrington - 781 363-0368	Shawn Holland	Design Public Hearing
606156	HOLYOKE- Reconstruction of I-91 Interchange 17 & Route 141	Holyoke	Walter Mantani - 413 297-2583	Brian Chapman	Public Information Meeting
607986	HARVARD- LANCASTER- Bridge Replacement, H-09-019=L-02-020, Jackson Road over Nashua River	Harvard/Lancaster (Devens)	Greg Tarbox - 603-247-6117	Tracy Osimboni	Design Public Hearing
600936	HOLYOKE- Bridge replacement, H-21-018, Lyman Street over First Level Canal	Holyoke	Walter Mantani - 413 297-2583	James Dalton	Design Public Hearing
606380	SHREWSBURY- Bridge rehabilitation, S-14-018, Boylston Street (Route 140) Over I-290	Shrewsbury	Anne Carrington - 781 363-0368	Joseph Pavao Jr	Design Public Hearing
606709	NEW BEDFORD- Corridor improvements and related work on Kings Highway, from Church Street to the Kings Highway Bridge (N-06-036) Over Route 140	New Bedford	Tammy Hillery - 781-690-3569	Kimberley Sloan	Design Public Hearing
605094	FITCHBURG- Bridge replacement, F-04-003, State Route 31 Over Phillips Brook	Fitchburg	Greg Tarbox - 603-247-6117	John Fallon	Design Public Hearing
608263	SHEFFIELD- Bridge replacement, S-10-019, Berkshire School Road over Schenob Brook	Sheffield	Walter Mantani - 413 297-2583	William Brown	Design Public Hearing
607902	AYER- Reclamation & related work on Route 2A, from Harvard Road to Main Street	Ayer	Anne Carrington - 781 363-0368	Shahpar Negah	Design Public Hearing
608037	WESTFORD- Intersection improvements @ Groton Road (Route 40) & Dunstable Road	Westford	Tammy Hillery - 781-690-3569	Sreelatha Allam	Design Public Hearing
604203	AGAWAM- Intersection improvements at Route 187 & Route 57	Agawam	Walter Mantani - 413 297-2583	Brian Chapman	Design Public Hearing
605306	HAVERHILL- Bridge replacement, H-12-039, I-495 (NB & SB) over Merrimack River	Haverhill	Greg Tarbox - 603-247-6117	Narayana Kolla	Public Information Meeting
607253	ERVING- Streetscape & pedestrian improvements on Route 63, from River Street to 1,200 ft. north of Lillian Wat (1 Mile)	Erving	Walter Mantani - 413 297-2583	Brian Chapman	Design Public Hearing
608228	FRAMINGHAM- Reconstruction of Union Avenue, from Proctor Street to Main Street	Framingham	Tammy Hillery - 781-690-3569	Sreelatha Allam	Design Public Hearing
607254	NORTH ADAMS- Williamstown - Mohawk Bicycle/Pedestrian Trail	Williamstown - North Adams	Walter Mantani - 413 297-2583	David Shedd	Design Public Hearing
608188	GARDNER- LEOMINSTER- STERLING- Intersection improvements at 3 locations	Gardner-Leominster-Sterling	Anne Carrington - 781 363-0368	Sreelatha Allam	Design Public Hearing
608179 Jen Richard	ROYALSTON- Bridge replacement, R-12-009, North Fitzwilliam Road over Lawrence Brook	Royalston	Walter Mantani - 413 297-2583	Alwin Ramirez	Public Information Meeting
600513	AGAWAM- Reconstruction of Route 187 from 425 ft. south of S. Westfield Street to Route 57 (0.3 miles - phase I)	Agawam	Walter Mantani - 413 297-2583	Lawrence Cash	Design Public Hearing
608346	TEWKSBURY- Intersection improvements at Main Street, Salem Road and South Street	Tewksbury	Greg Tarbox - 603-247-6117	Shawn Holland	Design Public Hearing
608001	FALL RIVER- Improvements at Viveiros Elementary School (SRTS)	Fall River	Anne Carrington - 781 363-0368	David Shedd	Design Public Hearing
604738 Jen Richard	SOUTHAMPTON- Reconstruction of Glendale Road (Phase II) from College Highway (RT 10) northwesterly to Pomeroy Meadow Rd (3,801 Feet)	Southampton	Walter Mantani - 413 297-2583	Carrie Lavallee	Public Information Meeting
605651	LEOMINSTER- Reconstruction on Route 13, from Hawes Street to prospect Street	Leominster	David Fraser - 508-954-6954	Kimberley Sloan	Design Public Hearing
607888	BOSTON- BROOKLINE- Multi-use path construction on New Fenway	Boston - Brookline	Tammy Hillery - 781-690-3569	Lawrence Cash	Design Public Hearing
605328	RAYNHAM- Bridge replacement, R-02-013 (3PA), US 44 (Cape Highway) over SR 24	Raynham (Boston)	David Fraser - 508-954-6954	Ken Lamontagne	Oral Presentation

Design Public Hearings

Project Number	Project Description	Municipality	Stenographer	Project Manager	Meeting Type
606043	HOPKINTON- Signal & intersection improvements on Route 135	Hopkinton	David Fraser - 508-954-6954	David Shedd	Design Public Hearing
608412	BELCHERTOWN- Improvements & related work on Routes 202 & 21, from Turkey Hill Road to South Main Street (1.2 miles)	Belchertown	Walter Mantani - 413 297-2583	Albert Miller	Design Public Hearing
606635	NEEDHAM- NEWTON- Reconstruction of Highland Avenue, Needham Street & Charles River Bridge, N-04-002, from Webster Street (Needham) to Route 9 (Newton)	Needham	Greg Tarbox - 603-247-6117	Thomas Currier	Public Information Meeting
606635	NEEDHAM- NEWTON- Reconstruction of Highland Avenue, Needham Street & Charles River Bridge, N-04-002, from Webster Street (Needham) to Route 9 (Newton)	Newton	Greg Tarbox - 603-247-6117	Thomas Currier	Public Information Meeting
606635	NEEDHAM- NEWTON- Reconstruction of Highland Avenue, Needham Street & Charles River Bridge, N-04-002, from Webster Street (Needham) to Route 9 (Newton)	Newton	David Fraser - 508-954-6954	Thomas Currier	Public Information Meeting
608143	ABINGTON- BROCKTON- Intersection improvements at North Quincy Street, Boundary Avenue and Chestnut Street	Abington/Brockton	Anne Carrington - 781 363-0368	Shahpar Negah	Design Public Hearing
608260	ATHOL- Bridge Replacement, A-15-005, Washington Ave over Athol Pond Outlet	Athol	David Fraser - 508-954-6954	James Dalton	Design Public Hearing
608587	DEDHAM- Reconstruction & related work of Bridge Street (Route 109) and Ames Street	Dedham	Greg Tarbox - 603-247-6117	John Gendall	Design Public Hearing
608190	BROOKFIELD- EAST BROOKFIELD- Bridge replacement, B-26-006 = E-02-001, South Pond Road over South Pond Inlet	East Brookfield	David Fraser - 508-954-6954	Matt Hopkinson	Design Public Hearing
117106	WAREHAM- Reconstruction of Route 6 & 28, from 500 ft. east of Tyler Avenue to Red Brook Road (1.65 miles)	Wareham	Anne Carrington - 781 363-0368	Carrie Lavallee	Public Information Meeting
606701	STURBRIDGE- Culvert replacement @ Route 20 & Snell Street	Sturbridge	David Fraser - 508-954-6954	Matt Hopkinson	Design Public Hearing
604962	HOLLAND- Resurfacing & related work on Brimfield Road, from the Brimfield/Holland T.L. to Wales Road (1.4 miles - Phase I)	Holland	No Stenographer	Sreelatha Allam	Design Public Hearing
604434	CHICOPEE- Reconstruction & Related work on Fuller Road, from Memorial Dr. (Rte. 33) to Shawinigan Dr (2.0 miles)	Chicopee	Walter Mantani - 413 297-2583	Brian Chapman	Design Public Hearing
608259	TOWNSEND- Bridge Replacement, T-07-013, West Meadow Road over Locke Brook	Townsend	Greg Tarbox - 603-247-6117	John Fallon	Design Public Hearing
608747	NEW BEDFORD- Improvements at Ashley and Lincoln Elementary Schools (SRTS)	New Bedford	David Fraser - 508-954-6954	Albert Miller	Design Public Hearing
608411	SPRINGFIELD- Intersection improvements at Bay Street and Berkshire Avenue	Springfield	Walter Mantani - 413 297-2583	Shahpar Negah	Design Public Hearing
608249	MIDDLEFIELD- Bridge superstructure replacement, M-19-010, Chester Road over Smart Brook	Middlefield	Walter Mantani - 413 297-2583	Tracy Osimboni	Design Public Hearing
605789	BOSTON- Reconstruction of Melnea Cass Boulevard	Boston (Roxbury)	Anne Carrington - 781 363-0368	Albert Miller	Design Public Hearing
608443	LITTLETON- AYER- Intersection improvements on Route 2A at Willow Road and Bruce Street	Littleton	Greg Tarbox - 603-247-6117	Sreelatha Allam	Public Information Meeting
606895	GRANBY- Improvements @ 2 locations on Route 202: School Street & Five Corners	Granby	Walter Mantani - 413 297-2583	Valerie Kilduff	Design Public Hearing
607339	ATTLEBORO– Intersection improvements at Route 1 (Washington Street)/Route 1A (Newport Avenue) and Route 123 (Highland Avenue)	Attleboro	Greg Tarbox - 603-247-6117	Kimberley Sloan	Design Public Hearing
603255	PITTSFIELD- Bridge replacement, P-10-049, Lakeway Drive over Onota Lake	Pittsfield	Walter Mantani - 413 297-2583	Stephen Soma	Design Public Hearing
608190	BROOKFIELD- EAST BROOKFIELD- Bridge replacement, B-26-006 = E-02-001, South Pond Road over South Pond Inlet	Brookfield/East Brookfield	David Fraser - 508-954-6954	Matt Hopkinson	Design Public Hearing

Design Public Hearings

Project Number	Project Description	Municipality	Stenographer	Project Manager	Meeting Type
608243	NEW MARLBOROUGH- Bridge replacement, N-08-010, Umpachene Falls over Konkatpot River	New Marlborough (Mill River)	Walter Mantani - 413 297-2583	William Brown	Design Public Hearing
608833	NANTUCKET- Improvements on Milestone Road	Nantucket	David Fraser - 508-954-6954	Thomas Currier	Design Public Hearing
607941	EAST BRIDGEWATER- Resurfacing and sidewalk construction on Bedford Street (Route 18), from Whitman Street (Route 106) to Central Street	East Bridgewater	Tammy Hillery - 781-690-3569	Sreelatha Allam	Design Public Hearing
605306	HAVERHILL- Bridge replacement, H-12-039, I-495 (NB & SB) over Merrimack River	Haverhill	Oral Presentation	Narayana Kolla	Oral Presentation
606220	HARDWICK- Resurfacing & related work on the Gilbertville sections of Routes 32 and 32A	Hardwick (Gilbertville)	Walter Mantani - 413 297-2583	Brian Chapman	Design Public Hearing

