

Massachusetts Department of Transportation  
Semi Annual Submittal under MassDOT's Impaired Water Program

Attachment 4: No Discharges from MassDOT Outfalls Assessments

MA35029 Hilchey Pond, TMDL is Phosphorus

MA36-40 Abbey Brook including Bemis Pond

MA42015 Dutton Pond, TMDL is Phosphorus

MA51105 Mill Pond, TMDL is Phosphorus

MA71047 Winter Pond

MA71-09 Winn Brook

MA72-33 Charles River, TMDL is Pathogen

MA74-06 Cochato River

MA83-08 Shawsheen River

MA83009 Hussey Pond

MA83015 Rabbit Pond

MA83-11 Long Meadow Brook

MA83-13 Sandy Brook

MA93011 Cape Pond

MA95166 White Island Pond, TMDL is Phosphorus

MA95173 White Island Pond, TMDL is Phosphorus

MA95-35 Mattapoisett Harbor

MA95-64 Little Bay

# Impaired Waters Assessment for Hilchey Pond (MA35029)

## Impaired Water Body

Name: Hilchey Pond

Location: Gardner, Massachusetts

Water Body ID: MA35029

## Impairments

Hilchey Pond (MA35029) is listed under Category 4a, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Hilchey Pond is impaired due to the following:

- turbidity

According to MassDEP's *Millers River Watershed 2000 Water Quality Assessment Report* (MassDEP, 2004), the primary and secondary contact recreational, fish consumption, aquatic life, and aesthetic uses of Hilchey Pond have not been assessed. Hilchey Pond (MA35029) also falls under the jurisdiction of MassDEP's *TMDLs of Phosphorus for Selected Millers Basin Lakes*, which addresses the turbidity impairment (MassDEP, 2003).

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3) (b) 6 Color and Turbidity*. These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this Class.

## Site Description

Hilchey Pond (MA35029) is a water body in Gardner, Massachusetts that covers approximately 8 acres. The pond has one inlet and one outlet (Baileys Brook); both are non-impaired streams (Figure 1). The inlet stream is comprised of two branches that meet prior to flowing to Hilchey Pond. Baileys Brook flows to Otter River, as shown in Figure 1. The watershed is characterized in MassDEP's *TMDLs of Phosphorus for Selected Millers Basin Lakes* (MassDEP, 2003) as primarily forested with a small percentage of rural/urban, wetlands, and agriculture land use.

The closest MassDOT roadway is Route 68 (West Street) which runs south of the pond as shown in Figure 1. Route 68 is approximately 350 feet from Hilchey Pond. The area between Route 68 and the pond is mostly forested and low density residential. During the desktop analysis, it was concluded that the presence of forest and wetlands between the pond and Route 68 prevent stormwater runoff from directly draining to Hilchey Pond.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to Hilchey Pond (MA35029). The nearest MassDOT-owned urban roadway is Route 68 in Gardner. Runoff along Route 68 is collected in catch basins that discharge to outfalls along Route 68. One branch of the inlet stream to Hilchey Pond crosses under Route 68 through a concrete spillway. Runoff from Route 68 drains to an outfall that discharges to this stream. The inlet stream is not impaired and flows through forest and wetlands upstream of the confluence with Hilchey Pond. Runoff from Route 68 that drains to this stream is considered indirect drainage to Hilchey Pond.

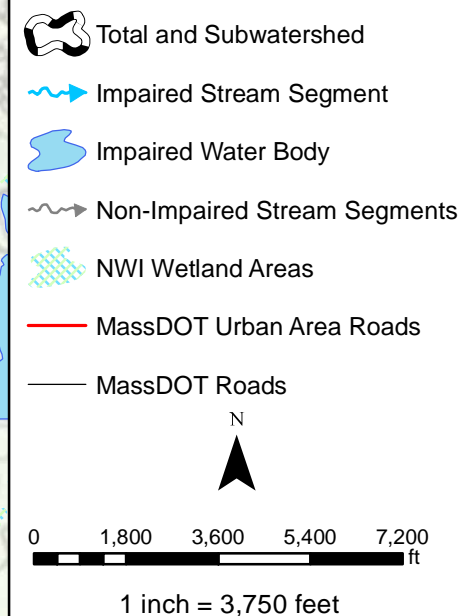
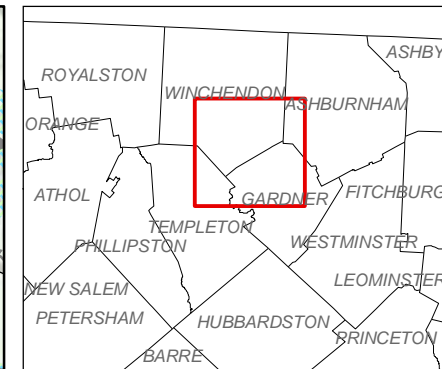
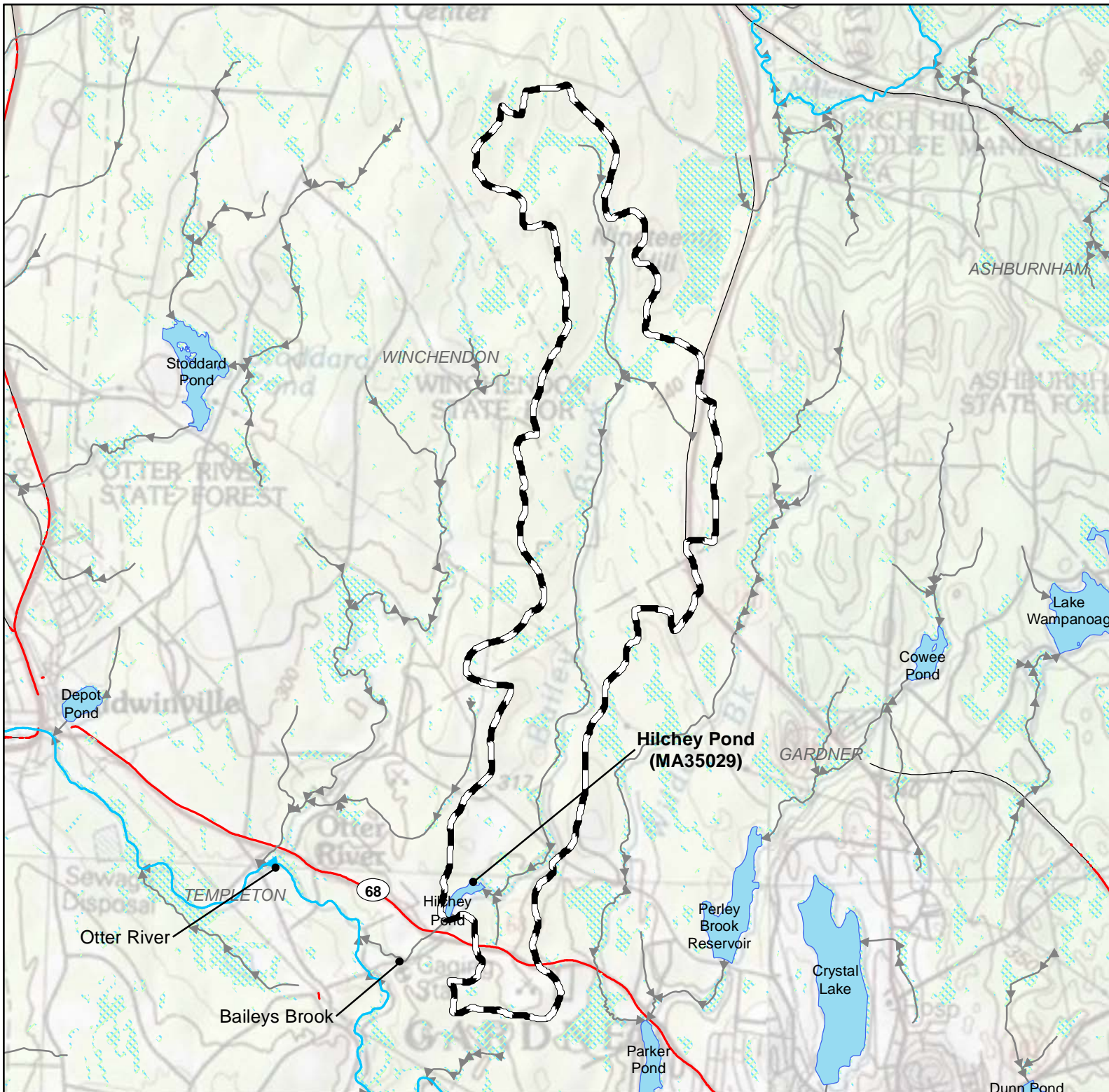
## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Hilchey Pond, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

