



Deval L. Patrick, Governor
Timothy P. Murray, Lt. Governor
Richard A. Davey, Secretary & CEO
Frank DePaola, Administrator



June 8, 2015

David Gray
U.S. Environmental Protection Agency, Region 1
5 Post Office Square - Suite 100, Mail Code #OEP06-1
Boston, MA 02110

Subject: Final Semi Annual Submittal under MassDOT's Impaired Waters Program

Dear Mr. Gray,

This letter summarizes the work completed by MassDOT in the last six months as part of the Impaired Waters Program and also outlines the status of completion of the MassDOT requirements in EPA's April 22, 2010 enforcement letter. The Impaired Water Program (IWP) initially focused on assessing the 684 impaired water bodies listed in Appendix L-1 of MassDOT's June 9, 2010 and July 23, 2010 submittals to EPA. Appendix L-1 listed those impaired water bodies identified as potentially receiving runoff from MassDOT roads and which MassDOT was committed to reviewing for potential construction of stormwater best management practices (BMPs) to address stormwater related impairments.

In the last six months, MassDOT's Impaired Waters Program has generated 96 assessments of impaired receiving waters (23 of the 96 are part of the Appendix L-1 list). MassDOT has completed the assessments using the methodologies outlined in BMP 7U: Impaired Waters Assessment and Mitigation Plan and/ or BMP 7R: Total Maximum Daily Load (TMDL) Watershed Review. Table 1 summarizes the assessment type and provides an overall assessment completion status of the Appendix L-1 water bodies list.

The EPA enforcement and MassDOT Stormwater Management Plan (SWMP) measurable goal set for BMP 7R committed MassDOT to annually review 20% of the 209 impaired waters with a TMDL with a June 2015 completion date. MassDOT met this commitment ahead of schedule in our December 2014 submittal (Table 1). For assessments where MassDOT determined that further action is necessary to meet the target impervious cover (IC) or pollutant loading reductions, MassDOT forwards these assessments to design consultants for BMP design.

Table 1. Assessments for Water Bodies on Appendix L-1

Assessment Type	Previous Submittals (#)	June 2015 Submittal (#)	Total (#)	% of Total Water Bodies
Impaired Water Bodies with TMDLs*				
TMDL Method	17	0	17	
IC Method**	19	0	19	
TMDL and IC Method	11	0	11	
<9% IC**	1	0	1	
No Discharge	78	0	78	
Pathogen Only	36	0	36	
Nitrogen TMDL Method	21	0	21	
Removed from 303 (d) List	26	0	26	
Impaired Water Bodies (with TMDLs) Total	209	0	209	100%
Impaired Water Bodies without TMDLs*				
IC Method	132	4	136	
TMDL Method***	1	0	1	
TMDL and IC Method***	3	0	3	
<9% IC	37	0	37	
No Discharge	165	13	178	
Pathogen Only	58	0	58	
Other (Includes Chloride, Pathogen with Other Impairments Unrelated to Stormwater)	39	0	39	
Nitrogen Non-TMDL Groundwater Method	14	4	18	
Nitrogen TMDL Groundwater Method***	3	0	3	
Groundwater with Phosphorous Impairment	0	2	2	
Impaired Water Bodies (without TMDLs) Total	452	23	475	
Impaired + TMDL Total	661	23	684	100%

Note: Appendix 1, Table 1A is the list of all Appendix L-1 assessments completed for this submittal.

*TMDL listing as included in Appendix L-1

** The TMDL for these water bodies was for pathogens. Therefore, the IC method was used to address impervious cover related impairments for the water body and the assessments addressed pathogens programmatically.

*** TMDL has been finalized for the receiving water since the submittal of Appendix L-1. Therefore, the TMDL method was used for the assessment.

This submittal includes a substantial number (73) of assessments for water bodies that were not listed in Appendix L-1 but have since become applicable, further showing MassDOT's proactive approach to the Impaired Waters Program. These additional water bodies are now applicable to the program due to updates to MassDEP's 303(d) List of Impaired Waters, the 2010 US Census data, and MassDOT acquisition of roadways. Table 2 is included below to keep track of these "additional" submittals separately.

Table 2. Assessments for Water Bodies Not Included in Appendix L-1

Assessment Type	Previous Submittals (#)	June 2015 Submittal (#)	Total (#)
TMDL Method	9	1	10
IC Method	10	4	14
<9% IC	4	4	8
No Discharge	19	23	42
Pathogen	18	31	49
Chloride	3	0	3
Nitrogen Non-TMDL Groundwater	6	1	7
Impairments Unrelated to Stormwater	0	9	9
Total	69	73	142

Note: Appendix 1, Table 1B is the list of all additional Appendix L-1 assessments completed for this submittal.

A summary of the assessments being submitted is included in Appendix 1, Table 1A and 1B. Table 1A includes all Appendix L-1 assessments and Table 1B includes additional Appendix L-1 assessments.

Attachments 1 through 6 include the majority of assessments completed in the past six months. The attachments include cover sheets identifying each assessment category.

While MassDOT had previously developed a methodology for groundwater delineated watersheds with nitrogen related impairments, Appendix L-1 includes two water bodies within groundwater delineated watersheds in south coastal Massachusetts that have impairments linked to elevated phosphorous. Instead of developing an additional methodology for this scenario, these water bodies were simply evaluated in regard to whether or not they receive direct stormwater discharges from MassDOT roadways. If MassDOT determines direct discharges are present, MassDOT will conservatively implement BMPs to treat stormwater runoff to the maximum extent practical. Assessments for the two water bodies using this modified evaluation approach are included in Attachment 7.

Attachment 8 includes 2 assessments for water bodies that were further reviewed during the BMP design and MassDOT decided that the original assessment needed to be updated and resubmitted; these assessments are not included in Appendix 1, Table 1A. The Wading River (MA62-47) assessment is being resubmitted because the watershed was incorrectly delineated in the previous submittal and the revision impacts the target. The Salisbury Plain River (MA62-06) assessment is being resubmitted because the watershed was incorrectly submitted using the IC assessment methodology and is now being resubmitted as a no discharge with no target.

During the process of preparing the Nitrogen Non-TMDL Groundwater assessments included with this submittal, MassDOT realized that additional precipitation data sets were needed to address nitrogen loading rates in south coastal Massachusetts and outer Cape Cod water bodies. Therefore, we have updated the Nitrogen Non-TMDL Groundwater Methodology to reflect these additional region-specific nitrogen loading numbers, and it is included as Attachment 9 of this submittal. These changes do not impact the previously submitted Nitrogen Non-TMDL Groundwater assessments since the precipitation data included in the method was relevant for those locations.