Appendix G: Active MassDOT Construction NOIs in Permit Year 15

MassDOT Project SWPPPs filed between April 2017-March 2018

NPDES ID	Type	Site Name	Site State	Site City	Status	Submitted	Date of Coverage
MAR10017M	Notice of Intent	605799-Williamstown-Reconstruction of Water Street (Route 43)	MA	Williamstown	Active	3/15/2018	3/29/2018
MAR100157	Notice of Intent	Westford-Groton Road at Oak Hill Road Intersection/Improvements	MA	Westford	Active	2/6/2018	2/20/2018
MAR1000F6	Notice of Intent	PELHAM, Roadway Recons & Relate Work on a Seciton of Amherst Rd (Phase II)	MA	Pelham	Terminated	11/21/2017	11/21/2017
MAR1000EZ	Notice of Intent	Roadway Recons & Related Work on a section of Rte 181 Mill Valley Rd & Franklin	MA	Belchertown	Terminated	11/16/2017	11/16/2017
MAR1000Y9	Notice of Intent	Roadway & Ramp Reconstruction & Related Work at Routes 9 and 20	MA	Northborough	Active	10/6/2017	10/20/2017
MAR1000X5	Notice of Intent	Roadway Reconstruction and Related Work along Paxton Street	MA	Leicester	Active	9/22/2017	10/6/2017
MAR1000X2	Notice of Intent	Resurfacing and Related Work along Matthews Street	MA	Gardner	Active	9/21/2017	10/5/2017
MAR1000UT	Notice of Intent	MassDOT District 3 Administration Building	MA	Worcester	Active	8/23/2017	9/6/2017
MAR1000UI	Notice of Intent	Resurfacing & Related Work along a Section of Route 31	MA	Spencer	Active	8/18/2017	9/1/2017
MAR1000TT	Notice of Intent	Drainage Improvements & Related Work I91, 391, Routes 5 & 57 (Various Locations)	MA	W Spfld, Agawam, Chicopee, Holyoke	Active	8/9/2017	8/23/2017
MAR1000QP	Notice of Intent	603778 - Lanesborough Bridge No. L-03-024	MA	Lanesborough	Active	6/28/2017	7/12/2017
MAR1000QL	Notice of Intent	CONSTRUCTION OF MULTI USE PATH & RELATED WORK IN WEST SPFLD MA CT RIVERWALK	MA	WEST SPRINGFIELD	Active	6/28/2017	7/12/2017
MAR1000OP	Notice of Intent	i-91 NORTHAMPTON, HATFIELD, WHATELY, DEERFIELD - ROADWAY RESURFAC & RELATED WORK	MA	NORTHAMPTON, WHATELY, DEERFIELD, HATFIELD	Active	6/9/2017	6/23/2017
MAR1000MP	Notice of Intent	Intersection and Signal Improvements at Route 110 and Tadmuck Road	MA	Westford	Active	5/30/2017	6/13/2017
MAR1000IP	Notice of Intent	Resurfacing and Related Work along a Section of I-290	MA	worcester, Shrewsbury & Northborough	Active	5/16/2017	5/30/2017
MAR1000GN	Notice of Intent	Resurfacing & Related Work along a Section of Rte 68 in Templeton MA	MA	TEMPLETON	Active	5/15/2017	5/29/2017
MAR1000FB	Notice of Intent	SPRINGFIELD I-91 VIADUCT BR. NO. S-24-061 BRIDGE DECK REPLACEMENT	MA	SPRINGFIELD	Active	5/11/2017	5/25/2017
MAR1000FA	Notice of Intent	2 BRIDGES REPLACEMENT I-91 OVER DEERFIELD RIVER AND STILLWATER AND LOWER ROADS	MA	DEERFIELD	Active	5/11/2017	5/25/2017

NPDES ID	Type	Site Name	Site State	Site City	Status	Submitted	Date of Coverage
MAR1000F9	Notice of Intent	Demolition & Removal of Exist Toll Plaza Structures & Ramp Reconst I90 Exits 3-8	MA	Westfield, W Spfld, Chicopee, Spfld, Ludlow, Palmer	Active	5/11/2017	5/25/2017
MAR1000F8	Notice of Intent	ROADWAY RECONSTRUCTION ALONG SECTIONS OF ROUTE 67 AND 19 (MAIN AND MAPLE STREETS	MA	WARREN	Active	5/11/2017	5/25/2017
MAR1000F7	Notice of Intent	RESURFAC & RELATED WORK (INCLUDE 11 BRIDGES) ON I-91 EASTHAMPTON TO NORTHAMPTON,	MA	NORTHAMPTON	Active	5/11/2017	5/25/2017
MAR1000F6	Notice of Intent	PELHAM, Roadway Recons & Relate Work on a Seciton of Amherst Rd (Phase II)	MA	Pelham	Archived	5/11/2017	5/25/2017
MAR1000F5	Notice of Intent	BRIMFIELD-STURBRIDGE, RTE 20 RESURFACING & RELATED WORK	MA	Brimfield-Sturbridge	Active	5/11/2017	5/25/2017
MAR1000F4	Notice of Intent	ROADWAY RECONSTRUCTION OF A SECTION OF ROUTE 187 IN WESTFIELD MA	MA	WESTFIELD	Active	5/11/2017	5/25/2017
MAR1000F3	Notice of Intent	Roadway Recons & Related Work along a section of Main St (Rte 116) & adj streets	MA	SPRINGFIELD	Active	5/11/2017	5/25/2017
MAR1000F2	Notice of Intent	ROADWAY RECONSTRUCTION AT ROUTES 9 AND 67 IN WEST BROOKFIELD MA	MA	WEST BROOKFIELD	Active	5/11/2017	5/25/2017
MAR1000F1	Notice of Intent	Roadway Recon & Related Work along a section of Hatchery Rd & Ped Br Replacement	MA	MONTAGUE	Active	5/11/2017	5/25/2017
MAR1000F0	Notice of Intent	STORMWATER IMPROVEMENTS IN LONG, SPFLD, TEMPLETON, WESTFIELD	MA	Long Spfld Templeton Westfield	Active	5/11/2017	5/25/2017
MAR1000EZ	Notice of Intent	Roadway Recons & Related Work on a section of Rte 181 Mill Valley Rd & Franklin	MA	Belchertown	Archived	5/11/2017	5/25/2017
MAR1000EM	Notice of Intent	Bridge Replacement (F-07-015) Winter St. over MBTA RR	MA	Framingham	Active	5/11/2017	5/25/2017
MAR100064	Notice of Intent	Pittsfield # 607900 - Intersection Center St and Route 20	MA	Pittsfield	Terminated	5/10/2017	5/10/2017
MAR1000DW	Notice of Intent	Bruce Freeman Rail Trail (Phase IIA)	MA	Acton, Carlisle & Westford	Active	5/10/2017	5/24/2017
MAR1000DP	Notice of Intent	Roadway Reconstruction and Related Work (inc. Bridge Replacement (M-22-020))	MA	Millbury	Active	5/9/2017	5/23/2017
MAR1000DL	Notice of Intent	Roadway Resurfacing and Drainage Improvement Project along I-290	MA	Marlborough, Northborough	Active	5/9/2017	5/23/2017
MAR1000DF	Notice of Intent	Interstate Maintenance & Related Work on I-190	MA	Worcester/West Boylston	Active	5/9/2017	5/23/2017

NPDES ID	Type	Site Name	Site State	Site City	Status	Submitted	Date of Coverage
MAR1000CQ	Notice of Intent	Roadway Improvements and Reconstruction	MA	Sterling	Active	5/5/2017	5/19/2017
MAR1000AP	Notice of Intent	Intersection Improvements and related Work - Section of Route 9	MA	Westborough	Active	5/1/2017	5/15/2017
MAR10009M	Notice of Intent	Resurfacing & Related Work & Drainage Improvements along Sections of I-84	MA	Sturbridge	Active	4/27/2017	5/11/2017
MAR10007R	Notice of Intent	Reconstruction of Bridge #C-17-002, Atlantic Ave., Cohasset, MA	MA	Cohasset	Active	4/19/2017	5/3/2017
MAR10007Q	Notice of Intent	Construction of Blackstone Visitor Center and Multi-Use Path	MA	Worcester	Active	4/19/2017	5/3/2017
MAR100075	Notice of Intent	Resurfacing and Related Work along a Section of Route 16 (Webster Street)	MA	Douglas	Active	4/18/2017	5/2/2017
MAR10006D	Notice of Intent	Resurfacing and Related Work along a Section of Route 9	MA	Shrewsbury-Northborough-Westborough	Active	4/12/2017	4/26/2017
MAR100064	Notice of Intent	Pittsfield # 607900 - Intersection Center St and Route 20	MA	Pittsfield	Archived	4/11/2017	4/25/2017
MAR10004S	Notice of Intent	Wilbraham, MA-Roadway Reconst & Related Work on a Section of Route 20 (Boston Rd	MA	Wilbraham	Active	4/4/2017	4/18/2017
MAR10004D	Notice of Intent	Main St. Bridge (S-21-002) Bridge Rehabilitation over the Quinebaug River	MA	Southbridge	Active	3/31/2017	4/14/2017
MAR10003X	Notice of Intent	Roadway Reconstruction and Related Work	MA	Wayland	Active	3/29/2017	4/12/2017

Appendix H: Maintenance Schedule Summary

		Activity Schedule					Permit Year 15 Statewide	
Drainage Asset	**Area/ Note**	**Mow**	**Sweep**	**Inspect**	**Clean**	**Repair**	**Was Schedule Met?**	**Comments**
	Maintenance Facilities/ Material Storage Yards	Annually	ANI	Annually	--	ANI	Yes	Some districts have the HazMat coordinator inspect monthly.
Roads	Roads/ Weigh Stations/ Rest Areas	Annually	Annually	Annually	--	ANI	Yes	Some districts perform maintenance on an as needed basis.
STORMWATER BMPS								
	Maintenance Facilities/ Material Storage Yards	--	--	Annually (after snow melt)	ANI	ANI	Yes	Maintenance and repairs done on an as needed basis.
Catch Basins	Roads/ Weigh Stations/ Rest Areas	--	--	Annually	ANI	ANI	Yes	
	Maintenance Facilities/ Material Storage Yards	Annually	--	Annually (after snow melt)	ANI	ANI	Yes	Not applicable to all Districts.
Extended Detention Basins	Roads/ Weigh Stations/ Rest Areas	Annually	--	Annually	ANI	ANI	Yes	Not applicable to all Districts. In one district roads only.
	Maintenance Facilities/ Material Storage Yards	--	--	Annually (after snow melt)	ANI	ANI	Yes	In one district, maintenance and repairs done on an as needed basis. Not applicable to all Districts.
Water Quality Swales (including dry swales, bio-filter swales, and wet swales)	Roads/ Weigh Stations/ Rest Areas	--	--	Annually	ANI	ANI	Yes	
	Maintenance Facilities/ Material Storage Yards	--	--	Annually (after snow melt)	ANI	ANI	Yes	
Sediment Forebays	Roads/ Weigh Stations/ Rest Areas	Twice per year	--	Annually	ANI	ANI	Yes	
Channel Systems		Annually	--	--	Annually	ANI	Yes	Not applicable to all Districts.
Outlet Sediment Traps		--	--	Annually	ANI	--	Yes	Not applicable to all Districts.
Vegetated Filters Strip		Annually	--	Annually	ANI	ANI	Yes	Not applicable to all Districts.
Wet Pond		--	--	Annually	ANI	ANI	Yes	Not applicable to all Districts.
Enhanced Wet Pond		--	--	Annually	ANI	ANI	Yes	Not applicable to all Districts.
Constructed Storm Water Wetlands		--	--	Annually	ANI	ANI	Yes	Not applicable to all Districts.
Recharge Basin		--	--	Twice per year	ANI	ANI	Yes	Maintenance and repairs done on an as needed basis.
Leaching Catch Basins		--		Annually	ANI	ANI	Yes	Maintenance and repairs done on an as needed basis.
Subsurface Recharge Systems		--	--	Twice annually	ANI	ANI	Yes	Not applicable to all Districts.
Recharge Trenches and Beds		--	--	Annually	ANI	ANI	Yes	Not applicable to all Districts
Recharge Dry Wells and Galleys		--	--	Annually	ANI	ANI	Yes	Not applicable to all Districts
Filter Systems		Regular Raking	--	Annually	Annually	ANI	N/A	None known
Sand Filters		--	--	Annually	ANI	ANI	N/A	None known
Organic Filters		--	--	Annually	ANI	ANI	N/A	None known
Water Quality Inlet		--	--	Annually	Annually	ANI	Yes	Not applicable to all Distrcits.
Flow Splitters		--	--	Annually	ANI	ANI	N/A	None known
Impoundment Structures		--	--	Annually	ANI	ANI	N/A	None known
Check Dams		--	--	Annually	ANI	ANI	Yes	Not all inspected, repaired and cleaned as needed in one district.