- Massachusetts Department of Environmental Protection (MassDEP). (2003). Total Maximum Daily Loads of Phosphorus for Selected Millers Basin Lakes. May 8, 2003. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/millers.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2004). Millers River Watershed 2000 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/35wqar.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>



**Figure 1**  
**Hilchey Pond**  
**No Discharge**  
**MA35029**

June 2013

## MEMORANDUM

**To:** Alex Murray, Environmental Analyst - MassDOT  
**Fr:** Matthew Moyen, Engineer - Tetra Tech  
**Re:** **Impaired Waters Assessment  
Abbey Brook (MA36-40)  
Including Former Segment Bemis Pond (MA36011)  
Chicopee and Springfield, MA**  
**Dt:** June 5, 2013

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### Impaired Water Body

Name: Abbey Brook

Location: Springfield, Massachusetts

Water Body ID: MA36-40

### Impairments

Massachusetts DEP Final *Year 2010 Integrated List of Waters*: total suspended solids (TSS)

Massachusetts DEP Final *Year 2012 Integrated List of Waters*: total suspended solids (TSS)

Abbey Brook (MA36-40) is listed under Category 5, Waters Requiring a Total Maximum Daily Load (TMDL), on both MassDEP's Final *Year 2010* and Proposed *Year 2012 Integrated List of Waters*. According to MassDEP's *Chicopee River Watershed 2003 Water Quality Assessment Report* (MassDEP 2008), Abbey Brook (MA36-40) was a newly designated segment by MassDEP and as such had not been reported on before in a Massachusetts Integrated List of Waters on the condition of waters in Massachusetts. The Cities of Chicopee and Springfield discharge stormwater to Abbey Brook (MA36-40) under National Pollutant Discharge Elimination System (NPDES) permits MAR041003 and MAR041023 respectively.

Bemis Pond (formerly MA36011) was listed separately in the Massachusetts DEP Final *Year 2008 Integrated List of Waters*; however, it is considered part of Abbey Brook in the Massachusetts DEP Final *Year 2010 Integrated List of Waters* and Massachusetts DEP Final *Year 2012 Integrated List of Waters*.

### Relevant Water Quality Standards

- *Water Body Classification: Class B*



- *314 CMR 4.05 (3)(b) 5. Solids.* These waters shall be free from floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to this Class, that would cause aesthetically objectionable conditions, or would impair the benthic biota or degrade the chemical composition of the bottom.
- *314 CMR 4.05 (5)(a) Aesthetics.* All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.

## Site Description

Abbey Brook (MA36-40) headwaters west of Saint James Avenue in Springfield, Massachusetts and travels 1.5 miles through Bemis Pond (formerly reported as segment MA36011) to its confluence with the Chicopee River in Chicopee, Massachusetts. The Abbey Brook (MA36-40) subwatershed, delineated as the portion of the watershed draining directly to Abbey Brook, is approximately 840 acres, of which approximately 347 acres are impervious surface. MassDOT does not own any property in the Abbey Brook (MA36-40) subwatershed (See Figure 1).

## Assessment under BMP 7U

The impairment listed for Abbey Brook (MA36-40), total suspended solids, has not been addressed by a TMDL. Therefore, MassDOT assessed this impairment using the approach described in BMP 7U of MassDOT's *Storm Water Management Plan (Water Quality Impaired Waters Assessment and Mitigation Plan)*, which applies to impairments that have been assigned to a water body prior to completion of a TMDL. As described in MassDOT's *Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method, MassDOT 2011)*, impervious cover (IC) provides a measure of the potential impact to stormwater on many impairments. For this water body, MassDOT used the IC method to assess total suspended solids.

## MassDOT's Application of the Impervious Cover Method

MassDOT's *Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method, MassDOT 2011)* applies many aspects of the United States Environmental Protection Agency (USEPA) Region I's Impervious Cover (IC) Method described in EPA's *Stormwater TMDL Implementation Support Manual* (ENSR 2006) to MassDOT's program to assess potential stormwater impacts on the impaired water and evaluate the impervious cover reduction required to ensure that stormwater is not the cause of the impairments. Consistent with the findings of EPA and others, when a watershed had less than 9% impervious cover, MassDOT concludes that stormwater was not the likely cause of the impairment. Additional information regarding this method is provided under MassDOT's Application of the IC Method document.