While preparing the Nitrogen Non-TMDL Groundwater Methodology included in our December 8, 2014 submittal to EPA, MassDOT modified the nitrogen loading rates used to estimate nitrogen loading from its property as compared to those included in the June 2014 Nitrogen TMDL Methodology. These modifications were made in order to provide a more accurate estimate of nitrogen loading from MassDOT property using the U.S. Geological Survey (USGS) Stochastic Empirical Dilution Model (SELD). Based on consultation with USGS in fall 2014, the data used for nitrogen loading calculations were adjusted to a more locally appropriate dataset for MassDOT roadways. SELD is a USGS peer-reviewed model and was developed to estimate downstream event mean concentrations of various pollutants based on information from the Highway Runoff Database, as well as decades of precipitation data, and a robust water quality sampling program targeting highway runoff. These elements allow SELD to generate more accurate estimates of nitrogen loading from highways than other data sources.

Consequently, an updated version of the Nitrogen TMDL Methodology is included as Attachment 10 of this submittal to reflect the new loading rates, as well as to correct a few minor errors in the originally submitted version of the methodology. Similarly, we have re-evaluated the Nitrogen TMDL assessments included in the June 2014 submittal using the new loading numbers, and included a table summarizing both previous and revised estimates of MassDOT nitrogen loads to impaired receiving waters assessed as Attachment 11. Although some of the nitrogen loading numbers have changed slightly based on the revised loading rates, the assessment conclusions remain unchanged. The revised nitrogen loads have also been included in the MassDOT IWP database for future use.

Attachments 9 through 11 include updates to the Nitrogen TMDL and Nitrogen non-TMDL methodologies and results, as noted above.

BMP Design

MassDOT has many BMP designs actively on-going as part of this program. Fifty-five (55) projects are currently in some stage of design and MassDOT is utilizing five design contractors to complete the projects. Design has multiple stages, including identifying a designer, conducting survey and geotechnical investigations, completing design and environmental permitting, MassDOT reviews, and advertising the project, which is summarized in Appendix 3. Some projects are tied to programmed projects or resurfacing projects, while others are stand-alone retrofit projects being solely constructed to meet the Impaired Waters Program commitments. Sometimes impaired waters are addressed by a combination of the project types. Appendix 2, Table 1 shows a summary of the design progress of BMPs recommended in previous assessment submittals or in this submittal, sorted by design/ construction status.

BMP Construction

MassDOT currently has 20 projects in the construction phase. MassDOT has completed construction of 20 BMP projects since the beginning of the Impaired Waters Program. Appendix 2, Table 1 shows a summary of the water bodies with projects in construction or completed.

For the majority of BMPs constructed through the Impaired Waters Program, MassDOT has utilized Special Experimental Program (SEP-14) funding through the Federal Highway Administration. Moving forward, MassDOT has programmed federal funds through their State Transportation Improvement Plan (STIP) specifically for stormwater improvements. Through this new funding mechanism, MassDOT will bundle various BMP locations in the same general area together for construction. This new method will allow for a more streamlined design and construction approach and more predictability in costs. MassDOT will continue to incorporate BMPs with programmed projects where possible. MassDOT has allocated approximately \$10,350,000 in Federal Fiscal Year 2015 to begin construction of BMP projects in the next six to 12 months.

EPA Enforcement Compliance Review

In the last five years, MassDOT has developed a robust comprehensive stormwater retrofit program to address runoff from MassDOT roads in the urban area which are potentially contributing stormwater to impaired waters. MassDOT assessed more than 800 water bodies and designed and implemented stormwater BMPs where appropriate and feasible. Significant construction dollars, staff resources and consultant resources have been focused on this program. To date 247 BMPs have been constructed, including various types of basins and swales, gravel wetlands, and vegetated filter strips. It is anticipated that an additional 76 BMPs will move into the construction phase over in summer 2015.

This program was formally initiated when MassDOT received an enforcement letter from EPA dated April 22, 2010 that included Impaired Water Program specific commitments (page 4 and 5). Since that time, MassDOT has developed a substantial Impaired Water Program which not only reviews the need for construction of retrofit BMPs but also comprehensively reviews opportunities to include stormwater BMPs in watersheds of impaired waters as part of programmed projects and tracks stormwater improvements statewide in a comprehensive database.

In order to highlight the progress made as part of this program and how the EPA enforcement requirements have been met, this section includes the EPA requirement in italicized quotes and then discusses MassDOT's progress towards fully meeting those commitments.

1. *“Describe Control Measures and BMPs for Impaired Waters without TMDLs: Identify control measures and BMPs that will control discharges of pollutants of concern and ensure that the discharges will not cause an instream exceedance of water quality standards in impaired waters to which MassDOT discharges. MassDOT must specifically identify control*

measures and BMPs that will collectively control the discharge of pollutants of concern. Such control measures and BMPs must include both programmatic and structural measures. While it is preferable that MassDOT identify BMPs for specific locations, at a minimum, MassDOT must specify site conditions or types of site conditions where specific control measures and BMPs would be implemented.”

MassDOT has fully met this requirement. MassDOT submitted assessments for all Appendix L-1 impaired waters without TMDLs. In order to determine if an impaired water body was impacted by runoff from MassDOT roads in urban areas covered by the MS4 permit, MassDOT developed two assessment methodologies – BMP 7U for non-TMDL waters and BMP 7R for TMDL waters. MassDOT submitted the BMP 7U methodology to EPA on April 6, 2011 and additional versions for addressing pathogens and nitrogen impaired waters with a groundwater delineated watershed in subsequent semi-annual submittals. In some cases, BMP 7R TMDL methodology was used to assess water bodies identified as non-TMDL waters on the Appendix L-1 table, because a TMDL was subsequently developed/ finalized.

The assessments follow the methodologies to determine whether the impairment is stormwater related, existing BMPs address the MassDOT stormwater runoff contribution, and constructing structural BMPs is appropriate to address the pollutant of concern. Where appropriate, the methodologies are used to set treatment targets, and if BMPS are deemed necessary, a cursory review of the site constraints is included in the assessment. After this review, the assessment indicates whether MassDOT should move on to design and construction of retrofit BMPs for the assessed water body. As shown in Table 3, this process has recommended BMP design and construction at 78 water bodies.

Table 3 describes the different methodologies used to evaluate the non-TMDL water bodies and summarizes the number that moved on to design. As indicated in the last column in Table 3, MassDOT has identified specific BMPs for construction at 47 water bodies based on additional site evaluations, such as survey and geotechnical studies. MassDOT is finalizing BMP design and construction to address these 47 water bodies without TMDLs.