		Activity Schedule					Permit Year 15 Statewide	
Drainage Asset	**Area/ Note**	**Mow**	**Sweep**	**Inspect**	**Clean**	**Repair**	**Was Schedule Met?**	**Comments**
OTHER								
Oil/ Water Separators	Self-test alarm, if so equipped	--	--	Weekly	--	--	Yes	Maintenance and repairs done on an as needed basis.
Holding Tanks - UST	Gauge tank to determine if greater than 75% full.	--	--	Weekly	--	--	Yes	Some districts perform repairs/maintenance as needed or quarterly instead of weekly inpections (based on historic review and usage). Tanks Equipped with High-Level Alarms
Holding Tanks - AST	Gauge tank to determine if greater than 75% full.	--	--	Monitor and set appropriate schedule	--	--	Yes	
Septic System	Record water meter readings and report to DHC.	--	--	Quarterly	--	--	Yes	In one District cleaned annually.
NPDES Construction Site - Site Inspections		--	--	Weekly	--	--	Yes	Both by MassDOT and Construction Contractor as required by SWPPP.
NPDES Construction Site - Repair of erosion controls		--	--	Weekly	ANI	--	Yes	Both by MassDOT and Construction Contractor as required by SWPPP.
NPDES Construction Site - Cleaning of storm water structures		--	--	Weekly	ANI	--	Yes	Both by MassDOT and Construction Contractor as required by SWPPP.
District 3 Specific Maintenance Requirements								
Roads	Quinsigamond and Flint Pond Watershed Leesville Pond in Kettle Brook Sub-basin; Mill Brook Tributary Basin; and Monoosnoc Basin	Annually	Annually	Annually	--	ANI	Yes	
	Salisbury Pond Watershed	Annually	Annually	Annually	--	ANI	Yes	
Catch Basins	Roads within Quinsigamond and Flint Pond Sub-basin; Leesville Pond in Kettle Brook Sub-basin; Mill Brook Tributary Basin; and Monoosnoc Basin	--	--	6 months	ANI	ANI	Yes	
	Roads within Salisbury Pond Watershed	--	--	6 months	ANI	ANI	Yes	
Extended Detention Basins	Roads within Quinsigamond and Flint Pond Sub-basin; Leesville Pond in Kettle Brook Sub-basin; Mill Brook Tributary Basin; and Monoosnoc Basin	Annually	--	6 months	ANI	ANI	Yes	
	Roads within Salisbury Pond Watershed	Annually	--	6 months	ANI	ANI	Yes	
Water Quality Swales (including dry swales, bio-filter swales, and wet swales)	Roads within Quinsigamond and Flint Pond Sub-basin; Leesville Pond in Kettle Brook Sub-basin; Mill Brook Tributary Basin; and Monoosnoc Basin	--	--	6 months	ANI	ANI	Yes	
	Roads within Salisbury Pond Watershed	--	--	6 months	ANI	ANI	Yes	
Sediment Forebays	Roads within Quinsigamond and Flint Pond Sub-basin; Leesville Pond in Kettle Brook Sub-basin; Mill Brook Tributary Basin; and Monoosnoc Basin	--	--	6 months	ANI	ANI	Yes	
	Roads within Salisbury Pond Watershed	--	--	6 months	ANI	ANI	Yes	

ANI - As Needed per Inspection

N/A - Not Applicable

Appendix I: Public Well Supply Matrix and Salt Remediation Program

APPENDIX I

Property Owner	***Owner/Town***	***Address***	***Date of Initial Complaint***	***Last Data Point (mg/l)***	***General Comment Section***
Andover	Andover	Chris Cronin, Acting Director Department of Public Works 397 Lowell Street Andover, Ma 01810-4416 Telephone (978) 623-8350	2/22/2000	March 2018 Raw: Na=58.4, Finished: Na=68.4,	Poly style storage was constructed in 2001 where there previously was no outside storage from 1998 through 2001. Based on monthly sampling, the town requested a reduced salt zone along I-93 and I-495 and relocation of the salt storage shed via July 2004 correspondence. A section of I-495 and I-93 has been designated as a reduced salt zone (RSZ). The RSZ was first implemented in 2005-2006 winter season. A new salt shed at Andover River Road/I-93 was in use for the 2014/2015 winter season. I-93/I-495 has been decommissioned as an active depot. Since the 2015-2016 season, MassDOT snow & ice ops eliminated the RSZ and is piloting 200 lb/lane mile application rate in this area. Tailgate training for snow and ice personnel working in this area occurred on 11/23/2017.
Cambridge	Cambridge Reservoir	Timothy MacDonald, Director of Water Operations Cambridge Water Dept. 250 Fresh Pond Parkway Cambridge, MA 02138 (671) 349-4773	Regular monitoring began 1987	Octtober 2017 Hobbs Brook (at intake), Na=165, Cl=305 Stoney Brook (at intake) Na =125, Cl= 195 Fresh Pond(at intake) Na=107, Cl=218	Cambridge Reservoir is adjacent to Route 128 in the Towns of Lexington, Lincoln, Waltham, and Weston. There is a designated RSZ for this area covering 24.6 linear miles and 177.8 lane miles in the vicinity of the water supply covering sections of Routes 2, 2A and 128. Tailgate training for snow and ice personnel occurred on 10/21/2017 and 11/18/2017. In the 2017 Environmental Status and Planning Report MassDOT agreed to update the 1985 Hobbs Brook Reservoir Sodium Chloride Study.
Dedham/ Westwood	Dedham/ Westwood	Eileen Commane Executive Director Dedham-Westwood Water Dept. 50 Elm Street Dedham, MA 02027-9137 Telephone (781) 329-7090	File alluded to 3/7/88 correspondence from DWWD requesting MHD refrain from using salt along sections of Rt 128. 12/19/97 telecon b/w Sam Pollock and Mark Hollowell of Anderson-Nichols regarding DEP req'd monthly monitoring and concerns for White Lodge Well #5	March 2018 25, 2016 Well #5, Na = 136 Cl = 286	Concern is over a municipal well located to the north of I-95/Route 128 near University Avenue. The well is located in the Fowl Meadow Aquifer that recharges to White Lodge Well No. 5. Correspondence written in March 2004 indicated that we would monitor salt application. MassDOT with UMass has installed monitoring wells and stormwater outfall monitors to evaluate NaCl sources to Fowl Meadow. MassDOT and UMass had been conducting monthly sampling of the well network. The town contacted MassDOT following completion of the study in 2010 to request a RSZ. The results of a mass-balance study indicated that MassDOT's contribution of NaCl was 78%. On Dec 17, 2011 MassDOT held tailgate training at the Dedham depot, identified an overlap, and committed equipment with closed-loop controllers to this section of I-95. MassDOT has implemented improved BMPs, new technology and operational improvements in this watershed.By the end of 2017-2018 winter season all spreader vehicles in the DWWD are equipped with GPS/AVL and we can better track material usage and make real time adjustments if necessary. Tailgate training for snow and ice personnel occurred on 10/21/2017.

APPENDIX I

Property Owner	***Owner/Town***	***Address***	***Date of Initial Complaint***	***Last Data Point (mg/l)***	***General Comment Section***
North Chelmsford	North Chelmsford	Bruce J. Harper Superintendent North Chelmsford Water District 64 Washington Street PO Box 655 North Chelmsford, MA 01863-0655 Telephone (978) 251-3931	mid 1980s	March 6, 2018 # 1 Na=206, Cl=391 # 2 Na=105, Cl=186 # 3 Na=177, Cl=344 # 4 Na=190, Cl=375	There is a RSZ in East and North Chelmsford for 153 lane miles consisting of sections of Routes 3, 3A, 4 and Lowell Connector. High arch gambrel salt shed constructed in fall 2011. Tailgate training for snow and ice personnel occurred on 11/18/2017.
Auburn	Auburn	Kenneth R. Smith, Supt Auburn Water District P.O. Box 187 Auburn, MA 01501 (508)832-5336 ksmith@auburnwaer.com	7/2013	January 2018 Church 1 finished –Na= 237, Cl 461 Church 2 finished – Na=610, Cl 1066 Church 3 finished- Na= 225, Cl 423	Stream stage and conductivity data are being logged at six locations within Dark Brook Watershed. Runoff discharge and conductivity data for I-90 surface drainage outlet was logged as well due to a result of elevated sodium concentrations in their public water supply well. Tailgate training for snow and ice personnel occurred on 10/17/2017.
Middleboro	Middleboro	Joseph Silva, Water Superintendent Dept. of Public Works 48 Wareham Street Middleboro, MA (508) 946-2482	8/15/1989 & 2/91	February 2018 Miller Na=43.7 Cl=78.1 Rock 1 Na=59 Cl=104 Rock 2 Na =99.2, Cl=185 Tispaquin Na=94.9, Cl=163 East Grove Na=133, Cl=261	A meeting on March 20, 2006 between District 5 and Environmental Personnel discussed town wells and operational improvements. A letter was forwarded on March 29, 2006 to water district. MassDOT continues to implement RSZ in the area for 40 lane miles of Routes 28 and 495. A tailgate training session was held in Middleboro on November 21, 2013. A meeting between the town and MassDOT Ops/Env to discuss operation in the vicinity of the PWS wells held on January 24, 2014. Tailgate training for snow and ice personnel occurred on 11/5/2017.

APPENDIX I

Property Owner	*Owner/Town*	*Address*	*Date of Initial Complaint*	*Last Data Point (mg/l)*	*General Comment Section*
Wilmington	Wilmington	Shelly Newhouse, R.S. Director of Public Health 12 Glen Road, Wilmington, MA 01887 (978) 658-4298	4/29/2005 & 10/19/2011	March 2018 Browns Crossing (raw) Na=141, Cl=370 Barrows (raw) Na=165, Cl=438	Wilmington applied for RSZ in 2005 but MassDOT was not the primary source. The town reached out to MassDOT in 2011 with concerns regarding elevated sodium in their PWS. MassDOT sent a letter to Wilmington in December 2011 and explained that improved BMPs, new technology and operational improvements, should lead to a significant reduction of NaCl without a RSZ. Due to the highly developed area MassDOT expressed to the town that they should explore BMPs to address NaCl concentrations. Tailgate training in January discussed the BMPs. On March 15, 2012 a meeting was held with the BOH, MassDOT, and MassDEP to discuss their concerns. MassDOT agreed to improved BMPs and to a follow up meeting in the fall. MassDEP expressed that BMPs seem appropriate and should be given an opportunity to work. Despite MassDOT's efforts, they submitted another request for a RSZ. A meeting was held with the Wilmington and DEP on Nov 26, 2012 and MassDOT held tailgate training on December 8, 2012 to discuss BMPs. Another meeting between the town, DEP and MassDOT was held on November 19, 2013. Tailgate training for snow and ice personnel occurred on 11/23/2017.