First, MassDOT calculated the percent IC of the water body's entire contributing watershed (total watershed upstream of the downstream end of an impaired segment) and that of the local watershed contributing to the impaired segment (referred to as the subwatershed in this analysis) to determine whether stormwater has a potential to cause the impairments of the receiving water

body. The total watershed and subwatershed to the impaired water body were delineated using the USGS Data Series 451. When USGS Data Series watersheds did not delineate the subwatershed of the water body under review, the GIS shapefiles were modified by delineating to the water body based on USGS topography to add specificity. Impervious cover data was available as part of the USGS data layers Data Series 451 and MassGIS's impervious surfaces data layer. In cases where it was determined that stormwater was a potential cause of the impairment, MassDOT calculated the degree to which IC would need to be reduced in the subwatershed to meet the 9% IC target. This reduction was then applied proportionally to the area of MassDOT roadways/properties directly discharging to the water body segment to identify MassDOT's target IC reduction. The 9% IC reduction serves only as a recommended target and is not meant to imply that any reductions below the target would cause an exceedance in water quality standards. As explained in BMP 7U, MassDOT will consider a variety of factors apart from numeric guidelines, including site constraints and the magnitude of any potential exceedances in water quality standards, to determine the precise nature and extent of additional BMPs recommended for particular locations. This approach is consistent with the iterative, adaptive management BMP approach set forth in EPA guidelines.

MassDOT then calculated the effective impervious cover reduction afforded by the existing structural BMPs currently incorporated into the stormwater infrastructure of MassDOT's properties. This effective IC reduction was calculated by applying effective impervious cover reduction rates to existing BMPs based on their size, function and contributing watershed. BMP performances were derived from *EPA Region 1's Stormwater Best Management Practices (BMP) Performance Analysis* report (EPA 2010) and engineering judgment. More information on the approach used to calculate the effective impervious cover reductions is described in BMP 7U. When the reduction in effective impervious cover achieved by the existing BMPs was equal to or greater than the target reduction, no further measures were proposed. When this was not the case, MassDOT considered additional BMPs in order to meet the targeted reduction.

Using this approach, MassDOT derived the following site parameters for the subwatershed of the impaired water body (Abbey Brook – MA36-40):

<b>Subwatershed</b>		
Subwatershed Area	840	acres
Impervious Cover (IC) Area	347	acres
Percent Impervious	41.3	%
IC Area at 9% Goal	75.6	acres
Necessary Reduction % in IC	78.2	%

The subwatershed to Abbey Brook (MA36-40) is greater than 9% impervious cover which indicates that the stormwater is likely contributing to the impairments. The subwatershed needs to reduce its effective IC by 78.2% to reach the 9% goal.

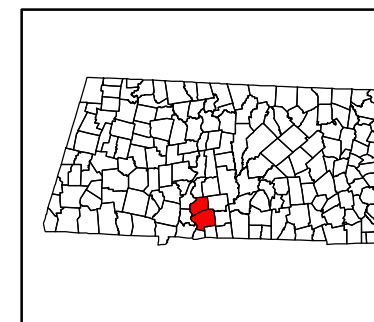
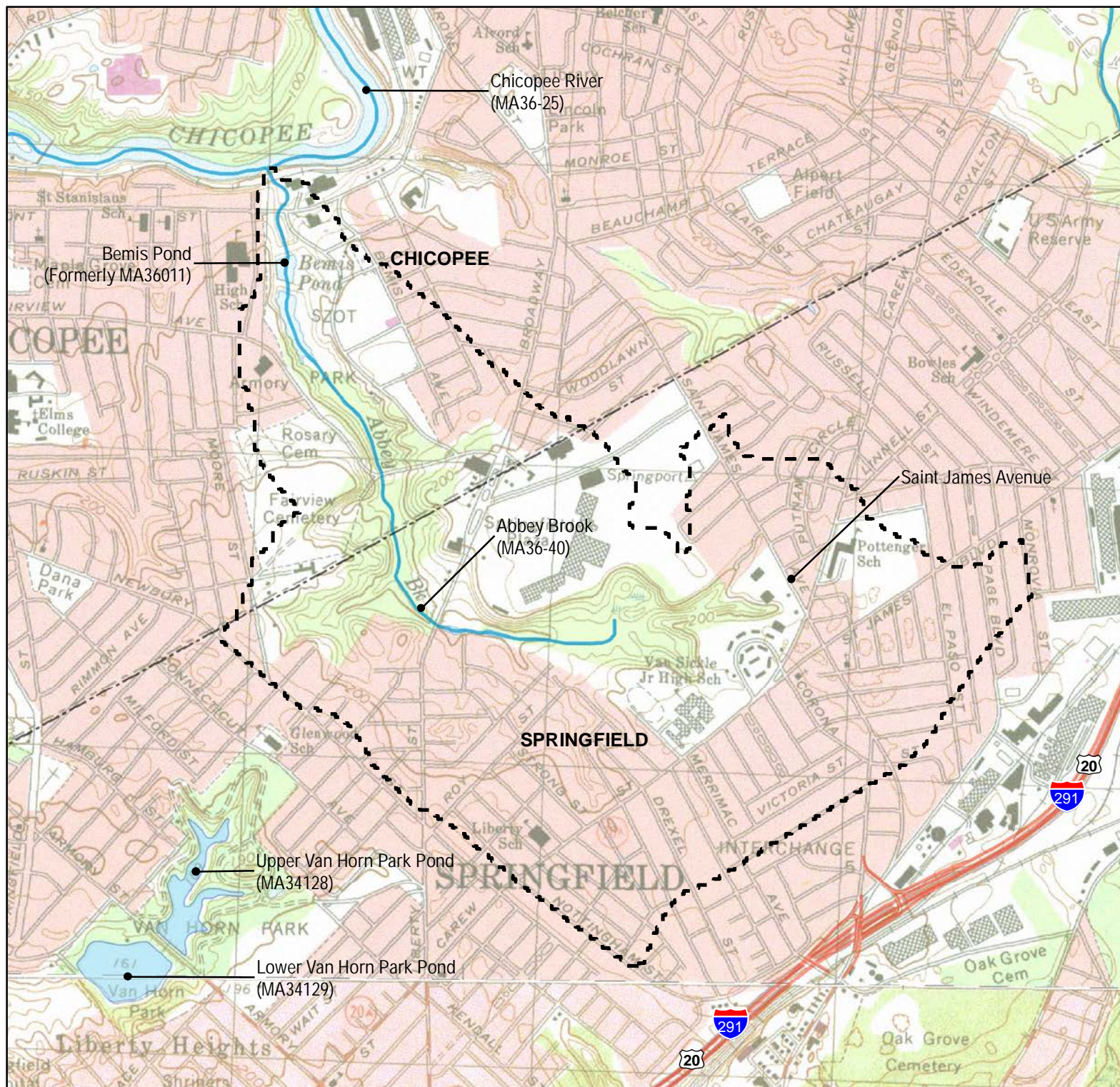
## Conclusions

Based on watershed mapping and a review of MassDOT roadway inventory there are no direct discharges from MassDOT property to Abbey Brook (MA36-40), therefore, MassDOT has determined further assessment of this water body is not required.