Table 3. Assessment Type and Design Summary of App. L-1 Impaired Water Bodies without TMDLs

Assessment Type	Total	Water Bodies with Design Recommended	Water Bodies with BMPs Identified
BMP 7U - IC Method	115	66	43
BMP 7R - TMDL Method***	2	1	1
BMP 7U/7R - TMDL and IC Method***	18	9	3
BMP 7U - <9% IC	39	0	0
BMP 7U - No Discharge	172	0	0
BMP 7U - Pathogen Only	61	0	0
BMP 7U - Other (Includes Chloride, Pathogen with Other Impairments Unrelated to Stormwater)	37	0	0
BMP 7U - Nitrogen Non-TMDL Groundwater Method	25	0	0
BMP 7R - Nitrogen TMDL Groundwater Method***	4	0	0
BMP 7U - Groundwater with Phosphorous Impairment	2	2	0
Total	475	78	47

*** TMDL has been finalized for the receiving water since the submittal of Appendix L-1. Therefore, the TMDL method was used for the assessment.

The remaining 31 non-TMDL water bodies include design recommendations and are in early design stages including survey, wetland delineation, and geotechnical review and may not have identified specific structural BMPs. MassDOT is committed to moving these remaining designs forward expeditiously. Appendix 2, Table 1 includes anticipated construction bid advertisement dates. The design and construction of many of these BMPs will be combined together into bundled projects. Documentation of proposed BMPs and treatment provided will be included in annual MS4 reports.

As requested in the EPA enforcement letter, MassDOT is including a summary of the design and review steps taken in the retrofit design process that describes the site conditions where specific control measures and BMPs would be implemented (Appendix 3).

In addition to the structural measures designed and built as stand-alone retrofits or as part of “programmed” highway projects, MassDOT continues to include programmatic controls to address impaired waters as part of its overall roadway and bridge program. Programmatic controls include catch basin cleaning, street sweeping, staff training, limited fertilizer use, IDDE review and follow-up to address potential illicit connections, and development of a pet waste program at rest areas within pathogen TMDL water bodies. MassDOT’s progress on these and many other programmatic measures are summarized in the MS4 annual reports.

2. *“Assess All TMDL Waters within 5 Years: Assess at least 20% of all TMDL waters each year in urbanized areas to which MassDOT discharges to determine whether existing BMPs are meeting any applicable WLA or otherwise controlling discharges of pollutants of concern and to identify if additional control measures are necessary. MassDOT needs to document the determination that any WLA will be met. MassDOT may prioritize the TMDL waters in order to address the most significant impacts first. However, at the end of the five year period, 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. “*

By December 2014 (4-½ years into the Impaired Waters Program), MassDOT assessed all of the Appendix L-1 water bodies with TMDLs as shown in Table 4. These assessments have at a minimum included an evaluation of the MassDOT directly contributing property, identification of MassDOT’s pollutant load target for the individual water body, review of existing BMPs, and an initial analysis of site constraints. After this review, MassDOT has identified 23 water bodies to move forward with BMP design projects.

Table 4 describes the methodologies used to evaluate the TMDL water bodies, and indicates that MassDOT has identified specific BMPs for construction at 19 water bodies, and that BMPs are being designed to address 23 water bodies with TMDLs.

Table 4 Assessment Type and Design Summary of App. L-1 Impaired Water Bodies with TMDLs*

Assessment Type	Water Body Total	Water Bodies with Design Recommended	Water Bodies with BMPs Identified
TMDL Method	11	6	6
IC Method**	9	4	4
TMDL and IC Method	25	13	9
<9% IC**	2	0	0
No Discharge	71	0	0
Pathogen Only	35	0	0
Nitrogen TMDL Method	25	0	0
Removed from 303 (d) List	1	0	0
Other	25	0	0
Nitrogen Non-TMDL GW Method	5	0	0
Total	209	23	19

* TMDL listing as included in Appendix L-1

** The TMDL for these water bodies was for pathogens. Therefore, the IC method was used to address impervious cover related impairments for the water body and the assessments addressed pathogens programmatically.

MassDOT is still evaluating specific structural BMPs for construction for four TMDL water bodies. MassDOT has determined that space is available for construction of BMPs at these water bodies based on a cursory review of site constraints, and anticipates construction of infiltration basins and/or swales at these four sites.

Appendix 2, Table 1 summarizes the TMDL water bodies that have been identified for BMP design and construction and includes an anticipated construction advertisement date for each water body (which illustrates MassDOT's commitment to constructing these projects). The design and construction of many of these BMPs will be combined together into bundled projects. Documentation of final design of proposed BMPs, treatment provided, and construction updates will be included in annual the MS4 reports.

3. *“Implement BMPs Based on Environmental Factors: As MassDOT identifies additional needed BMPs for discharges to impaired waters (with and without TMDLs), MassDOT must propose schedules for implementation of such BMPs as expeditiously as possible. Such schedules must provide for prompt implementation of BMPs based on water quality considerations and Permit requirements, and not based solely upon road construction priorities. MassDOT must implement needed BMPs, whether they are retrofits or part of new projects and will have to seek funding as needed. At the end of five years, MassDOT must have implemented all identified needed measures or have schedules providing for prompt implementation of such measures. “*

As required by the EPA enforcement letter, MassDOT has developed a schedule for implementing BMPs as expeditiously as possible. As indicated in Appendix 2, Table 1, we anticipate that all retrofit projects will have moved to construction by 2023.

Appendix 2, Table 1 illustrates the status of all design projects and includes an estimated advertisement date. MassDOT's schedule for implementing BMPs for water quality improvement is not based solely upon road construction priorities, as we have developed a robust stand-alone retrofit program to complete construction of these projects.

MassDOT has expended approximately \$27.5 million over the past five years in BMP construction and approximately \$11.5 million in consultant fees for the water quality assessments and BMP design. In addition, MassDOT has allocated approximately \$21 million over the next four years for this program.

MassDOT receives federal funding through the Federal Highway Administration (FHWA) to construct stormwater controls. From year to year, the level of federal transportation funds fluctuates. Funding through Federal Fiscal Year 2019 has been allocated statewide through the Statewide Transportation Improvement Program. Funding levels beyond Federal Fiscal Year 2019 have not yet been determined. MassDOT must distribute funds statewide to address various safety and environmental concerns including, but not limited to, structurally deficient bridges, non-ADA-compliant pedestrian facilities, undersized culverts, and unsafe pavement conditions. Nonetheless, the MassDOT Stormwater Unit has successfully advocated for funding to construct stormwater improvements through 2019 and will continue to advocate for additional funding in the future.

MassDOT welcomes any input or feedback from the EPA on the assessments and documents included in this report. If you have any questions or concerns, or would like to meet to discuss this submittal, please feel free to contact me at (857) 368-8788.