Appendix J: TMDL Review Table

Basin/TMDL Name	Pollutant of Concern	WLA Included	MassDOT relevant BMP recommendation included?	If yes, what are the recommendations?	How is MassDOT currently meeting these recommendations or how does MassDOT plan to meet them in the future?
Allen, Wychmere & Saquatucket Harbors	Nitrogen	Yes	Yes	TMDL states that runoff from impervious surfaces is a negligible source of nitrogen load to the embayments when compared to other sources. The TMDL suggests that compliance with MS4 permit requirements will contribute to the goal of reducing the nitrogen load for Allen, Wychmere, and Saquatucket Harbors watersheds.	MassDOT will continue to comply with its Stormwater Management Plan under the NPDES MS4 Permit.
Blackstone River/ Final TMDLs of Phosphorus for Indian Lake (BMP 7K)	Phosphorus	Yes	Yes	TMDL suggests that MassDOT implement the following: 1. Reduce impervious surfaces, institute increased street sweeping and catch basin cleaning; install detention basins, etc. 2. Comply with a new Phase II Stormwater discharge permit. In addition, the Regional DEP office in Worcester has submitted a written request to the Regional office of MassDOT to give the roads in the Mill Brook drainage area (including parts of Indian Lake Watershed) priority for increased Best Management Practices such as sweeping and catch basin cleaning.	MassDOT's Impaired Waters Program assessments include the review of the need for BMPs to address the TMDL. MassDOT has received authorization from EPA to discharge stormwater under the general permit for discharges in this watershed.
Blackstone River/ Final TMDLs of Phosphorus for Lake Quinsigamond and Flint Pond **(BMP 7P)**	Phosphorus	Yes	Yes	1. MassDOT should begin the Storm Water Management Plans required under Phase II to reduce discharge of pollutants to the "maximum extent practicable." 2. MassDOT will also be required to apply for the EPA Phase II General Stormwater NPDES Permit by March 10 of 2003. 3. The regional office of MassDOT has offered to target high priority watersheds in the region of higher frequency of BMPs and maintenance. 4. Visually inspect the roads monthly and sweep as needed. At a minimum, roads must be swept at least twice a year as soon after snowmelt as possible or by April 1st of each year and again in the fall 5. Inspect catch basins at least twice a year and any other settling or detention basins once a year to measure depth of solids. If solids are one half or more of design volume for solids, then completely remove all solids 6. Inspect and maintain all structural components of stormwater system on a yearly basis 7. Develop methodology to calculate loadings from highways 8. Conduct pilot project to assess loadings and test BMPs on highways 9. Initiate twice yearly sweeping and catch basin inspection and cleaning program along I-290 and other roadways. Install additional BMPs as needed to address pollutant loadings identified above.	MassDOT has received authorization from EPA to discharge stormwater under the general permit for discharges in this watershed. MassDOT's Impaired Waters Program includes the review of the need for BMPs to address the TMDL. District 3 has agreed to increased maintenance schedule within this watershed In a letter written to DEP and dated June 19, 2002, District 3 committed to an increased schedule of inspection of catch basins every six months, with cleaning as determined necessary in inspections, and annual sweeping of roads in this watershed Projects are reviewed through MassDOT's Impaired Waters Program and the assessment methods have been developed and reviewed with EPA. See response above (#7) See response above (#4) regarding CBs. MassDOT's Impaired Waters Program includes the review of the need for BMPs to address the TMDL.
Blackstone River/ Final TMDLs of Phosphorus for Leesville Pond **(BMP 7L)**	Phosphorus	Yes	Yes	TMDL suggests that: 1. MassDOT should conduct loading study and develop methodology to calculate loadings from highways 2. MassDOT and towns of Auburn, Leicester, Paxton, and Millbury and City of Worcester should initiate twice yearly sweeping and catch basin inspection and cleaning program along I-290 and other roadways and install additional BMPs as needed to address pollutants loadings identified above. 3. MassDOT and towns of Auburn, Leicester, Paxton and Millbury should prepare Storm Water Management Plan for Phase II. 4. MassDOT and town or city Dept of Public Works should reduce impervious surfaces, institute street sweeping program, catch basin cleaning, install detention basin, etc	USGS performed a loading study for MassDOT. The results have been used in the SELDM FHWA/ USGS model. Projects are reviewed through MassDOT's Impaired Waters Program and the assessment methods have been developed for the program and reviewed with the EPA. MassDOT District 3 has committed to an increased schedule of inspection of catch basins every six months, with cleaning as determined necessary in inspections, and annual sweeping of roads in this watershed. District 3 has committed to inspection and cleaning, if necessary, of all sumped drainage structures twice a year and more often if necessary; inspection/ cleaning of drainage outlet locations where sediment build up is evident; and inspection and repair of damaged and/or clogged drainage conveyances. MassDOT's Impaired Waters Program will include the review of the need for BMPs to address the TMDL. MassDOT has received authorization from EPA and DEP to discharge stormwater under the general permit for discharges in this watershed. See response above (#2)
Blackstone River/ TMDLs of Phosphorus for Selected Northern Blackstone Lakes (BMP 7N)	Phosphorus	Yes	Yes	TMDL suggests that MassDOT should regulate road sanding, salting, regular sweeping, and installation of BMPs (for these impaired waterbodies).	MassDOT regulates road sanding and salting through its Snow and Ice Program and the procedures approved in the GEIR. Roads are swept on an annual basis after winter deicing applications.

Basin/TMDL Name	Pollutant of Concern	WLA Included	MassDOT relevant BMP recommendation included?	If yes, what are the recommendations?	How is MassDOT currently meeting these recommendations or how does MassDOT plan to meet them in the future?
Blackstone River/ Final TMDLs of Phosphorus for Salisbury Pond **(BMP 7O)**	Phosphorus	Yes	Yes	TMDL indicates that: 1. MassDOT should develop methodology to calculate loadings from highways and conduct pilot projects to assess loadings and test BMPs on highways. 2. MassDOT and town or city Dept. Public Works should reduce impervious surfaces, institute more frequent street sweeping and catch basin cleaning, install detention basin, dredge and maintain stormwater detention basin, etc. 3. MassDOT will also be required to apply for the EPA Phase II General Stormwater NPDES Permit by March 10 of 2003.	USGS performed a loading study for MassDOT. The results were used in the SELDM FHWA/ USGS model. Projects are reviewed through MassDOT's Impaired Waters Program and the assessment methods were developed for that program and reviewed with EPA. MassDOT has committed to DEP in its January 23, 2002 letter that streets will be swept at least once a year (usually in spring) and more often if necessary. All sumped drainage structure will be inspected and cleaned, if necessary, twice a year and more often if necessary. MassDOT will inspect/ clean drainage outlet locations where sediment build-up is evident. MassDOT will inspect and repair damaged and/ or clogged drainage conveyances. MassDOT has received authorization from EPA and DEP to discharge
Boston Harbor/ Final TMDLs of Bacteria for Neponset River Basin (BMP7Q)	Bacteria	Yes	Yes	Regulated municipalities should prepare Storm Water Management Plans for Phase II.	MassDOT has received full authorization to discharge under the general permit and continues to respond to EPA suggestions in finalizing their Storm Water Management Plans.
Addendum: Final TMDL of Bacteria for Neponset River Basin (CN 121.5)	Bacteria	Yes	No	--	--
Buzzards Bay/Final TMDL of Total Phosphorus for White Island Pond	Phosphorus	Yes	No	--	--
Cape Cod/ Final Lagoon Pond TMDLs for Total Nitrogen	Total Nitrogen	Yes	No	--	--
Cape Cod/ Final Nutrient TMDL for Centerville River/East Bay	Total Nitrogen	Yes	No	--	--
Cape Cod /Final Nitrogen TMDL for Little Pond	Total Nitrogen	Yes	No	--	--
Cape Cod/ Final Nitrogen TMDL for Oyster Pond	Total Nitrogen	Yes	No	--	--
Cape Cod/ Final Nitrogen TMDL for Phinneys Harbor	Total Nitrogen	Yes	No	--	--
Cape Cod/Final Nitrogen TMDL for Pleasant Bay System	Total Nitrogen	Yes	No	--	--
Cape Cod/Final Nitrogen TMDL Report for Five Sub-Embayments of Popponesset Bay	Total Nitrogen	Yes	No	--	--
Cape Cod/Final Nitrogen TMDL Report for the Quashnet River, Hamblin Pond, Little River, Jehu Pond, and Great River in the Waquoit Bay System	Total Nitrogen	Yes	No	--	--
Cape Cod/Final Pathogen TMDL for the Three Bays Watershed	Pathogens	Yes	Yes	The Massachusetts Highway Department should determine the Route 28 roadway drainage area discharging to the Marstons Mills River and install best management structures and/or operational practices to the maximum extent practicable and at a minimum, be designed to meet the water quality standard for bacteria in SA waters. Given this is a waterway with an approved TMDL, the MHD must meet the requirements of EPA's NPDES General Permit for Stormwater Discharges from Small MS4s (Phase II0, Part ID(1-4), as it pertains to approved TMDLs. Infiltration structures and devices that have been installed to control the road runoff from Route 28 into the Martsons Mills River should be inspected to determine their performance and condition. MassDOT should also continue to identify and implement to the maximum extent practicable best management practices so that the water quality standard for bacteria in SA waters is met.	MassDOT has completed the statewide review of TMDL watersheds for the need for additional BMPs to meet the TMDL recommendations. If additional BMPs were identified, they have been or will be included in future construction projects. MassDOT has completed the statewide review of TMDL watersheds for MassDOT has completed the statewide review of TMDL watersheds for additional BMPs were identified, they have been or will be included in future construction projects.