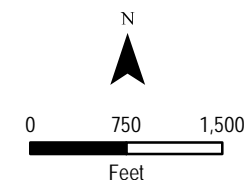
## References

- ENSR 2006. *Stormwater TMDL Implementation Support Manual for US Environmental Protection Agency Region 1*. ENSR International & EPA Region 1, Boston, MA. Project No.: 10598-001-500. March 2006. Available at: <http://www.epa.gov/region1/eco/tmdl/regionalpgrfs.html>
- EPA 2010. *Stormwater Best Management Practices (BMP) Performance Analysis*. Available at: <http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/BMP-Performance-Analysis-Report.pdf>
- Mass DEP 2008. Massachusetts Year 2008 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 303(d) and 305(b) of the Clean Water Act. Massachusetts Department of Environmental Protection. December 2008. Available at: <http://www.mass.gov/dep/water/resources/08list2.pdf>
- MassDEP 2010. Massachusetts Year 2010 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Massachusetts Department of Environmental Protection. November 2011. Available at: <http://www.mass.gov/dep/water/resources/10list6.pdf>
- MassDEP 2012. Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Massachusetts Department of Environmental Protection. January 2012. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>
- MassDOT 2011. Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method). April 2011.
- MassDEP 2008. Chicopee River Watershed 2003 Water Quality Assessment Report. Massachusetts Department of Environmental Protection. October 2008. Available at: <http://www.mass.gov/dep/water/resources/36wqar03.pdf>





- Abbey Brook (MA36-40)
- Subwatershed Boundary
- Town Boundary
- MassDOT Roads
- Impaired Stream Segments
- Impaired Water Bodies



**Figure 1**

Abbey Brook (MA36-40)  
Directly Contributing Subwatershed  
April 2013



# Impaired Waters Assessment for Dutton Pond (MA42015)

## Impaired Water Body

Name: Dutton Pond

Location: Leicester, Massachusetts

Water Body ID: MA42015

## Impairments

Dutton Pond (MA42015) is listed under Category 4a, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Dutton Pond is impaired due to the following:

- nutrient/eutrophication biological indicators
- phosphorus (total)

According to MassDEP's *French and Quinebaug River Watersheds 2004-2008 Water Quality Assessment Report* (MassDEP, 2004), the primary and secondary contact recreational and aesthetic uses of Dutton Pond are assessed as impaired. This assessment was based on characterization of the waterbody as hypereutrophic, the presence of wastewater discharge, and data indicating high turbidity in the pond.

Dutton Pond (MA42015) also falls under the jurisdiction of MassDEP's *TMDLs of Phosphorus for Selected French Basin Lakes* (MassDEP, 2002). This TMDL addresses a variety of waterbody impairments related to the presence of excess phosphorus. In addition to phosphorus, these impairments include noxious aquatic plants (macrophytes) for which Dutton Pond (MA42015) is listed on the 2008 List (MassDEP, 2004).

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3) (b) 6 Color and Turbidity*. These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this Class.
- *314 CMR 4.05 (5) (a) Aesthetics*. All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
- *314 CMR 4.05 (5) (c) Nutrients*. Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point

source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses. Human activities that result in the nonpoint source discharge of nutrients to any surface water may be required to be provided with cost effective and reasonable best management practices for nonpoint source control.

- *314 CMR 4.05 (5)(e) Toxic Pollutants.* All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. Where the Department determines that naturally occurring background concentrations are higher, those concentrations shall be the allowable receiving water concentrations. The Department shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction of metals when EPA's 304(a) recommended criteria provide for use of the dissolved fraction. The EPA recommended criteria based on total recoverable metals shall be converted to dissolved metals using EPA's published conversion factors. Permit limits will be written in terms of total recoverable metals. Translation from dissolved metals criteria to total recoverable metals permit limits will be based on EPA's conversion factors or other methods approved by the Department. The Department may establish site specific criteria for toxic pollutants based on site specific considerations.

## Site Description

Dutton Pond (MA42015) is a water body in Leicester, Massachusetts that covers approximately 6 acres. The pond has a number of inlets, including several non-impaired streams and an impaired stream segment referred to as "Unnamed Tributary" (MA42-01) to Town Meadow Brook on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013) (Figure 1). The pond has one primary outlet, Town Meadow Brook (MA42-02). The Leicester WWTP discharges immediately upstream of Dutton Pond (Figure 1). Unnamed Tributary (MA42-01) is listed under Category 2 "Attaining some uses; other uses not assessed" and Town Meadow Brook (MA42-02) is listed under Category 3, "Waters not assessed" on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013).

The closest MassDOT roadway is Route 9 (Main Street) which runs north of the pond. As shown in Figure 1, Route 9 is over 1,800 feet from Dutton Pond. The area between Route 9 and the pond is mostly residential and forested. During the desktop analysis, it was concluded that local topography and the presence of residential development, isolated wetlands, and forest between the pond and Route 9 prevent stormwater runoff from directly draining to Dutton Pond.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to Dutton Pond (MA42015). The nearest MassDOT-owned urban roadway is Route 9 in Leicester. Runoff along Route 9 is collected in catch basins that discharge to outfalls along Route 9. Route 9 crosses over one of the inlet streams to Dutton Pond and also crosses over Unnamed Tributary (MA42-01) (see Figure 1). The inlet stream is not

impaired, and Unnamed Tributary (MA42-01) flows through wetlands upstream of the confluence with Dutton Pond. Runoff from Route 9 that drains to both stream segments is considered indirect drainage to Dutton Pond.