Sincerely,



Henry Barbaro
Stormwater Program Supervisor
Environmental Services Section
Henry.Barbaro@state.ma.us

cc: Kathleen Woodward, Esq., EPA Region I
Tracy W. Klay, Esq., Environmental Counsel, MassDOT
Tori Kim, Esq., MA Attorney General's Office

Appendix 1:

Summary of Assessments included in June 2015 Submittal

Table 1A Appendix L-1 Assessments included in June 2015 Submittal

Water Body ID	Water Body Name	Impairment	TMDL (lb/yr)	IC (ac)	No Discharge	<9% IC	Negligible	Pathogen Only	Impairments Unrelated to Stormwater	Site Constraints	Notes
MA51047	Fish Pond	(Non-Native Aquatic Plants*), Aquatic Plants (Macrophytes)			X						
MA70-02	Boston Inner Harbor	Enterococcus; Fecal Coliform; Other; Oxygen, Dissolved; PCB in Fish Tissue		203.5							Move on to design
MA74-18	Hingham Harbor	Fecal Coliform, Other, PCB in Fish Tissue		4.5							Site constraints due to wetlands, MassDOT ROW and public open space
MA93-54	Salem Harbor	Estuarine bioassessments; Fecal Coliform		0.06						X	Site constraints due to the bridge
MA94007	Billington Sea	Excess Algal Growth; Turbidity			X						
MA94032	Crossman Pond	Aquatic Plants (Macrophytes)			X						
MA94038	Foundry Pond	Turbidity			X						
MA94-10	Green Harbor River	(Fish-Passage Barrier*); (Other flow regime alterations*); Excess Algal Growth; Turbidity			X						
MA94-12	Jones River	(Fish-Passage Barrier*); (Low flow alterations*); Aquatic Plants (Macrophytes); Excess Algal Growth; Oxygen, Dissolved; Turbidity			X						
MA94-13	Jones River	(Low flow alterations*); Aquatic Plants (Macrophytes); Excess Algal Growth; Oxygen, Dissolved; Turbidity			X						
MA94132	Russell Millpond	(Fish-Passage Barrier*); Excess Algal Growth			X						

Water Body ID	Water Body Name	Impairment	TMDL (lb/yr)	IC (ac)	No Discharge	<9% IC	Negligible	Pathogen Only	Impairments Unrelated to Stormwater	Site Constraints	Notes
MA94-16	Plymouth Harbor	Fecal Coliform; Nutrient/Eutrophication Biological Indicators					X				Nitrogen Non-TMDL Groundwater Method
MA95033	Crane Brook Bog Pond	(Non-Native Aquatic Plants*); Excess Algal Growth; Phosphorus (Total			X						
MA95115	Parker Mills Pond	(Non-Native Aquatic Plants*); Phosphorus (Total)	N/A								Move on to design; Groundwater and Phosphorus
MA95146	Tihonet Pond	Oxygen, Dissolved			X						
MA96-01	Barnstable Harbor	Estuarine Bioassessments; Fecal Coliform [252.0]					X				Nitrogen Non-TMDL Groundwater Method
MA96050	Crystal Lake	Oxygen, Dissolved	N/A								Move on to design; Groundwater and Phosphorus
MA96-15	Boat Meadow River	Estuarine Bioassessments; Fecal Coliform [252.0]					X				Nitrogen Non-TMDL Groundwater Method
MA96115	Great Pond	Chlorophyll-a; Oxygen, Dissolved; Phosphorus (Total)			X						
MA96183	Long Pond	Oxygen, Dissolved			X						
MA96288	Shawme Lake	Nutrient/Eutrophication Biological Indicators			X						
MA96326	Upper Shawme Lake	Nutrient/Eutrophication Biological Indicators			X						
MA96-88	Cedar Pond	Chlorophyll-a; Dissolved oxygen saturation; Oxygen, Dissolved					X				Nitrogen Non-TMDL Groundwater Method

Table 1B Assessments Not Included on the Appendix L-1 included in June 2015 Submittal

Water Body ID	Water Body Name	Impairment	TMDL (lb/yr)	IC (ac)	No Discharge	<9% IC	Negligible	Pathogen Only	Impairments Unrelated to Stormwater	Site Constraints	Notes
MA11002	Cheshire Reservoir, North Basin	(Eurasian Water Milfoil, <i>Myriophyllum spicatum</i> *), (Non-Native Aquatic Plants*), Aquatic Plants (Macrophytes), Nutrient/Eutrophication Biological Indicators, Turbidity				X					
MA11-03	Hoosic River	(Alteration in stream-side or littoral vegetative covers*), (Other flow regime alterations*), (Physical substrate habitat alterations*), Ambient Bioassays -- Chronic Aquatic Toxicity, Fecal coliform, Temperature, water				X					
MA11-04	Hoosic River	(Alteration in stream-side or littoral vegetative covers*), (Other flow regime alterations*), Fecal coliform						X	X		
MA32055	Pequot Pond	(Eurasian Water Milfoil, <i>Myriophyllum spicatum</i> *), (Non-Native Aquatic Plants*), Oxygen, Dissolved, Phosphorus (Total)			X						
MA32-08	Little River	Escherichia coli, Fecal Coliform						X			
MA32-22	Potash Brook	Escherichia coli						X			
MA34-25	Mill River	Escherichia coli						X			

Water Body ID	Water Body Name	Impairment	TMDL (lb/yr)	IC (ac)	No Discharge	<9% IC	Negligible	Pathogen Only	Impairments Unrelated to Stormwater	Site Constraints	Notes
MA41-13	McKinstry Brook	(Debris/Floatables/Trash*), Escherichia coli						X	X		
MA42019	Granite Reservoir	(Non-Native Aquatic Plants*), Aquatic Plants (Macrophytes)			X						
MA42-07	Burncoat Brook	Aquatic Macroinvertebrate Bioassessments, Escherichia coli			X						
MA42-15	Sucker Brook	Aquatic Macroinvertebrate Bioassessments, Escherichia coli			X						
MA42-18	Grindstone Brook	Escherichia coli			X						
MA52006	Central Pond	Aquatic Plants (Macrophytes), Dissolved oxygen saturation, Excess Algal Growth, Organic Enrichment (Sewage) Biological Indicators, Oxygen, Dissolved , Phosphorus (Total)			X						
MA52022	James V. Turner Reservoir	Aquatic Plants (Macrophytes), Dissolved oxygen saturation, Excess Algal Growth, Organic Enrichment (Sewage) Biological Indicators, Phosphorus (Total)			X						
MA53-17	Torrey Creek	Fecal Coliform						X			
MA53-18	Rocky Run	Fecal Coliform						X			
MA62-09	Beaver Brook	Fecal Coliform						X			
MA70-05	Quincy Bay	Enterococcus, Fecal Coliform, Other, PCB in Fish Tissue			X						