Basin/TMDL Name	Pollutant of Concern	WLA Included	MassDOT relevant BMP recommendation included?	If yes, what are the recommendations?	How is MassDOT currently meeting these recommendations or how does MassDOT plan to meet them in the future?
Cape Cod/Final Pathogen TMDL Report for the Cape Cod Watershed	Pathogens	Yes	No	1. Development of comprehensive stormwater management programs, particulary in close proximity to each embayment, inlcuding identification and implementation of BMPs 2. Illicit discharge detection and elimination (where applicable).	MassDOT has completed the statewide review of TMDL watersheds for the need for additional BMPs to meet the TMDL recommendations. If additional BMPs were identified, they have been or will be included in future construction projects. MassDOT has reviewed outfalls for potential illicit discharges and found that the linear nature of their roads leads to minimal chances for illicit connections. MassDOT has focused on education of staff and following up on potential illicit connections and focusing reviews on sensitive receiving waters. MassDOT is currently prioritizing watersheds for focused illicit discharge review. Remaining potential pollution sources to Oyster Pond are believed to be several large stormwater discharges discharging into the east end of the pond. These stormwater discharges drain from Route 28, and Main St. MassDOT has plans to fix the problems coming off Route 28, and the Town of Chatham has performed engineering projects to eliminate/treat the stormwater components coming off Main St.
Approval of the Pathogen TMDL Addendum for the Cape Cod Watershed	Bacteria	Yes	No	--	--
Cape Cod Final Nitrogen TMDL Report for the Three Bays System	Total Nitrogen	Yes	No	--	--
Cape Cod/Final Nitrogen TMDL for West Falmouth Harbor	Total Nitrogen	Yes	No	--	--
Cape Cod/Final Nitrogen TMDL Report for Five Chatham Embayments (Stage Harbor, Sulphur Springs, Taylors Pond, Bassing Harbor and Muddy Creek)	Total Nitrogen	Yes	No	--	--
Cape Cod /Final TMDL Report of Bacteria for Frost Fish Creek, Chatham (BMP7F)	Bacteria	Yes	Yes	The Massachusetts Highway Department should determine the Route 28 roadway drainage discharging to Frost Fish Creek and install best management structures and/or operational practices to the maximum extent practicable with a goal of meeting the water quality standard for bacteria in SA waters. Given this is a waterway with an approved TMDL, MassDOT must meet the requirements of EPA's NPDES General Permit for Stormwater Discharges from small MS4s (Phase II), Part i D(1-4), as it pertains to approved TMDLs." MassDEP has not deferred to the Route 28 reconstruction project since we do not have any information about the extent or the time schedule for it. MassDEP also suggests that the MassDOT Dept. work with the Town of Chatham to work out a reasonable schedule for these activities.	MassDOT has completed the statewide review of TMDL watersheds for the need for additional BMPs to meet the TMDL recommendations. If additional BMPs were identified, they have been or will be included in future construction projects.
Cape Cod/Final TMDLs of Nitrogen for Great, Green, and Bournes Pond Embayment Systems	Total Nitrogen	Yes	No	--	--
Cape Cod/ Final TMDL Report of Bacteria for Muddy Creek, Chatham (BMP 7G)	Bacteria	Yes	Yes	The Massachusetts Highway Department should determine the Route 28 roadway drainage discharging to Muddy Creek and install best management structures and/or operational practices to the maximum extent practicable with a goal of meeting the water quality standard for bacteria in SA waters. Given this is a waterway with an approved TMDL, the MHD must meet the requirements of EPA's NPDES General Permit for Stormwater Discharges from small MS4s (Phase II), Part i D(1-4), as it pertains to approved TMDLs." MassDEP has not deferred to the Route 28 reconstruction project since we do not have any information about the extent or the time schedule for it. MassDEP also suggests that the MassDOT Dept. work with the Town of Chatham to work out a reasonable schedule for these activities.	MassDOT has completed the statewide review of TMDL watersheds for the need for additional BMPs to meet the TMDL recommendations. If additional BMPs were identified, they have been or will be included in future construction projects. The Route 28 culvert over the Muddy Creek has been replaced through a project funded my Massachusetts Department of Environmental Restoration. The new roadway crossing eliminated the tidal restriction and included leaching basins to treat stormwater discharge before entering Muddy Creek. This project has implemented all improvements feasible to improve water quality of Muddy Creek as it relates to Route 28.
Charles River/Final Phosphorus TMDL Report for the Lower Charles River Basin	Total Phosphorus	Yes	Yes	TMDL suggests MassDOT: 1. Collect source monitoring data and additional drainage area information to better target source areas for controls and evaluate the effectiveness of on-going control practices. 2. Enhance existing stormwater management programs to optimize reductions in nutrient loadings with initial emphasis on source controls and pollution prevention practices.	MassDOT's Impaired Waters Program includes the review of the need for BMPs to address the TMDL.
Charles River/ Final Pathogen TMDL Reports for the Charles River Watershed	Pathogens	Yes	Yes	--	--

Basin/TMDL Name	Pollutant of Concern	WLA Included	MassDOT relevant BMP recommendation included?	If yes, what are the recommendations?	How is MassDOT currently meeting these recommendations or how does MassDOT plan to meet them in the future?
Charles River/ TMDL for Nutrients in the Upper/Middle Charles River	Phosphorus	Yes	Yes	TMDL suggests MassDOT: 1. Collect source monitoring data and additional drainage area information to better target source areas for controls and evaluate the effectiveness of on-going control practices. 2. Enhance existing stormwater management programs to optimize reductions in nutrient loadings with initial emphasis on source controls and pollution prevention practices.	MassDOT's Impaired Waters Program assessments includes the review of the need for BMPs to address the TMDL.
Chicopee River/Final TMDLs of Phosphorus for Quaboag and Quacumquasit Ponds	Total Phosphorus	Yes	es	The TMDL suggests that MassDOT: 1. Regulate road sanding, salting, regular sweeping, and installation of BMPs. 2. Perform roadway sweeping and catch basin inspection/cleaning twice a year. 3. MH along with the town of Spencer, control nonpoint source pollution targeting for State Routes 9, 31 and 49 by requiring roadway sweeping and catch basin inspection/cleaning twice a year or other approved BMPs. 4. MH and the town of Spencer must maintain or improve all existing BMPs or the permittee may install infiltration or other BMPs and document a total reduction of 29% of the total phosphorus loading to receiving waters to control the stormwater discharges within the watershed. To do this, MH and the town of Spencer must either conduct roadway sweeping in the spring and fall combined with annual catch basin inspection and cleanout to restore 80% or more of the solids storage volume anytime the available solids storage volume is less than 50%.	MassDOT regulates road sanding and salting through its Snow and Ice Program and the procedures approved in the GEIR. Roads are swept on an annual basis after winter deicing applications. MassDOT's Impaired Waters Program will include the review of the need for BMPs to address the TMDL. MassDOT has proposed a catch basin inspection and maintenance record system in its SWMP (BMP 6C-4). MassDOT has very limited maintenance budgets and staff, therefore we feel that the cost-effectiveness, and necessity of cleaning catch basins twice per year should be closely evaluated rather than arbitrarily set. MassDOT has proposed a catch basin inspection and maintenance record system in its SWMP (BMP 6C-4). MassDOT has very limited maintenance budgets and staff, therefore we feel that the cost-effectiveness, and necessity of cleaning catch basins twice per year should be closely evaluated rather than arbitrarily set. MassDOT's Impaired Waters Program assessments include the review of the need for BMPs to address the TMDL.
Chicopee River /Final TMDLs of Phosphorus for Selected Chicopee Basin Lakes **(BMP 7H)**	Phosphorus	Yes	No	TMDL suggests MassDOT should regulate road sanding, salting, regular sweeping, and installation of BMPs for these ponds.	MassDOT regulates road sanding and salting through its Snow and Ice Program and the procedures approved in the GEIR. Roads are swept on an annual basis after winter deicing applications. MassDOT's Impaired Waters Program will include the review of the need for BMPs to address the TMDL.
Connecticut River/ Final TMDLs of Phosphorus for Selected Connecticut Basin Lakes **(BMP 7I)**	Phosphorus	Yes	No	TMDL suggests MassDOT and towns should develop Storm Water Management Plans for Phase II NPDES and initiate additional BMPs in critical areas. MassDOT should regulate road sanding, salting, regular sweeping, and installation of BMPs	MassDOT regulates road sanding and salting through its Snow and Ice Program and the procedures approved in the GEIR. Roads are swept on an annual basis after winter deicing applications. MassDOT' s Impaired Waters Program will include the review of the need for BMPs to address the TMDL
Edgartown Great Pond	Total Nitrogen	Yes	No	--	--
Farm Pond Estuarine System	Total Nitrogen	Yes	No	--	--
Final Pathogen TMDL for the Buzzards Bay Watershed	Pathogens	Yes	Yes	Development of comprehensive storm water management programs including identification and implementation of BMPs. Bacteria Source Tracking: TMDL identifies potential sources of bacteria as illicit sewer connections and stormwater runoff, among others. Recommendations are to prioritize dry weather bacteria source tracking. Further recommendations include evaluating impaired waterbody segments for BMPs starting with intensive application of less costly non- structural practices such as street sweeping and monitoring of their success.	MassDOT has completed the statewide review of TMDL watersheds for the need for additional BMPs to meet the TMDL recommendations. If additional BMPs were identified, they have been or will be included in future construction projects. MassDOT has reviewed outfalls for potential illicit discharges and found that the linear nature of their roads leads to minimal chances for illicit connections. MassDOT has focused on education of staff and following up on potential illicit connections and focusing reviews on sensitive receiving waters. MassDOT is currently prioritizing watersheds for focused illicit discharge review.
Final Pathogen TMDL for the North Coastal Watershed	Bacteria	Yes	No	--	--
Final Pathogen TMDL for the Taunton River Watershed	Bacteria	Yes	No	--	--

Basin/TMDL Name	Pollutant of Concern	WLA Included	MassDOT relevant BMP recommendation included?	If yes, what are the recommendations?	How is MassDOT currently meeting these recommendations or how does MassDOT plan to meet them in the future?
French River/ Final TMDLs of Phosphorus for Selected French Basin Lakes **(BMP 7J)**	Phosphorus	Yes	Yes	TMDL suggests: 1. MassDOT conduct loading study and develop methodology to calculate loadings from highways. 2. MassDOT and local towns should initiate twice yearly sweeping and catch basin inspection and cleaning program along MassDOT I-395, and other roadways. 3. MS4s should install additional BMPs as needed to address pollutant loadings identified above. 4. MassDOT and the towns of Charlton, Leicester and Oxford should prepare Storm Water Management Plans for Phase II. (implementation activity specific to these impaired waterbodies) 5. MassDOT should regulate road sanding, salting, regular sweeping, and installation of BMPs (implementation activity specific to these impaired waterbodies).	USGS performed a loading study for MassDOT. The results will be used in the FHWA/ USGS model when updated. Projects will be reviewed through MassDOT's Impaired Waters Program and the assessment methods developed for that program and reviewed with EPA. MassDOT has proposed a catch basin inspection and maintenance record system in its SWMP (BMP 6C-4). MassDOT has very limited maintenance budgets and staff, therefore we feel that the cost-effectiveness, and necessity of cleaning catch basins twice per year should be closely evaluated rather than arbitrarily set. A summary of maintenance activities across the state is included as Appendix E of the annual report. MassDOT's Impaired Waters Program includes the review of the need for BMPs to address the TMDL. MassDOT has received full authorization to discharge under the general permit and continues to respond to EPA suggestions in finalizing their Storm Water Management Plans. MassDOT regulates road sanding and salting through its Snow and Ice Program and the procedures approved in the GEIR. Roads are swept on an annual basis after winter deicing applications. MassDOT will review projects within this watershed for opportunities to include additional BMPs within proposed projects if MassDOT determines they will help address the pollutant loading issue. MassDOT believes that the most cost-effective approach to improving stormwater quality is to focus on source control measures, rather than end-of-pipe BMPs. Two important examples include reducing winter road sand application rates, and stabilizing shoulder areas that erode onto road surfaces. Source reduction measures are described in this NPDES Stormwater Management Plan.
Herring River	Nitrogen	Yes	Yes	TMDL states that runoff from impervious surfaces is a negligible source of nitrogen load to the river when compared to other sources. The TMDL suggests that compliance with MS4 permit requirements will contribute to the goal of reducing the nitrogen load for the Herring River Estuarine System.	MassDOT will continue to comply with its Stormwater Management Plan under the NPDES MS4 Permit. MassDOT has designed and is planning to construct a stormwater BMP (water quality swale) to treat direct discharges to the Herring River from Route 6 at the Route 6/Herring River crossing. Construction is scheduled to begin in the Fall of 2017.
Lewis Bay and Halls Creek System	Total Nitrogen	Yes	No	--	--
Madaket Harbor and Long Pond Estuarine system	Total Nitrogen	Yes	No	--	--
Millers River/Final TMDLs of Phosphorus for Selected Millers River Basin Lake (BMP 7M)	Phosphorus	Yes	Yes	TMDL suggests that MassDOT should better manage road sanding, salting, regular sweeping, and installation of BMPs (specific to these impaired waterbodies).	MassDOT's Impaired Waters Program includes the review of the need for BMPs to address the TMDL.
Multi-State /Final Bacteria and Total Phosphorus TMDL Report for the Kickemuit River (Rhode Island-Massachusetts)	Bacteria, Phosphorus	Yes	Yes	MassDOT will need to comply with MS4 regulations. Phase II Stormwater Management Plans submitted and general permits as required which include six minimum measures and prioritization of outfalls for BMP construction. MassDOT needs educational programs on pollution prevention and good housekeeping practices.	MassDOT has received full authorization to discharge under the general permit. The NOI submitted with the application for coverage includes many educational programs on pollution prevention and good housekeeping practices. MassDOT and EPA continue to work together to finalize the programs included in the Storm Water Management Plan.
Multi-State/ Northeast Regional Mercury Total Maximum Daily Load	Mercury	Yes	No	--	--
Approval of the Northeast Regional Mercury TMDL: Addendum for Massachusetts	Mercury	Yes	No	--	--
Nantucket Harbor	Nitrogen	Yes	No	--	--
Narragansett Bay/ Final Bacteria TMDL for Palmer River Basin	Bacteria	Yes	No	--	--
Narragansett Bay/Final Pathogen TMDL for the Narragansett/Mt. Hope Bay Watershed	Pathogen	Yes	No	Segments that remain impaired during wet weather should be evaluated for stormwater BMP implementation opportunities starting with less costly non-structural practices first (such as street sweeping, and/or managerial approaches using local regulatory controls), and lastly, more expensive structural measures. Structural stormwater BMP implementation may require additional study to identify cost efficient and effective technology.	MassDOT's Impaired Waters Program includes the review of the need for BMPs to address impaired waters potentially impacted by MassDOT urban area roads.
Nashua River/ Final TMDL for Bare Hill Pond	Nuisance Aquatic Plants	Yes	No	--	--