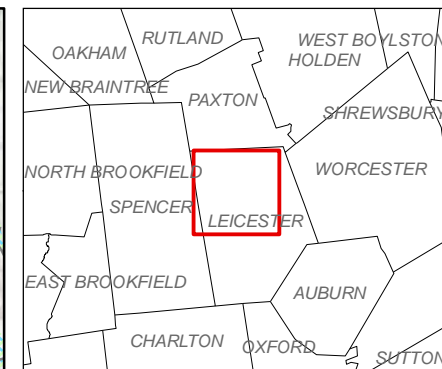
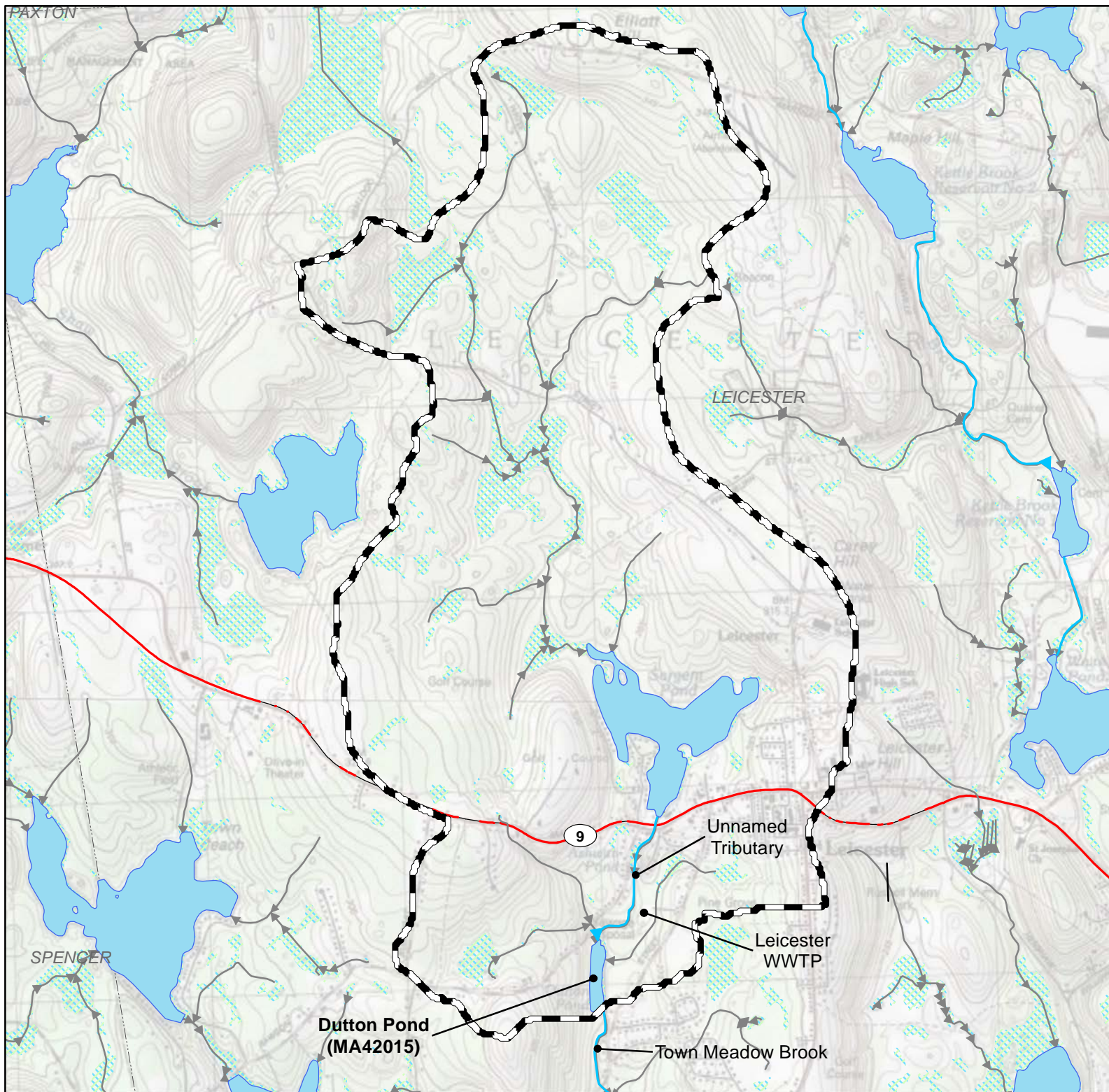
## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Dutton Pond, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

- Massachusetts Department of Environmental Protection (MassDEP). (2002). Total Maximum Daily Loads of Phosphorus for Selected French Basin Lakes. May 28, 2002. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/french.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2004). French and Quinebaug River Watersheds 2004-2008 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/eea/agencies/massdep/water/watersheds/french-quinebaug-river-watersheds-2004-08.html>
- Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>



- Total and Subwatershed
- Impaired Stream Segment
- Impaired Water Body
- Non-Impaired Stream Segments
- NWI Wetland Areas
- MassDOT Urban Area Roads
- MassDOT Roads
- Town Boundaries



0 1,100 2,200 3,300 4,400  
ft

1 inch = 2,250 feet

**Figure 1**  
**Dutton Pond**  
**No Discharge**  
**MA42015**

June 2013

# Impaired Waters Assessment for Mill Pond (MA51105)

## Impaired Water Body

Name: Mill Pond

Location: Shrewsbury, MA

Water Body ID: MA51105

## Impairments

Mill Pond (MA51105) is listed under Category 4a, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2010 Integrated List of Waters* (MassDEP, 2011). Mill Pond is impaired due to turbidity and is covered by the phosphorus TMDL, *Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes* (MassDEP, 2002).

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3)(b) 6 Color and Turbidity*. These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.

## Site Description

Mill Pond (MA51105) is a water body in Shrewsbury, Massachusetts that covers approximately 12 acres. The pond lies upstream of Lake Quinsigamond (MA51125). MassDOT-owned urban roadways within the subwatershed of Mill Pond include Interstate 290 and Maple Avenue. See Figure 1.

## Assessment under BMP 7U for No Discharge Determination

Based on a site visit on December 12, 2012, it was determined that MassDOT does not directly contribute runoff to Mill Pond (MA51105). Stormwater from the portion of I-290 within the subwatershed of Mill Pond drains to wetland areas and non-impaired streams and therefore is considered indirect drainage to Mill Pond. Maple Avenue is sloped down towards Route 9. Stormwater from Maple Avenue north of Old Mill Road (see Figure 2) consists of catch basins and a trunkline which appears to continue down Old Mill Road. However, the trunkline on Old Mill Road does not continue to Mill Pond. Therefore, stormwater runoff from Maple Avenue is also considered indirect drainage to Mill Pond.

## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Mill Pond, further assessment of this water body is not warranted under the Impaired Waters program.