Water Body ID	Water Body Name	Impairment	TMDL (lb/yr)	IC (ac)	No Discharge	<9% IC	Negligible	Pathogen Only	Impairments Unrelated to Stormwater	Site Constraints	Notes
MA71-13	Unnamed Tributary	Escherichia coli			X						
MA73012	Memorial Pond	Aquatic Plants (Macrophytes), Turbidity			X						
MA73043	Ponkapoag Pond	(Eurasian Water Milfoil, Myriophyllum spicatum*), (Non-Native Aquatic Plants*), Mercury in Fish Tissue							X		
MA73048	Reservoir Pond	(Non-Native Aquatic Plants*), Mercury in Fish Tissue							X		
MA73-19	Beaver Brook	Aquatic Macroinvertebrate Bioassessments, Oxygen, Dissolved		0.02						X	Steep slopes, wetlands, and lack of DOT ROW
MA73-25	Pecunit Brook	Escherichia coli						X			
MA81008	Bartlett Pond	Escherichia coli			X						
MA81046	Fort Pond	Oxygen, Dissolved		0.9							Move on to Design
MA81-13	Monoosnuc Brook	Escherichia coli						X			
MA81-18	Squannaco ok River	Escherichia coli, Lack of a coldwater assemblage, pH, Low, Temperature, water				X					
MA81-20	James Brook	Escherichia coli						X			
MA81-21	Nissitissit River	Lack of a coldwater assemblage				X					
MA81-61	Unnamed Tributary	Escherichia coli			X						

Water Body ID	Water Body Name	Impairment	TMDL (lb/yr)	IC (ac)	No Discharge	<9% IC	Negligible	Pathogen Only	Impairments Unrelated to Stormwater	Site Constraints	Notes
MA82110	Warners Pond	(Non-Native Aquatic Plants*), Mercury in Fish Tissue							X		
MA84A-12	Richardson Brook	Escherichia coli						X			
MA84A-13	Trout Brook	Escherichia coli						X			
MA84A-14	Trull Brook	Escherichia coli						X			
MA84A-36	Bartlett Brook	Escherichia coli						X			
MA84A-37	Creek Brook	Escherichia coli						X			
MA84A-39	East Meadow River	Escherichia coli						X			
MA84B-06	Bennetts Brook	Escherichia coli						X			
MA84B-07	Tadmuck Brook	Escherichia coli			X						
MA92-22	Labor In Vain Creek	Fecal Coliform; Oxygen, Dissolved			X						
MA93014	Chebacco Lake	(Non-Native Aquatic Plants*); Mercury in Fish Tissue [376.0]							X		
MA93-02	Crane Brook	Fecal Coliform						X			
MA93-17	Rockport Harbor	Fecal Coliform						X			
MA93-21	Salem Harbor	Estuarine bioassessments; Fecal Coliform								X	Covered by assessment MA93-54

[illegible]

Appendix 2:

Status of Assessments for Design and Construction

Table 1 Status of Assessments for Design and Construction (Sorted By 6/8/2015 Progress)

Water Body ID	Water Body Name	Appendix L-1 TMDL	Semi-Annual Submittal Date	12/8/2014 Progress	6/8/2015 Progress	Anticipated Date of Advertisement
MA42034	Lowes Pond	Y	3/8/2011	Construction Complete	Construction Complete	Complete
MA51-01 (includes MA 51156)	Kettle Brook	Y	12/8/2011	In Construction	Construction Complete	Complete
MA51012	Burncoat Park Pond		12/8/2010	Construction Complete	Construction Complete	Complete
MA51-03	Blackstone River		12/8/2010	Construction Complete	Construction Complete	Complete
MA51087	Leesville Pond		12/8/2011	In Construction	Construction Complete	Complete
MA51-16	Dark Brook		12/8/2011	In Construction	Construction Complete	Complete
MA62-47	Wading River I-95		6/8/2012	Construction Complete	Construction Complete	Complete
MA71-01	Aberjona River		12/8/2011	Construction Complete	Construction Complete	Complete
MA71040	Spy Pond		12/8/2011	Construction Complete	Construction Complete	Complete
MA72-25	Rosemary Brook		6/8/2012	In Construction	Construction Complete	Complete
MA81-04	North Nashua River		12/8/2011	Construction Complete	Construction Complete	Complete
MA82B-14	Nashoba Brook		12/8/2013	Construction Complete	Construction Complete	Complete
MA83-19	Shawsheen River	Y	6/8/2013	Construction Complete	Construction Complete	Complete
MA84038	Mill Pond		6/8/2011	Construction Complete	Construction Complete	Complete
MA84A-03	Merrimack River		12/8/2013	Construction Complete	Construction Complete	Complete
MA84A-04	Merrimack River		12/8/2013	Construction Complete	Construction Complete	Complete
MA84B-02	Beaver Brook		6/8/2011	Construction Complete	Construction Complete	Complete
MA92-03	Miles River		12/8/2012	Construction Complete	Construction Complete	Complete
MA93-07	Bass River		6/7/2013	Construction Complete	Construction Complete	Complete
MA95171	Noquochoke Lake	Y	6/8/2011	In Construction	Construction Complete	Complete
Construction Complete Total:						20
MA35026	Greenwood Pond	Y	6/8/2012	100% design complete; awaiting construction	In Construction	Complete
MA36-16	Quaboag River		3/8/2011	In Construction	In Construction	Complete
MA51-08	Unnamed Tributary - Resurfacing		6/8/2012	Construction Docs Being Completed	In Construction	Complete
MA61-04	Cole River		12/8/2011	In Construction	In Construction	Complete

Water Body ID	Water Body Name	Appendix L-1 TMDL	Semi-Annual Submittal Date	12/8/2014 Progress	6/8/2015 Progress	Anticipated Date of Advertisement
MA62134	Norton Reservoir		6/8/2012	In Construction	In Construction	Complete
MA62-14	Robinson Brook		6/8/2012	In Construction	In Construction	Complete
MA71-04	Alewife Brook		12/8/2012	Design	In Construction	Complete
MA72-07	Charles River - Tolls Project	Y	6/8/2012	Design	In Construction	Complete
MA72-14	Mine Brook - Resurfacing Project 607179		12/8/2011	In Construction	In Construction	Complete
MA72-29	Cheese Cake Brook	Y	6/8/2012	Design	In Construction	Complete
MA72-36	Charles River - Tolls Project	Y	6/8/2012	Design	In Construction	Complete
MA74-08	Monatiquot River		12/8/2011	In Construction	In Construction	Complete
MA82B-04	Assabet River	Y	12/8/2011	In Construction	In Construction	Complete
MA84046	Newfield Pond	Y	6/8/2013	In Construction	In Construction	Complete
MA93032	Hawkes Pond		12/8/2011	In Construction	In Construction	Complete
MA93-34	Saugus River		12/8/2011	In Construction	In Construction	Complete
MA93-35	Saugus River		12/8/2011	In Construction	In Construction	Complete
MA93-51	Unnamed Tributary to Town Line Brook		6/8/2013	25%/75% Design On-going, Survey On-going	In Construction	Complete
MA32-05	Westfield River		6/8/2012	100% Design Complete; under District review	In Construction	Complete
MA34-05	Connecticut River (Subbasin C&D)		12/6/2013	Design	In Construction	Complete
In Construction Total:					20	
MA73-04	Neponset River	Y	12/8/2013	100% Design On-going	100% Design Complete	6/2015
MA74-04	Mill River		6/8/2013	100% Design On-going	100% Design Complete	6/2015
MA74-09	Town Brook		6/8/2013	100% Design On-going	100% Design Complete	6/2015
MA51-14	Mumford River		6/8/2013	100% Design On-going	100% Design On-going	7/2015
MA51-15	Tatnuck Brook		6/8/2013	100% Design On-going	100% Design On-going	7/2015
MA81-05	Nashua River		12/8/2013	100% Design On-going	100% Design On-going	7/2015
MA61-02	Lee River		12/8/2011	Design	100% Design Complete	8/2015
MA62-39	Rumford River		6/8/2012	Design	100% Design Complete	8/2015
MA95-42	Acushnet River I-195		12/8/2012	100% Design Complete	100% Design Complete;	8/2015
MA34-05	Connecticut River (Riverwalk)		12/6/2013	N/A	100% Design Complete	8/2015