Basin/TMDL Name	Pollutant of Concern	WLA Included	MassDOT relevant BMP recommendation included?	If yes, what are the recommendations?	How is MassDOT currently meeting these recommendations or how does MassDOT plan to meet them in the future?
Sengekontacket Pond Estuarine System	Total Nitrogen	Yes	No	--	--
Shawsheen River/Final TMDLs of Bacteria for Shawsheen River Basin	Bacteria	Yes	No	--	--
South Coastal/ Final Pathogen TMDL for the South Coastal Watershed	Pathogens	Yes		Development of comprehensive storm water management programs including public education and participation, illicit discharge detection and elimination, construction and post construction runoff control, and pollution prevention/good housekeeping. MassDOT is not specifically identified and the focus is instead on the municipalities within the watershed.	MassDOT has received full authorization to discharge under EPA's NPDES MS4 general permit. MassDOT's Storm Water Management Program (SWMP) includes comprehensive measures for each of the six minimum control measures. MassDOT's Impaired Waters Program includes the review of the need for BMPs to address impaired waters potentially impacted by MassDOT urban area roads.
South Coastal/ Final TMDLs of Bacteria for Little Harbor, Cohasset	Fecal Coliform	Yes	No	--	--
SuAsCo/Assabet River TMDL for Total Phosphorus	Phosphorus	Yes	No	--	--
SuAsCo/ Final TMDLs of Phosphorus for Lake Boon (Boons Pond)	Phosphorus	Yes	No	--	--

Appendix K: - Environmental Compliance Audit Checklist

massDOT
Massachusetts Department of Transportation

ENVIRONMENTAL COMPLIANCE AUDIT CHECKLIST

Facility Information

Facility Name:_____

Address:_____

City, State, Zip:_____

Facility Representative:_____

Title:_____

Telephone: _____

Fax: _____

Auditing Information

Date of Audit:_____

Auditor:_____

Signature:_____

Environmental Compliance Coordinator:_____

Persons Interviewed:_____

Inaccessible Areas:_____

General Comments:_____

Regulated Activities

- ☐ Vehicle Fueling
- ☐ Vehicle Washing
- ☐ Wastewater Recycling System
- ☐ Industrial Wastewater Discharge
- ☐ Oil Water Separator
- ☐ Industrial Wastewater Holding Tank
- ☐ Waste Oil Generation
- ☐ RCRA Hazardous Waste Generation
- ☐ Universal Waste Generation
- ☐ Hazardous Materials Use/Storage
- ☐ Solid Waste Accumulation
- ☐ On-Site Sewage Disposal
- ☐ On-Site Drinking Water Well
- ☐ Natural Resources: ☐ wetlands
- ☐ Riverfront Area
- ☐ USTs ☐ ASTs
- ☐ MCP Site
- ☐ Existing Clean State Matters
- ☐ AULs
- ☐ Other:_____

Facility Operations

- ☐ Vehicle/Equipment Maintenance
- ☐ Highway Maintenance Support / Staging
- ☐ Snow/Ice Operations
- ☐ Stockroom
- ☐ District Offices
- ☐ Other:_____

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SECTION 1: HAZARDOUS WASTE (310 CMR 30.000 and SOP ENV-03)

YES	NO	N/A		Citation
			Verification of Generator Status (310 CMR 30.060 and 30.303)	
			Has the facility registered as a Generator of Hazardous Waste and/or Waste Oil? Generator ID No: _____	30.303(1)
			Facility Hazardous Waste Generator Status: ☐ **VSQG** ☐ **SQG** Facility Waste Oil Generator Status: ☐ **VSQG** ☐ **SQG**	SQG 30.351(1) VSQG 30.353(1) Waste Oil 30.253(5)
			Is the registered generator status appropriate? VSQG <100 kg/month (~25 gal/month) or SQG <1000 kg/month (~250 gal/month). Review manifests for confirmation.	SQG 30.351(1)(a) VSQG 30.353(1)(a)
			Have appropriate hazardous waste determinations been made for wastes generated at the facility?	30.302
			Verification of the Accumulation Limits	
			If the facility is a VSQG, is the facility within its accumulation limit (<1,000 kg or approximately 250 gallons) of hazardous waste/waste oil?	30.353(1)(b)
			If the facility is an SQG, are there fewer than twenty-seven 55-gallon drums (6,000 kg or approximately 1,500 gallons) of hazardous waste/waste oil at the facility?	30.351(1)(b)
			IF the facility has DUAL STATUS (e.g. VSQG of hazardous waste and SQG of waste oil), are the quantities of hazardous waste and waste oil stored at the facility below the maximum allowed for each status? (e.g. < 4 drums of hazardous waste and < 27 drums of waste oil)	30.253(5)
			Waste Container Management (310 CMR 30.253; 30.351; 30.353)	
			Are all hazardous waste containers in good condition? (Note any dents, rust, or damage)	SQG: 30.351(8)(b) VSQG: 30.353(6)(g)
			Are all hazardous waste containers tightly closed (bungs sealed and bolt ring secured, except when adding/removing waste)?	SQG: 30.351(8)(b) VSQG: 30.353(6)(g)
			Are all hazardous waste containers labeled with the words "Hazardous Waste"?	SQG: 30.351(8)(a) VSQG: 30.353(6)(g)
			Do the labels identify the waste (acetone, toluene, etc.)?	SQG: 351(8)(a) VSQG: 30.353(6)(g)
			Is the waste hazard type (toxic, ignitable, corrosive, and/or reactive) included on each label?	SQG: 30.351(8)(a) VSQG: 30.353(6)(g)
			If the facility is a Small Quantity Generator (SQG), is the date when accumulation began clearly marked on the container label?	30.351(5)
			Is the accumulation time within regulatory limits? (180-days for SQGs)	30.351(5) and (6)
			Are containers compatible with the waste being accumulated?	SQG: 30.351(8)(b) VSQG: 30.353(6)(g)
			Are containers of hazardous waste stored in the designated accumulation area?	SQG: 30.351(8)(a) VSQG: 30.353(6)(h)
			Hazardous Waste Accumulation Areas (310 CMR 30.253; 30.351; 30.353)	
			If the facility maintains a Hazardous Waste Accumulation Area:	
			Is the accumulation area secured to prevent unauthorized entry?	SQG: 30.351(8)(a) VSQG: 30.353(6)(h)
			Is the accumulation area adequately demarcated? (e.g., visible line on floor and only hazardous waste stored therein)?	SQG: 30.351(8)(a) VSQG: 30.353(6)(h)
			Is the accumulation area located on a surface free of cracks/gaps and is impervious to the hazardous wastes being stored, or is secondary containment in use?	SQG: 30.351(8)(b) VSQG: 30.353(6)(h)
			Is the accumulation area labeled as "HAZARDOUS WASTE" with lettering at least 1-inch high?	SQG: 30.351(8)(a) VSQG: 30.353(6)(h)
			Is Emergency Information/Contact List posted at the facility phone?	SQG: 30.351(9)(c)(6)
			Is emergency equipment (spill, fire, etc.) located nearby?	SQG: 30.351(9)(c)(3)
			Is secondary containment in use where required (e.g., if located outside)?	SQG: 30.351(8)(b) VSQG; 30.353(6)(h)
			Is the accumulation area in good order (e.g minor spills cleaned up, waste oil drip pans & buckets emptied into waste oil drum)?	SQG: 30.351(8)(b) VSQG; 30.353(6)(h)
			Does the accumulation area have adequate aisle space between drums to allow for inspections of the containers? Does aisle spacing for ignitable or reactive waste meet NFPA requirements?	SQG: 30.351(8)(b)

SECTION 1: HAZARDOUS WASTE (CONT'D)

YES	NO	N/A		Citation
			If the facility does NOT maintain a Hazardous Waste Accumulation Area:	
			Is the waste transported to a designated facility on the day of generation or within 3 days of filling a container?	VSQG: 30.353(6)(i)
			Hazardous Waste Satellite Accumulation Areas (310 CMR 30.253; 30.351; 30.353):	
			If the facility maintains a Satellite Hazardous Waste Accumulation Area:	SQG: 30.351(4) VSQG: 30.353(6)(i)
			Is there only one drum/container for each waste type? (limit one container up to 55-gallons)	See above
			Is the satellite accumulation area at or near the waste's point of generation?	See above
			Is the satellite accumulation area managed by the person responsible for the area/operations generating the waste?	See above
			Are container labels complete? (e.g. "Hazardous Waste," type of waste, & hazard associated with waste)	See above
			Are wastes moved to the accumulation area or shipped within 3 days of the satellite container becoming filled?	See above
			Are containers compatible with the waste?	See above
			Are containers closed when not adding/removing waste?	See above
			Is secondary containment in use where required/warranted? (e.g., if located outside)	See above
			Are containers in good condition?	See above
			If the facility is an SQG, are weekly inspections conducted and any problems fixed?	See above
			Hazardous Waste Recordkeeping (310 CMR 30.253; 30.351; 30.353; 30.310; 30.330; 30.750)	
			All Hazardous Waste Generators:	
			If SQG, are weekly inspection records of the hazardous waste and satellite accumulation areas maintained? (One Year)	30.351(8)(b)
			If the facility is a VSQG and self-transports hazardous waste:	
			Is a receipt received from the destination facility and on file?	30.353(7)
			If the facility does NOT self-transport hazardous waste (VSQG, SQG):	
			Are hazardous waste manifests used when shipping hazardous wastes?	30.311(1)
			Are manifest records maintained for three years?	30.331(1)
			Has the facility received all return copies of manifests from receiving facilities and maintained for 3 years?	30.331(1)
			Is the hazardous waste generator ID number properly written on each manifest?	30.311(1)
			If the facility has not received a return copy of a manifest from the disposal facility in 45 days, has the facility filed an Exception Report and are these Exception Reports maintained for 3 years?	30.333(1) and (2) 30.331(3)(b)
			Are copies of Land Ban Certifications completed and maintained for 3 years?	40 CFR 268.7
			Did the manifests reviewed demonstrate that the facility is appropriately disposing of all waste to only licensed facilities via licensed transporters?	30.311(2) and (3)
			If SQG of Hazardous Waste or Waste Oil:	
			Has the facility made an attempt to notify the police department, fire department, local board of health, and emergency response teams as to the facility layout, the hazards associated with the wastes, location of the hazards, and possible emergency evacuation routes? (e.g., with a signed and dated letter)	30.351(9)(j) and (k)
			Are applicable employees trained as to their duties related to hazardous waste handling?	30.351(9)(g)
			Universal & Special Waste (310 CMR 30.1000 and ENV-07)	
			Universal Waste Batteries (skip subsection if not generated)	
			Are universal waste batteries stored in a container or other manner suitable for preventing/containing possible leakage? (This is only required if there is evidence of leakage, spillage, or damage that could cause leakage.)	30.1034(1)
			Is battery container labeled with "Universal Waste – Batteries"?	30.1034(1)(d)
			Is battery container labeled with accumulation start date?	30.1034(6)(c)
			Is the accumulation date no more than one year old?	30.1034(6)(a)
			Universal Waste Mercury Containing Lamps and/or Devices *(skip subsection if not generated)*	
			Are devices stored in a container or other manner suitable for preventing/containing possible breakage? (This is only required if the device or lamp is leaking or broken)	30.1034(4) and (5)
			Is storage container labeled with "Universal Waste-Mercury Containing Devices" or "Universal Waste-Mercury Containing Lamps" for fluorescent bulbs?	30.1034(4)(d) 30.1034(5)(e)
			Are containers labeled with the start date of accumulation?	30.1034(6)(c)
			Is the accumulation date no more than one year old?	30.1034(6)(a)