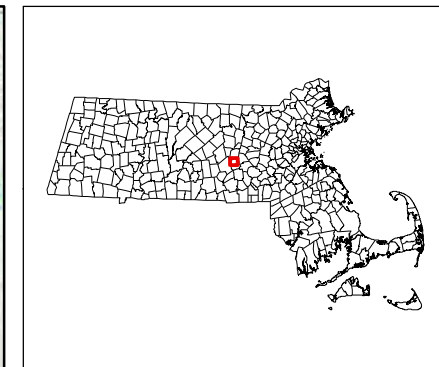
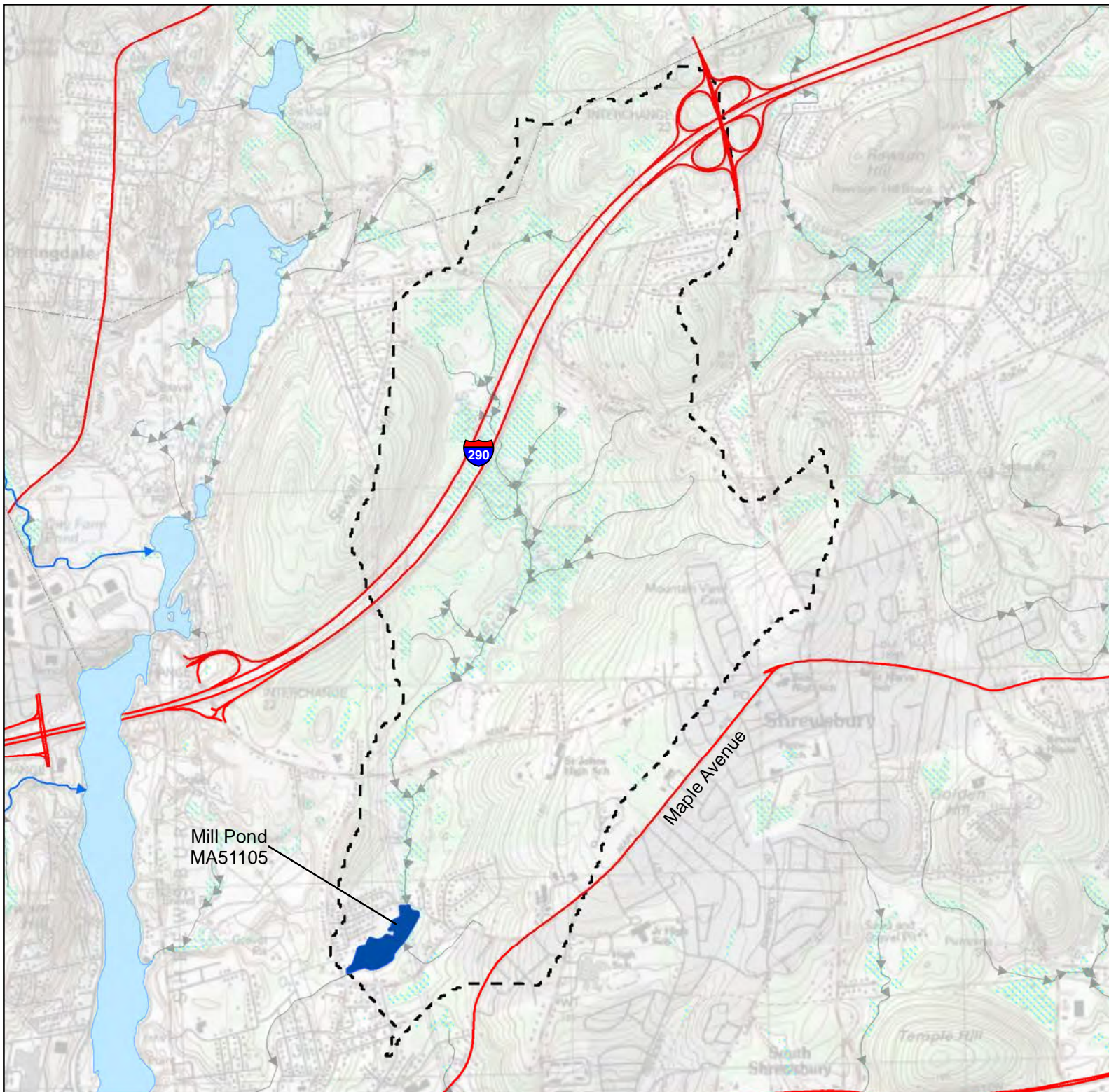











MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

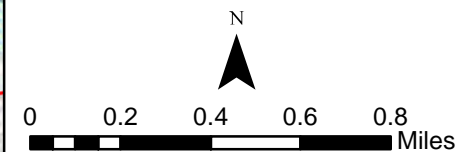
## References

Massachusetts Department of Environmental Protection (MassDEP). (2002). Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes. Available at:  
<http://www.mass.gov/dep/water/resources/blaktml.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2011). Massachusetts Year 2010 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from:  
<http://www.mass.gov/dep/water/resources/10list6.pdf>



-  Impaired Stream Segment
-  Non-Impaired Stream Segment
-  Mill Pond
-  Impaired Water Bodies
-  NWI Wetland Areas
-  MassDOT Roads in Urban Areas
-  MassDOT Roads
-  Town Boundaries
-  Mill Pond Subwatershed