Water Body ID	Water Body Name	Appendix L-1 TMDL	Semi-Annual Submittal Date	12/8/2014 Progress	6/8/2015 Progress	Anticipated Date of Advertisement
MA71-02	Mystic River		6/8/2012	Design	100% Design Complete	9/2015
MA34-19	Stony Brook		6/8/2012	100% Design Complete	100% Design Complete	11/2015
				100% Design	Complete Total:	12
MA93-37	Beaver Brook-Danvers		6/8/2013	Survey Complete; 25/75% Design On-going	100% Design On-going	9/2015
MA41-02	Quinebaug River		6/8/2013	25/75% Design complete; under District review	100% Design On-going	12/2015
MA51039	Dorothy Pond		12/8/2012	Proposed BMPs identified, survey on-going	75/100% Design On-going	12/2015
MA35056	Parker Pond		12/8/2013	25/75% Design On-going	25% Submission on 2/27/15	3/2016
MA51093	Marble Pond		6/8/2013	Pre-Proposal	25% Submission on 2/27/15	3/2016
MA51-17	Poor Farm Brook		6/8/2013	Survey Complete, 25%/75% Design On-going	25% Submission on 2/27/15	3/2016
MA51135	Lake Ripple		6/8/2013	25/75% Design Complete; under District review.	100% Design On-going	5/2016
MA41-05	Cady Brook		6/8/2012	25/75% Design Complete	25/75% Design complete – Waiting to be Bundled with Another Project on I-90	10/2017
				25% Design	Complete Total:	8
MA51125	Lake Quinsigamond		6/8/2013	Survey complete; 25/75% Design On-going	Pre-25/75% Design On-going	12/2015
MA51196	Shirley Street Pond	Y	6/8/2013	Survey complete; 25/75% Design On-going	Pre-25/75% Design On-going	12/2015
MA62-47	Wading River I-495 Resurfacing		6/8/2012	Proposed BMPs Identified, Survey On-going	Pre-25/75%; 25% Design On-going	12/2015
MA72092	Lake Pearl-Contract 606176 Resurfacing		6/8/2012	Proposed BMPs Identified, Survey On-going	Pre-25/75%; 25% Design On-going	12/2015
MA84A-10	Spicket River		6/8/2013	Design on-hold at 25/75% for design review of additional area	Pre-25/75% Design, Survey On-going	12/2015
MA84A-18	Bare Meadow Brook		6/8/2013	Design	Pre-25/75% Design, Survey On-going	12/2015
MA82B-02	Assabet River	Y	6/8/2013	Pre-25/75% Design On-going	Pre-25%/75%; Design On-going	12/2015

Water Body ID	Water Body Name	Appendix L-1 TMDL	Semi-Annual Submittal Date	12/8/2014 Progress	6/8/2015 Progress	Anticipated Date of Advertisement
MA94-16	Plymouth Harbor		6/8/2015	N/A	Pre-25/75%	12/2015
MA51-10 (includes MA51-35 and MA51-36)	Mill River		6/8/2013	Conceptual design on-going; preparing survey request	Pre-25/75%; Survey pending; Test Pits Complete	5/2016
MA74-02	Weir River		12/8/2013	Design-survey on-going	Pre-25/75%; Survey complete, Design On-going	5/2016
MA84A-17	Black Brook		6/8/2013	Design; survey on-going	Pre-25/75%; Design On-going	5/2016
MA93-39	Proctor Brook		12/8/2011	Pre-Design	Pre-25/75%; Survey On-going	5/2016
MA93-42	North River		6/8/2014	Proposal	Pre-25/75%; Survey complete; 25/75% Design On-going	5/2016
MA95-42	Acushnet River/Routes 6 & 18		12/8/2012	Proposed BMPs identified, 25%/75% Design on-going	Pre-25/75%; Working on 25% Design	5/2016
MA62-05	Salisbury Plain River		12/7/2012	Design-survey on-going	Pre-25/75%; Design-Survey On-going	6/2016
MA34-36	Bloody Brook		N/A		Pre-25/75%	12/2016
MA82B-04	Assabet River	Y	12/8/2013	N/A	Pre-25/75%	12/2016
MA34-05	Connecticut River (B)		12/8/2013	25/75% Design on-going, survey on-going	Pre-25/75%; Design On-going	5/2017
MA82A-07	Concord River		12/8/2013	Pre-design – Identifying Proposed BMPs	Pre-25% Identifying Proposed BMPs	5/2017
MA83-17	Shawsheen River	Y	12/8/2013	Pre-design – Identifying Proposed BMPs	Pre-25/75%; Design On-going	5/2017
MA83-18	Shawsheen River	Y	6/8/2014	Pre-Proposal	Pre-25/75%; Design On-going	5/2017
MA42-03 (includes MA42058)	French River		6/8/2012	Design	Pre-25/75% Design On-going	10/2017
MA34-05	Connecticut River (A- resurfacing)		12/8/2013	25/75% Design on-going, survey on-going	Pre-25/75%; Design On-going	12/2017
MA53-01 (includes MA53001)	Runnins River-Route 144A-retrofit	Y	12/7/2012	Survey on-going; 25/75% Design on-going	Pre-25/75%; Survey and design on-going	12/2017
MA53-01 (includes MA53001)	Runnins River-I-195 resurfacing	Y	12/7/2012	Survey on-going; 25/75% Design on-going	Pre-25/75%; Survey and Design On-going	12/2017
MA72-14	Mine Brook - Resurfacing Project FY18		12/8/2011	25% Design On-going	Pre-25/75%; 25% Design On-going	12/2017