SECTION 1: HAZARDOUS WASTE (CONT'D)

YES	NO	N/A	Lead Acid Batteries (310 CMR 30.280, SOP ENV-05)	Citation
			Are used lead acid batteries appropriately stored and not open or leaking? Leaking batteries must be handled as a hazardous waste.	310 CMR 30.280(2)
			In addition to the specific compliance areas above, is the facility in compliance with the following SOPs:	
			Hazardous Waste Management at MassDOT Highway Facilities?	ENV-01-03
			Used Vehicle Battery Disposal at MassDOT Highway Division Facilities?	ENV-01-05
			Universal Waste Management at MassDOT Highway Division Facilities?	ENV-01-07
			Roadside Unknown Waste Handling?	ENV-01-25
			Used Oil Fired Space Heaters (310 CMR 30.200, 527 CMR 4.03, 310 CMR 7.04(9), and SOP -37)	
			Does the facility have a DEP Class A Recycling Permit that was issued by February 27, 2004?	30.222(5)(b)
			If not, was a one-time Class A Recycling Notification Form submitted to the DEP?	30.222(5)(b)
			Does the facility have approval to operate a waste oil burner from the local fire department?	527 CMR 4.03(1)
			Can the facility demonstrate that no speculative accumulation has occurred?	30.205(14)
			Are all Used Oil FUEL containers properly labeled? (Burner Tank: Regulated Recyclable Material, USED OIL FUEL, Toxic; Drums: Regulated Recyclable Material, USED OIL FUEL, Toxic, and labeled with the accumulation start date.)	30.205(19)
			Is the space heater operated only between September 15th and June 15th? (7.04(9)(d)4.)	7.04(9)(d)4.

SECTION 2: HAZARDOUS MATERIALS

YES	NO	N/A	Hazardous Materials Management (454 CMR 21.00, 40 CFR 355, and SOPs ENV-02, -06, -08, 09, -11)	
			Are hazardous material containers labeled with the name of their contents?	MGL 111F Chapter 7(a)
			Are storage tanks/dispensers and containers having capacities greater than 5 gallons labeled with an NFPA label?	MGL 111F Chapter 7(a)
			Does the Facility have any Extremely Hazardous Substances equal to or greater than the Threshold Planning Quantity?	40 CFR 355
			If Yes, has there been a release above and RQ?	40 CFR 355
			If Yes was the SERC or LEPC notified?	40 CFR 355
			Are SDS maintained at the Facility or available upon request?	MGL 111F Chapter 11
			Has a list of hazardous materials been filed with DEP? (e.g., with a signed and dated letter)	MGL Ch 111F(16)
			In addition to the specific compliance areas above, is the facility in compliance with the following SOPs:	
			Handling, Storage, and Disposal of Compressed Gas Cylinders at MassDOT Highway Division Facilities?	ENV-01-06
			Management of Sand and Deicing Chemicals at MassDOT Highway Division Facilities?	ENV-01-08
			Hazardous Materials Management at MassDOT Highway Division Facilities?	ENV-01-11

SECTION 3: SOLID WASTE AND RECYCLABLE MATERIALS

YES	NO	N/A	Solid Waste Management (310 CMR 16.00 & 19.000 and SOPs ENV-10 and -12)	
			Are the solid wastes and/or recyclable materials present at the facility separated by type and/or stored in designated accumulation areas and trash stored in a covered dumpster?	ENV-01-12
			Are street sweepings stored in accordance with requirements of DEP Policy?	DEP Policy #BWP-94-092
			Is there any evidence of restricted/banned materials in the trash dumpster (batteries, lamps, waste oil, metal, whole tires, recyclable paper/cardboard, yard waste, etc.)?	310 CMR 19.017
			Are cathode ray tubes (CRTs) collected, stored, handle and transported in a manner that prevents and minimizes breakage and stored/segregated from other solid waste?	310 CMR 19.017(3)(c)
			Is there an active or inactive landfill or dumping ground at the Facility?	
			If yes, has the landfill/dumping ground been approved or closed or is it being closed in accordance with a DEP approved plan?	310 CMR 19
			If the landfill/dumping ground has been closed, is it in compliance with the post-closure requirements?	310 CMR 19.142
			In addition to the specific compliance areas above, is the facility in compliance with the following SOPs:	
			Disposal of Animal Carcasses?	ENV-01-10
			Temporary Storage of Solid Waste and Recyclable Materials at MassDOT Highway Division Facilities?	ENV-01-12

SECTION 4: STORAGE TANKS

YES	NO	N/A	Storage Tank Management (310 CMR 80 and SOPs ENV-01-28 and -38)	
			Underground Storage Tanks (310 CMR 80)	
			Is a sign indicating what steps to follow in the event of a UST system emergency, including but not limited to the name and phone number of the person or person to contact in the event of an emergency, posted and readable from 10 feet away?	310 CMR 80.25
			Are the USTs equipped with secondary containment, spill and overflow protection, and leak detection?	310 CMR 80
			Are steel USTs/underground piping equipped with cathodic protection?	80.22
			Are cathodic protection systems tested and calibrated every annually or triennially, as applicable?	80.29(2)
			Are leak detection systems tested annually in accordance with manufacturer recommendations?	80.26(3)(d)
			Is leak detection equipment maintained in operating condition?	80.26(2)
			Has the tank been inspected by a third party within the past three years?	80.49
			Have spill buckets been appropriately maintained, inspected, and tested? (by 1/2/17)	80.28
			Has overfill prevention equipment been appropriately inspected and tested?	80.28(3)
			Is the UST system's compliance certification up to date?	80.34
			Is the UST system inspected monthly?	80.35
			Are all required records being kept (may be on-site or easily accessible off-site)?	80.36
			If the UST system is inoperable or a testing or functional failure has occurred:	
			Has the facility taken steps to initiate repair of the system?	80.26, 80.33
			If the Facility Dispenses Gasoline (310 CMR 7.24)and is equipped with a Stage I vapor recovery system:	
			Is the gasoline dispensing operation equipped with a Stage I vapor recovery system?	7.24(3)(b)
			Is the Stage I system inspected weekly and results recorded on an inspection checklist?	7.24(3)(d)
			Is a Stage I Annual In-use Compliance Certification submitted to MassDEP yearly?	7.24(3)(e)
			Are all of the Stage I inspection checklists, training records, compliance testing results, and maintenance records for the last twelve months and the Stage I system's most recent In-use Compliance Certification or Installation/Substantial Modification Certification retained on-site in either hard copy or electronic format?	7.24(3)(d)
			All Tanks (310 CMR 80)	
			Are there any abandoned tanks at the facility?	80.44
			If yes, describe out of service date(s) and status of any DEP notification and/or closure/removal:	
			Spill Prevention (40 CFR 112)	
			Does the facility store oil in aboveground tanks or drums in quantities equal to or greater than 1,320 gallons?	40 CFR 112.1(d)(2)(ii)
			If Yes, does the facility have an up-to-date and P.E.-certified SPCC Plan?	40 CFR 112.3(d)
			If Yes, is the facility implementing the SPCC Plan?	40 CFR 112.3
			In addition to the specific compliance areas above, is the facility in compliance with the following SOP:	
			Inspection And Repair Of Stage I And Stage II Recovery Systems Associated With Underground Storage Tanks?	ENV-01-28

SECTION 5: WATER QUALITY

YES	NO	N/A		
			Drinking Water Supply (310 CMR 22.22)	
			What is the Facility's water supply source? ☐ Private Well ☐ Municipal Public Water Supply ☐ Other: If the facility is supplied with municipal water answer backflow devices questions below.	
			Does the facility have backflow prevention devices on threaded hose connections?	22.22(2)(b)
			Have applicable devices been registered with the Public Water Supplier?	22.22(2), 22.22(7)(b)
			Septic Systems (310 CMR 15.000, SOP ENV-17)	
			Does the facility discharge to a subsurface sewage disposal system (septic system)?	
			If present and installed on or after 3/31/95, has the facility received a certificate of compliance (COC) for the septic system?	310 CMR 15.021
			If present, is only sanitary wastewater discharged to the septic system (i.e., no process water/chemicals)?	310 CMR 15.004
			Drainage Systems (314 CMR 1-15)	
			Does the facility have a floor drain(s)? ☐ Yes ☐ No If yes, where do they discharge to: ☐ POTW ☐ Surface Water ☐ Ground ☐ Holding Tank ☐ Other Describe:	
			If floor drains are located in an area of hazardous material storage or maintenance areas, do the drains discharge to a sanitary sewer or to an industrial wastewater holding tank?	
			If the facility discharges process wastewater to a municipal sewer system, has the facility notified the POTW of the discharge to determine whether a permit is required?	314 CMR 7.00
			If floor drains, have been sealed, did the facility file a WS-1 form with the DEP? (NA for drains connected to sanitary sewer)	310 CMR 27.10
			If floor drains discharged to the ground, did facility close underground structure(s) and file UIC Notification Form with DEP?	310 CMR 27.10
			Are there any oil/water separators on-site?	
			If present, are oil/water separators inspected and serviced periodically (as required in some areas, such as MWRA)? If a permit has been issued, are the facility oil/water separators in compliance with permit requirements?	MWRA: 360 CMR 10.016(4) or permit
			Stormwater Discharges (310 CMR 27.00; 314 CMR 3.00; 314 CMR 5.00, SOP ENV-19)	
			Are there stormwater catchbasins on the property?	
			If Yes, where do the catch basins discharge? ☐ POTW ☐ Surface Water ☐ Ground ☐ Other, describe:	
			If present, have leaching catch basins located within process areas been registered with the DEP (Class V Injection Well Registration)?	310 CMR 27.08
			Vehicle Washing (310 CMR 1-15; 40 CFR 122, SOP ENV-22)	
			If facility is a Designated Vehicle Washing Facility:	
			Are vehicles washed only indoors?	
			Is the facility equipped with floor drains connected to either the municipal sewer or wash water recycling system, or Is the facility equipped with an approved holding tank?	
			If facility is NOT a Designated Vehicle Washing Facility:	
			Are vehicles only rinsed onsite (no detergents or heated water/steam)?	
			If the facility has an Industrial Wastewater Holding Tank: **(Existing Permits; 314 CMR 18.00)**	
			If the tank was installed before November15, 2002, does the facility have a DEP Industrial Wastewater Holding Tank plan approval?	314 CMR 18.00
			For applicable holding tanks, has the Facility submitted a one-time compliance certification to DEP (due by February 15, 2003, or within 60 days for new tanks)? (Not required if the Facility has a DEP-issued plan approval for the holding tank.)	18.10(1)
			Does the Facility maintain holding tank construction and installation records (until tank is decommissioned) and records on pumping and wastewater shipments/disposal (three years)?	18.09(1)
			If an existing holding tank was not installed in accordance with PE Certified Plans, has the holding tank undergone an integrity assessment (due by November 15, 2003)?	18.08(2)
			Is the Holding Tank labeled as "Non-Hazardous Industrial Wastewater?" (required for underground and aboveground tanks)	18.07(6)
			Is the Holding Tank equipped with a high level alarm? If yes, is the alarm functioning properly?	18.07 or 18.08
			If the tank was installed on or after November 15, 2002, is the holding tank inspected for leakage weekly?	18.08(3)(c)
			Is the alarm system tested by an electrician on a semi-annual basis?	ENV-01-18
			In addition to the specific compliance areas above, is the facility in compliance with the following SOPs:	
			Groundwater Monitoring Well Maintenance at MassDOT Highway Division Facilities?	ENV-01-16