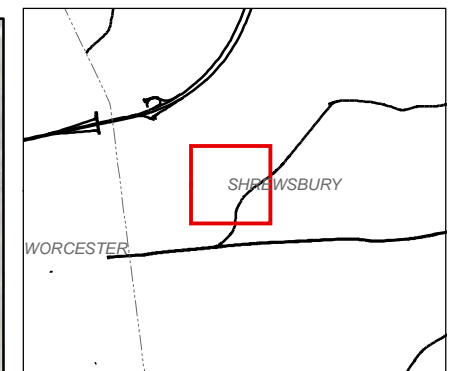
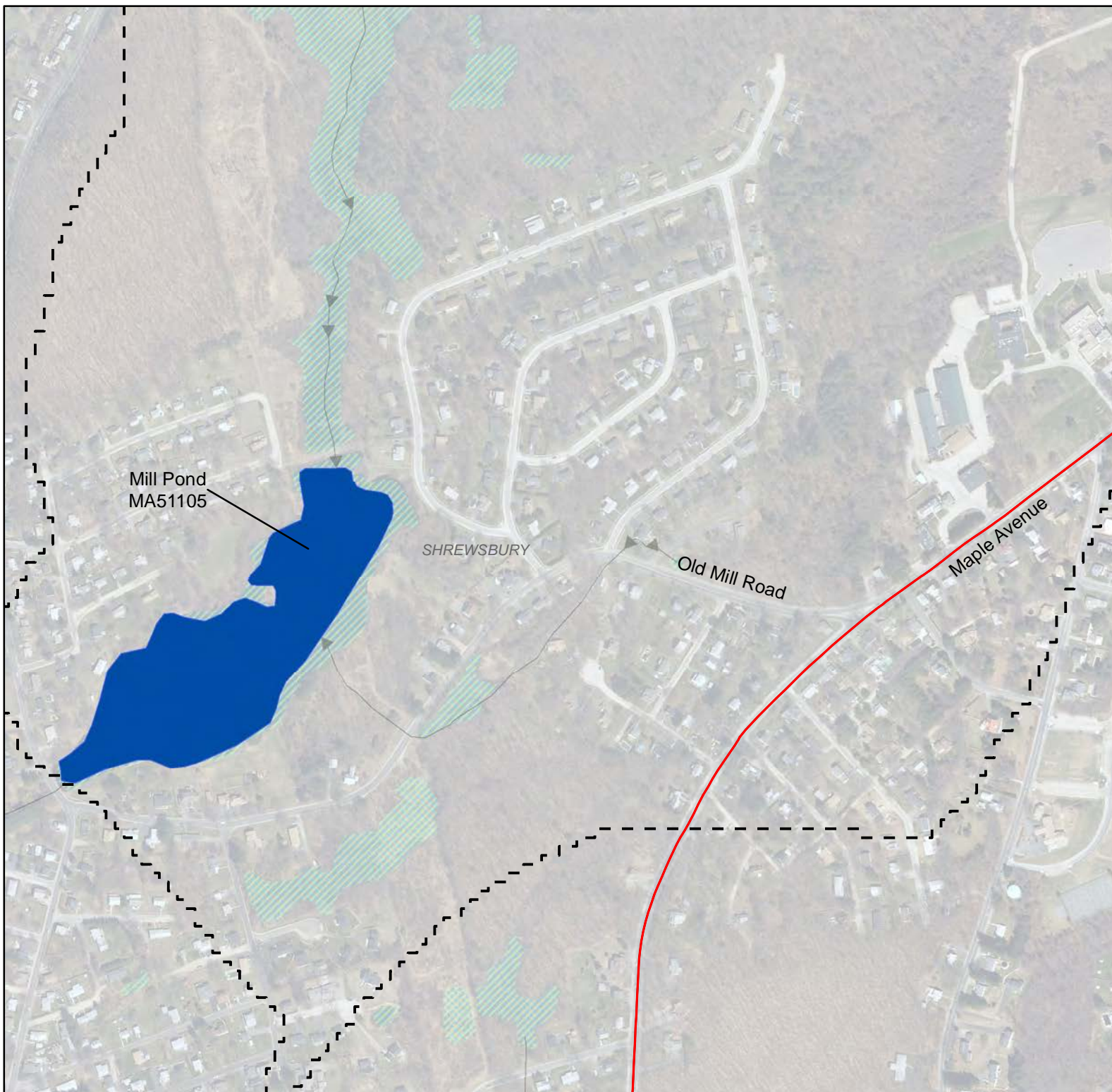
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**Figure 1**

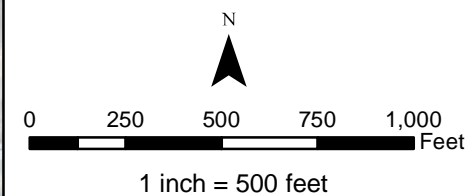
**Mill Pond  
Subwatershed  
MA51105**

June 2013





- Subwatershed
- Stormwater Outfalls
- Impaired Stream Segment
- Mill Pond
- Impaired Water Bodies
- Non-Impaired Stream Segment
- NWI Wetland Areas
- MassDOT Roads in Urban Areas
- MassDOT Roads
- Town Boundaries



**Figure 2**

**Mill Pond  
(MA51105)**

June 2013

# Impaired Waters Assessment for Winter Pond (MA71047)

## Impaired Water Body

Name: Winter Pond

Location: Winchester, Massachusetts

Water Body ID: MA71047

## Impairments

Winter Pond (MA71047) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters*, (MassDEP 2013).

According to MassDEP's Mystic River Watershed and Coastal Drainage Area 2004-2008 Water Quality Assessment Report (MassDEP, 2010), the non-native aquatic plant species *Myriophyllum heterophyllum*. (watermilfoil) was identified in Winter Pond. The source of impairment was recognized as the introduction of non-native organisms, accidental or intentional. Winter Pond is not included in a TMDL report.

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (5) (c) Nutrients*. Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses. Human activities that result in the nonpoint source discharge of nutrients to any surface water may be required to be provided with cost effective and reasonable best management practices for nonpoint source control.

## Site Description

Winter Pond (MA71047) is a water body in Winchester, Massachusetts that covers approximately 15 acres. The closest MassDOT roadway is Route 3 (Cambridge Street) which runs west of the pond. See Figure 1.

During the desktop analysis, it was concluded that local topography and the presence of residential development, woodlands, wetlands, and other water bodies between the pond and Route 3 (Cambridge Street) prevent stormwater runoff from directly draining to Winter Pond. The area

between Route 3 and the pond is mostly residential and forested, and runoff from Route 3 would discharge and infiltrate in well-vegetated woods and the wetland/pond to the west of Winter Pond before reaching the pond. Therefore, stormwater runoff from Route 3 is not considered direct drainage to Winter Pond.

## **Assessment under BMP 7U for No Discharge Determination**

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to Winter Pond (MA71047). The nearest MassDOT-owned urban roadway is Route 3 (Cambridge Street) in Winchester. Runoff from Route 3 flows off the roadway into well-vegetated woods and wetlands where it infiltrates. Runoff from Route 3 (Cambridge Street) does not directly drain to the pond.

## **Conclusions**

Because MassDOT urban property does not directly contribute stormwater runoff to Winter Pond, further assessment of this water body is not warranted under the Impaired Waters program.