Water Body ID	Water Body Name	Appendix L-1 TMDL	Semi-Annual Submittal Date	12/8/2014 Progress	6/8/2015 Progress	Anticipated Date of Advertisement
MA51-02	Middle River		6/8/2013	Proposed BMPs Identified, Survey Requested	Pre-25/75% Proposed BMPs Identified, Survey Requested	5/2018
MA51-05	Blackstone River		6/8/2013	Survey complete; 25/75% Design on-going	Pre-25/75% Design On-going	5/2018
MA72-28	Beaver Brook-Lexington	Y	6/8/2013	Survey Complete, 25%/75% Design on-going	Pre-25/75%; Survey complete; 25/75% Design On-going	5/2018
MA81053	Grove Pond		6/8/2014	Proposed BMPs Identified; Survey Requested	Pre 25/75%	5/2018
MA82127	Lake Cochituate-Route 9		6/8/2014	Identifying Proposed BMPs	Pre-25/75% Identifying Proposed BMPs	5/2018
MA82127	Lake Cochituate-I-90		6/8/2014	Identifying Proposed BMPs	Pre-25/75% Identifying Proposed BMPs	5/2018
MA82A-08	Concord River		12/8/2011	Identifying Proposed BMPs	Pre-25/75% Design; Identifying Proposed BMPs	5/2018
MA82A-26	Sudbury River-Route 9		6/8/2014	Identifying Proposed BMPs	Pre-25% Design; Identifying Proposed BMPs	5/2018
MA82A-26	Sudbury River-I-90		6/8/2014	Identifying Proposed BMPs	Pre-25% Design; Identifying Proposed BMPs	5/2018
MA83-04	Rogers Brook	Y	6/8/2013	Proposed BMPs Identified	Pre-25% Design Proposed BMPs Identified; Responding to MassDOT comments	5/2018
MA73-26	Unquity Brook	Y	6/8/2013	Pre-25% Conceptual Design on-going	Pre-25/75% in Progress; Survey Pending; Test Pits Completed	5/2019
MA92-06	Ipswich River		12/7/2012	Pre-design, survey completed	Pre 25/75%, Survey Completed	5/2019
MA73-01	Neponset River		6/8/2012	Survey Complete	Pre-25/75%; Survey Complete	5/2020
MA82055	Grist Pond		12/8/2013	Pre-Proposal	Pre-25/75%	12/2020
MA82A-16	Unnamed Tributary		12/8/2013	Pre-Proposal	Pre-25/75%	12/2020
MA82B-14	Nashoba Brook (District 3)		12/8/2013	Pre-Proposal	Pre-25/75%	12/2020
MA61-06	Mount Hope Bay		6/8/2013	Identifying Proposed BMPs	Pre-25% Identifying Proposed BMPs	5/2021
MA62-04	Taunton River		6/8/2013	Identifying Proposed BMPs	Pre-25% Identifying Proposed BMPs	5/2021
MA51073	Indian Lake	Y	6/8/2012	25/75% Design on-going	Pre-25%, 25/75% Design On-going	5/2022
MA51-08	Unnamed Tributary- Retrofit		6/8/2012	Pre-25%, 25/75% Design on-going	Pre-25%, 25/75% Design On-going	5/2022
Pre-25/75% Design Total:						47
MA84A-03	Merrimack River (resurfacing)		12/8/2013	Pre-proposal	Pre-proposal	12/2016

Water Body ID	Water Body Name	Appendix L-1 TMDL	Semi-Annual Submittal Date	12/8/2014 Progress	6/8/2015 Progress	Anticipated Date of Advertisement
	contract 607561)					
MA95115	Parker Mills Pond		6/8/2015	N/A	Pre-proposal	12/2016
MA82B-04	Assabet River	Y	12/8/2013	N/A	Pre-Proposal	12/2017
MA81-02	North Nashua River		12/8/2013	Pre-proposal	Pre-proposal	5/2018
MA82020	Lake Cochituate		6/8/2014	Identifying Proposed BMPs	Pre-proposal (bundle with other I-90 projects)	5/2018
MA82097	Saxonville Pond		6/8/2014	Pre-proposal	Pre-proposal (bundle with other I-90 projects)	5/2018
MA82125	Lake Cochituate-Route 9		6/8/2014	Pre-proposal	Pre-proposal	5/2018
MA82125	Lake Cochituate-I-90		6/8/2014	Pre-proposal	Pre-proposal	5/2018
MA82A-22	Unnamed Tributary		6/8/2014	Pre-proposal	Pre-proposal (bundle with other I-90 projects)	5/2018
MA71043	Upper Mystic Lake		12/8/2013	Pre-proposal	Pre-proposal	5/2019
MA73-30	Gulliver Creek	Y	6/8/2013	Pre-proposal	Pre-proposal	5/2019
MA95-67	Nasketucket River		12/8/2014	Assessment Submitted	Pre-proposal	5/2019
MA73-33	Unnamed Tributary		12/8/2014	Assessment Submitted	Pre-proposal	5/2020
MA82B-07	Assabet River	Y	12/8/2013	Pre-proposal	Pre-proposal	5/2020
MA82B-14	Nashoba Brook (District 4)		12/8/2013	Pre-proposal	Pre-proposal	5/2020
MA52-03	Ten Mile River		12/8/2014	Assessment Submitted	Pre-proposal	5/2022
MA52-10	Fourmile Brook		12/8/2014	Assessment Submitted	Pre-proposal	5/2022
MA35017	Lake Denison		6/8/2015	N/A	Pre-proposal	5/2023
MA41057	Pistol Pond		6/8/2015	N/A	Pre-proposal	5/2023
MA70-02	Boston Inner Harbor		6/8/2015	N/A	Pre-proposal	5/2023
MA81046	Fort Pond		6/8/2015	N/A	Pre-proposal	5/2023
MA96050	Crystal Lake		6/8/2015	N/A	Pre-proposal	5/2023
Pre-Proposal Total:						22
Total:						129

1. MassDOT has started to have some designs submit 25% Designs, instead of 25/75% Design. The 25% Design stage includes design plans but not the accompanying specifications and unit price estimates in order to gain District input prior to time being spent on these accompanying documents. These additional documents are then reviewed at the 75/100% and bid stages.
2. Construction advertising dates provided in Appendix 2, Table 1 are estimated based on preliminary construction cost estimates and available funding. These dates are expected to change as construction cost estimates become more accurate, BMP feasibility is determined, programmed project schedules change, and funding availability increases or decreases.

Appendix 3:

MassDOT IWP Project Steps

Appendix 3 summarizes the site conditions where specific control measures will be implemented and a summary of the design steps.