			Maintenance of Subsurface Sewage Disposal Systems at MassDOT Highway Division Facilities?	ENV-01-17
			Maintenance of Wastewater Holding Tanks and Proper Disposal of Accumulated Wastewater at MassDOT Highway Division Facilities?	ENV-01-18
			Inspection and Maintenance of Stormwater Catch Basins at MassDOT Highway Facilities?	ENV-01-19
			Vehicle Washing at MassDOT Highway Facilities?	ENV-01-22
			Inspection And Maintenance of Oil/Water Separators (OWS) at MassDOT Highway Division Facilities?	ENV-01-27

SECTION 6: NATURAL RESOURCE AREAS

YES	NO	N/A	**Wetlands, Buffer Zones, and Riverfront Zones (310 CMR 9.00 & 10.00, SOP ENV-15)**	
			Are there any Natural Resource Areas (wetland, buffer zone, or riverfront zone) at the property? (If NO, go to next section)	10.02(1) and 10.03
			Is the facility conducting work in a Natural Resource Area (e.g. removing, filling, dredging, or altering)?	9.05 10.02-10.05(6)
			If the facility is conducting work in a Resource Area, was a Request for Determination of applicability, or NOI submitted to and approved by the local Conservation Commission, and was a Certificate of Compliance received upon work completion?	10.05(4), 10.05(9)
			If issued, is the facility is compliance with wetlands Order of Conditions or enforcement order?	310 CMR 10.02-05
			In addition to the specific compliance areas above, is the facility in compliance with the following SOPs:	
			Protection of Wetland Resource Areas at MassDOT Highway Facilities?	ENV-01-15

SECTION 7: POLLUTION PREVENTION

YES	NO	N/A	**Spills/Releases (310 CMR 40.0000; 40 CFR 300; 40 CFR 355, SOPs ENV-03, -07, -11, and -20.)**	
			Is there an indication of a release or threat of release of oil and/or hazardous material at the facility?	310 CMR 40.0000
			If yes, describe event(s) and actions taken, including notifications made.	
			Is there an MCP site at the facility in which a permanent solution has not been achieved?	310 CMR 40.0000
			If yes, have MCP/Clean State timelines been met? Describe status and conditions:	
			Is there an AUL at the facility?	310 CMR 40.0000
			Is the facility in compliance with the terms of the AUL?	
			Asbestos (310 CMR 7.09 & 7.15; 453 CMR 6.00)	
			Has the facility conducted building renovations/demolitions or asbestos abatement projects?	453 CMR 6.01 - .02
			If yes, was an asbestos survey conducted prior to renovation/demolition?	310 CMR 7.15(4)
			Prior to renovation/demolition, was DEP properly notified using ANF 001 Form?	310 CMR 7.09 and 7.15 453 CMR 6.12
			If an asbestos abatement project was conducted, were licensed contractors used?	453 CMR 6.03
			If an asbestos abatement project was conducted, was asbestos containerized for offsite disposal at a licensed facility?	453 CMR 6.13(2)(b) 453 CMR 6.14(4)(h)
			Outdoor Operation/Maintenance Equipment Storage at MassDOT Highway Facilities?	ENV-01-20
			Management of Asbestos Containing Materials at MassDOT Highway Division Facilities?	ENV-01-29

SECTION 8: AIR QUALITY

YES	NO	N/A	Air Emissions, Permits & Recordkeeping (310 CMR 7.00)	
			Parts Cleaners	
			Is a solvent parts cleaner used?	310 CMR 7.18(8)
			If yes, is the unit a sink-like work area with a remote solvent reservoir with an open drain area less than 100 square cm?	310 CMR 7.18(8)
			If this is not the case, is the unit equipped with a functioning cover, which is kept closed when not in use?	310 CMR 7.18(8)
			Refrigerant Management	
			Does the facility conduct vehicle refrigeration maintenance?	40 CFR 82
			If yes, are personnel who perform refrigerant work certified by EPA?	40 CFR 82.34(a)(2)
			Is refrigerant recovery equipment EPA-certified?	40 CFR 82.34(a)(1)
			Has the facility submitted a Notification Form with EPA for use of the refrigeration equipment?	40 CFR 82.42(a)

SECTION 9: TRAINING

YES	NO	N/A	Training Records	
			Does the facility have the following training records on file, where applicable:	
			Hazardous Waste Management training?	SQG: 30.351(9)(g)
			Universal Waste Management Training?	30.1035
			Stage I Vapor Recovery System training?	7.24(6)(b)2.
			Spill Prevention, Control, and Countermeasure Plan training?	40 CFR 112.7(f)
			UST Class A/B/C Operator Training?	310 CMR 80.37
			Other (list)?	

SECTION 10: CLEAN STATE PROGRAM

YES	NO	N/A	Clean State Program Management	
			Are there any existing Clean State Matters for the facility?	Policy ENF-05-001
			If Yes, list and describe status:	

Additional notes/Comments:

Appendix L: Litter Program Summary

MassDOT Litter Program Summary: Permit Year 15

Litter Collection Summary

District*	Inmate Litter Program	Adopt-a-Highway Program	Private Contracted Assistance	
1	1,809 bags collected	130 bags collected		1,939 bags collected
2	2,498 bags collected	527 bags collected		3,025 bags collected
4	1,093 bags collected	2,539 bags collected		3,578 bags collected
5	8,735 bags collected	1,068 bags collected	13,864 bags collected	23,667 bags collected
Total	14,042 bags collected	1,725 bags collected	13,864 bags collected	**32,209 bags collected statewide**

*Note: No values reported by Districts 3 and 6. However, litter collection is occurring in all districts.

Litter Collection Details

District 1

Inmate Litter Program, FY2017:

- 1,809 total bags collected

Adopt-a-Highway Program:

- 130 total bags collected

Month	Bags
April	47
May	16
June	3
July	2
August	5
September	12
October	21
November	24
Totals	130

District 2

Inmate Litter Program, FY2017: 2,498 bags total

- Hampden County: 411 bags
- Hampshire County: 2087 bags

Adopt-a-Highway Program:

- 527 total bags collected
- 2360 total miles collected from

Month	Bags
April	80
May	106
June	75
July	37

Month	Bags
August	50
September	55
October	82
November	42
Totals	527

District 4

Inmate Litter Program, FY2017: 1,093 bags total

- Essex County: 453 bags
- Suffolk County: 640 bags

Adopt-a-Highway Program:

- 2,539 total bags collected
- 1,778 total participants

Month	Bags
April	213
May	375
June	362
July	394
August	391
September	351
October	335
November	118
Totals	2,539

District 5

Overall: 23,667 bags of litter and roadway debris (mixed metals, construction debris, large litter, etc) were collected. In addition to the figures listed below, District Staff contributed to picking up litter but did not report their bag and debris numbers..

Inmate Litter Program:

- Bristol County: 4,606 bags
- Barnstable County: 3,649 bags
- Dukes County: 480 bags
- Total = 8,735 bags

Adopt-a-Highway Program:

- 1,068 total bags collected

Private contracted assistance:

- Area A, B, & C – 11,929 bags collected
- Area D - 1,935 bags collected
- 13,864 total bags collected in all areas

Appendix M: Baystate Roads Trainings

Baystate Roads Trainings from April 2017-March 2018

Workshop/City	Date	# Registered
Gravel Roads: When the Dust Settles - Hadley	4/13/2017	20
Gravel Roads: When the Dust Settles - Pittsfield	4/14/2017	14
Highway/Construction Surveying - Lenox	4/25/2017	10
Design of ADA Curb Ramps and Pedestrian Access Routes-Beverly	5/2/2017	42
Concrete Sidewalk Installation - Andover	5/3/2017	15
Design of ADA Curb Ramps and Pedestrian Access Routes-Taunton	5/3/2017	39
Gravel Roads: When the Dust Settles - Taunton	5/4/2017	12
FHWA-NHI-151053 Transportation Planning Process-Hopkinton	05/09/2017 - 05/10/2017	17
Concrete Sidewalk Installation - Dalton	5/10/2017	11
ADA Transition Plans Made Easy - Hyannis	5/18/2017	18
Highway/Construction Surveying - Taunton	5/30/2017	12
Design of ADA Curb Ramps and Pedestrian Access Routes-Pittsfield	6/13/2017	21
Advanced Complete Streets 201-Taunton	6/16/2017	13
Advanced Complete Streets 201-Spencer	6/22/2017	9
Tractor Mower Operation & Safety-Lenox	6/28/2017	17
Complete Streets 101 - Benefits, Eligibility & Funding-Greenfield	8/8/2017	19
Advanced Complete Streets 201-Woburn	8/9/2017	29
Advanced Complete Streets 201-Plymouth	9/13/2017	30
Massachusetts Project Intake Tool (MaPIT) - Lenox	9/20/2017	26
Massachusetts Project Intake Tool (MaPIT) - Northampton	9/22/2017	46
Massachusetts Project Intake Tool (MaPIT) - Woburn	9/26/2017	37
The 2017 Moving Together Conference	9/28/2017	unknown
Massachusetts Project Intake Tool (MaPIT) - Taunton	9/29/2017	36
Massachusetts Project Intake Tool (MaPIT) - Boston	10/3/2017	40
Snow and Ice Operations - Nantucket	10/3/2017	35
Massachusetts Project Intake Tool (MaPIT) - Springfield	10/4/2017	16
ADA Transition Plans Made Easy - Hadley	10/5/2017	26
Snow and Ice Operations - Whately	10/12/2017	22
Snow and Ice Operations - Rehoboth	10/17/2017	29
Advanced Complete Streets 201-Becket	10/17/2017	12
Spreader Calibration - Dalton	10/18/2017	20
Snow and Ice Operations - Great Barrington	10/24/2017	29
Snow and Ice Operations - Hubbardston	10/25/2017	20

Workshop/City	Date	# Registered
Spreader Calibration - Hubbardston	10/31/2017	20
Spreader Calibration - Franklin	11/2/2017	12
Snow and Ice Operations - Acton	11/14/2017	36
Spreader Calibration - Leverett	11/15/2017	14
ADA Transition Plans Made Easy - Beverly	11/15/2017	29
Spreader Calibration - Wellesley	11/21/2017	26
How to Read Construction Drawings - Falmouth	12/12/2017	24
How to Read Construction Drawings - Springfield	12/13/2017	10
How to Read Construction Drawings - Westford	12/14/2017	24
How to Read Construction Drawings - Spencer	12/18/2017	12
Stormwater Management - Boston	2/6/2018	25
Stormwater Management - Chatham	2/13/2018	21
Stormwater Management - Acton	2/15/2018	32
Stormwater Management (New MS4 Permit) - Springfield	2/28/2018	40
Calculations for Municipal Projects - Acton	3/6/2018	18
Stormwater Management (New MS4 Permit) - Taunton	3/27/2018	40
Principles of Drainage - Taunton	3/27/2018	27
Basics of a Good Road-Haverhill	3/28/2018	8
Principles of Drainage - Framingham	3/28/2018	17
Principles of Drainage - Tewksbury	3/29/2018	18
Principles of Drainage - Sunderland	3/30/2018	23