MassDOT Impaired Waters Program (IWP) Projects Steps Protocol

MassDOT has developed the following protocol for performing a retrofit design project as part of the Impaired Water Program. The intent of the protocol is to provide insight into the MassDOT site evaluation process, how appropriate site conditions are identified, and the steps to move forward with implementation of specific control measures and BMPs.

1. **Assessment under BMP 7U and/or 7R** – Assessment defines MassDOT’s stormwater contribution to an impaired water body, identifies existing BMPs, and determines the need for additional BMPs to treat MassDOT stormwater. If BMPs are needed, the assessment includes a cursory review for possible BMP locations. The cursory location review includes reviewing drainage patterns to understand where stormwater drains and ruling out areas where wetlands, steep slopes, and safety issues occur. If the assessment suggests moving forward with design of additional BMPs, MassDOT IWP staff assigns the BMPs to a consultant and provides the project layer from the Impaired Waters Program database.
2. **Preliminary Design Evaluation** - Consultant performs more detailed evaluation, including:
 - review existing stormwater drainage system drawings, potential utility conflicts, and constraints which impact BMP design;
 - confirm contributing watershed;
 - review soils maps to determine if soils are appropriate for infiltration;
 - visit the site to review existing and proposed BMP locations;
 - outreach to the community (e.g. DPW, watershed groups); and
 - develop preliminary proposed BMP locations.
3. **Preliminary Design Review** – Consultant discusses BMP locations and schematic design with MassDOT IWP staff, and potentially other MassDOT staff, to identify possible constraints/ concerns MassDOT may have before significant design occurs. Additional constraints may include safety issues regarding existing flooding, need for guardrail, or future projects planned for the area.
4. **Wetland Flagging** – Consultant completes wetland flagging and invasive species inventory. This step may occur before or concurrently with survey to allow survey to include wetland flags in the survey plan.
5. **Survey** – Consultant works with MassDOT to identify survey needs. Survey is typically completed by MassDOT on-call survey contracts unless the survey needs are time-sensitive. Survey provides additional information on potential site constraints including utilities, wetlands, and topography.
6. **Geotechnical Investigation** – Consultant works with MassDOT to identify locations for soil borings which provide site specific soil and groundwater information. Geotechnical subcontractor and driller work together to perform soil borings/ test pits and characterize soil characteristics and seasonal high groundwater elevations in those locations.

At this point, some projects are submitted as a 25% Design Submission (Bullet No. 7a) and the remainder of the projects are submitted as a combined 25/75% Design Submission (Bullet No. 7b).

7a. 25% Design Submission - Consultant completes 25% design of BMPs. Submittal package includes plans, cost estimate, and updated project information for inclusion in IWP database. Consultant provides package to IWP staff for review and to forward to appropriate sections within MassDOT for review. IWP staff sets review deadline (~30-60 days). MassDOT has recently implemented this 25% design submittal to focus on the BMP design plans, for a streamlined review of the design, without the additional details described below for a 75% submittal.

7b. 25/75% Design Submission – Consultant completes 25/75% design of BMPs. Submittal package includes plans, cost estimate, special provisions, calculation booklet, and updated project information for inclusion in IWP database. Consultant provides package to IWP staff for review and to forward to appropriate sections within MassDOT for review. IWP staff sets review deadline (~30-60 days).

Environmental Permits and Reviews – Consultant files appropriate environmental permits. These permits can include Resource Delineation Application (RDA)/ Notice of Intent (NOI) under the Wetland Protection Act, Environmental Notification Forms (ENF) under MEPA regulations, and Chapter 91 License application to MassDEP. By filing for an RDA or NOI with town(s) using the design plans to secure wetland permit(s), MassDOT receives comments/ suggested changes from Conservation Commission(s) and MassDEP and the wetland permit for construction activities. Even if no RDA or NOI are required, a letter is sent to the appropriate Conservation Commission to inform them of positive improvements proposed by MassDOT. While wetland permitting is the most common environmental permit needed, MassDOT has needed to file for more extensive environmental permits such as the ENF and Ch. 91 license due to the project location and activities.

8. MassDOT Design Submission Review – MassDOT sections review the 25% or 25/75% design submittal and provide comments back to IWP staff. IWP staff forwards comments to consultant.

Moving forward, projects will be bundled into one overall project for advertisement are assigned to a Main Design Consultant who sets the schedule, plan details, and submittal details for the bundled project. Bundling of projects, based on similar work and geographic locations, is cost effective.

9. 75/100% or 100% Design Submission – Main Design Consultant incorporates changes requested by MassDOT and prepares updated bundled submittal package along with response to comments and any Conservation Commission conditions. The consultant often coordinates directly with specific commenter if questions arise. IWP staff assists when comments are conflicting or a resolution is not reached. Submittal package includes plans, special provisions, cost estimate, and calculation booklet. Main Design Consultant revises special provisions and cost estimates units as needed for consistency with the bundled project.

10. **MassDOT Design Submission Review** – The IWP staff distributes the submission to MassDOT sections for review and preparation of review comments. IWP staff sets review deadline (~30-60 days).
11. **PS&E/Mylar Submission** –Main Design Consultant incorporates final changes and submits a mylar of cover sheet, checklist, copies of final plans, and documents in electronic format to IWP staff. Consultant submits updated database project and BMP layer to MassDOT.
12. **Advertise** –Project is advertised by the MassDOT Project Manager.
13. **Notice to Proceed** – MassDOT awards the project and issues a Notice to Proceed (NTP) for the project specific contract (average of 120 days between advertising date and NTP).
14. **Construction** – As requested by the MassDOT Resident Engineer, the design consultant will attend pre-construction meeting to answer design questions from the contractor and stays involved in the project to review shop drawing submittals, requests for additional information, and construction changes. The Main Design Consultant will conduct site visits or check on construction on an as-needed basis.
15. **Annual Report Cut Sheet and IWP Database Submittal** – Main Design Consultant will develop cut sheet to document BMP construction. Additionally, the consultant will complete a final BMPs and project IWP database submission. The database is used for compiling all of the IWP assessments and the project BMPs.

List of Attachments

Attachment 1 Impaired Waters Assessments Final Reports (IC/TMDL)

Attachment 2 Less Than 9% Assessments Other Assessments

Attachment 3 Other Assessments

Attachment 4 No Discharges from MassDOT Outfalls Assessments

Attachment 5 Pathogen Only Assessments

Attachment 6 Nitrogen Non-TMDL Groundwater Assessments

Attachment 7 Phosphorous Groundwater Assessments

Attachment 8 Resubmitted Assessments

Attachment 9 Table 1 from the Nitrogen Non-TMDL Groundwater Methodology

Attachment 10 Updated Nitrogen TMDL Methodologies

Attachment 11 June 2014 Updated Nitrogen Loads