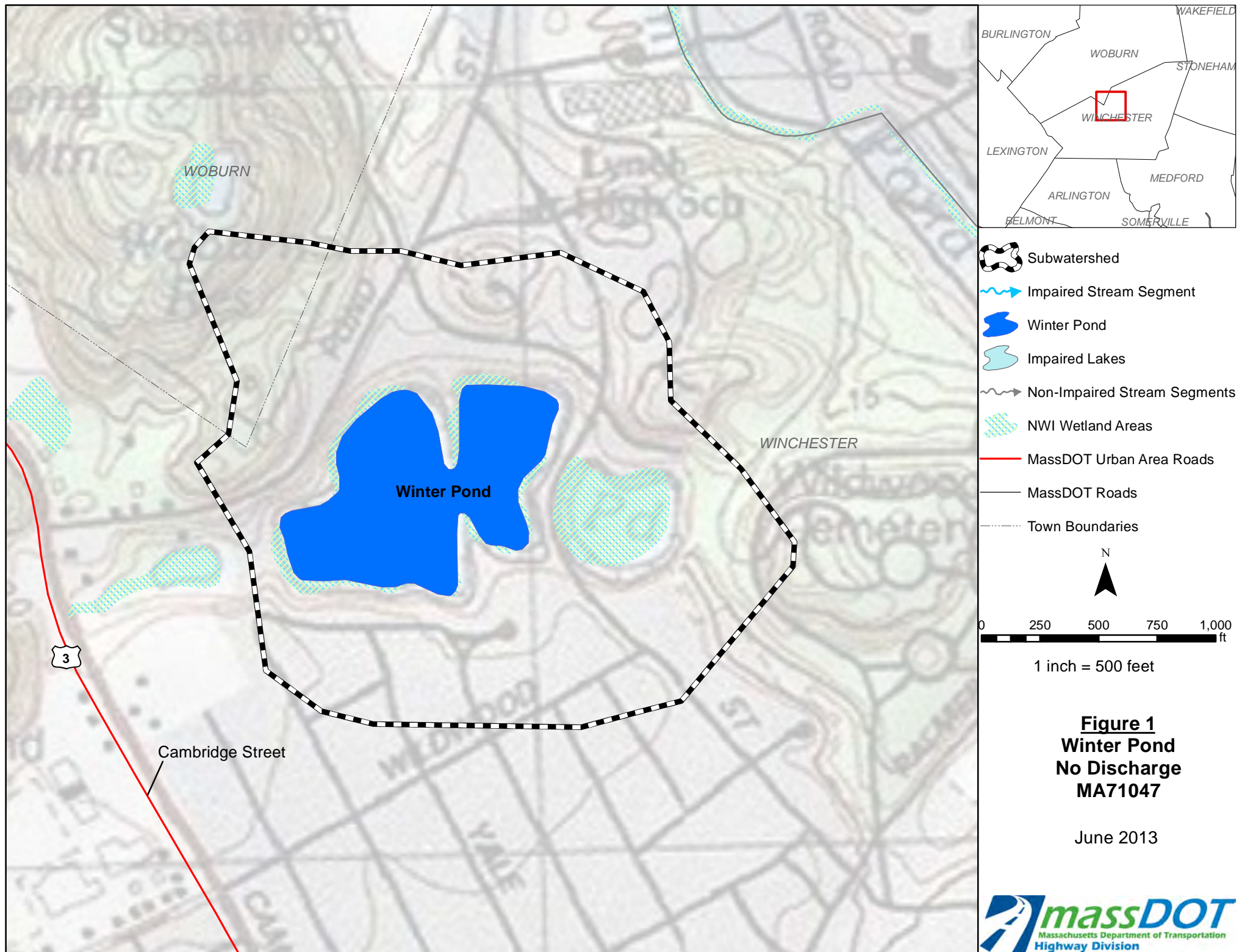
MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## **References**

Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2010). Mystic River Watershed and Coastal Drainage Area 2004-2008 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/dep/water/resources/71wqar09.pdf>







# Impaired Waters Assessment for Winn Brook (MA71-09)

## Impaired Water Body

Name: Winn Brook

Location: Belmont, Massachusetts

Water Body ID: MA71-09

## Impairments

Winn Brook (MA71-09) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Winn Brook is impaired due to the following:

- *Escherichia coli*
- physical substrate habitat alterations

According to MassDEP's *Mystic River Watershed and Coastal Drainage Area 2004-2008 Water Quality Assessment Report* (MassDEP, 2010), Winn Brook is a Class B water body. The report assessed Winn Brook for the Aquatic Life, Primary Contact and Secondary Contact designated use classifications. Aquatic Life Use is reported to be impaired for altered habitat due to the fact that seventy percent of Winn Brook is culverted. Both Primary and Secondary Contact designated uses were considered impaired as a result of the presence of for *E. Coli* from an unspecified urban stormwater source. Although Winn Brook does not have a site specific assessment for Fish Consumption, all applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this water body. The Aesthetics designated use classification also was not assessed due to the culverted nature of the majority of flow.

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- 314 CMR 4.05 (3)(b) 4 Bacteria.
  - a. At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where *E. coli* is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml;
  - b. for other waters and, during the non bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all *E. coli* samples taken within the most

recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department;

## Site Description

Winn Brook (MA71-09) is a water body in Belmont, Massachusetts approximately 1.4 miles in length. Winn Brook is part of the Boston Harbor Watershed and the Mystic River subbasin. Winn Brook begins near Juniper Road and the Belmont High School and ends at its confluence with Little Pond. Portions of Winn Brook are culverted underground. The closest MassDOT roadway is Route 2, which runs north approximately 1,600 feet north of Winn Brook. See Figure 1.

## Assessment under BMP 7U for No Discharge Determination

During the desktop analysis it was concluded, using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, that MassDOT does not directly contribute runoff to Winn Brook (MA71-09). The nearest MassDOT-owned urban roadways are Route 2 in Belmont. Runoff from Route 2 has been determined to drain to Spy Pond (MA71040), north of the roadway, and therefore is not considered direct drainage to Winn Brook (MA71-09).

## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Winn Brook, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

Massachusetts Department of Environmental Protection (MassDEP). (2010). Mystic River Watershed And Coastal Drainage Area 2004-2008 Water Quality Assessment Report. Retrieved from:

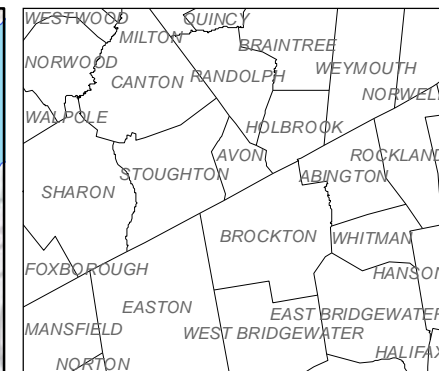
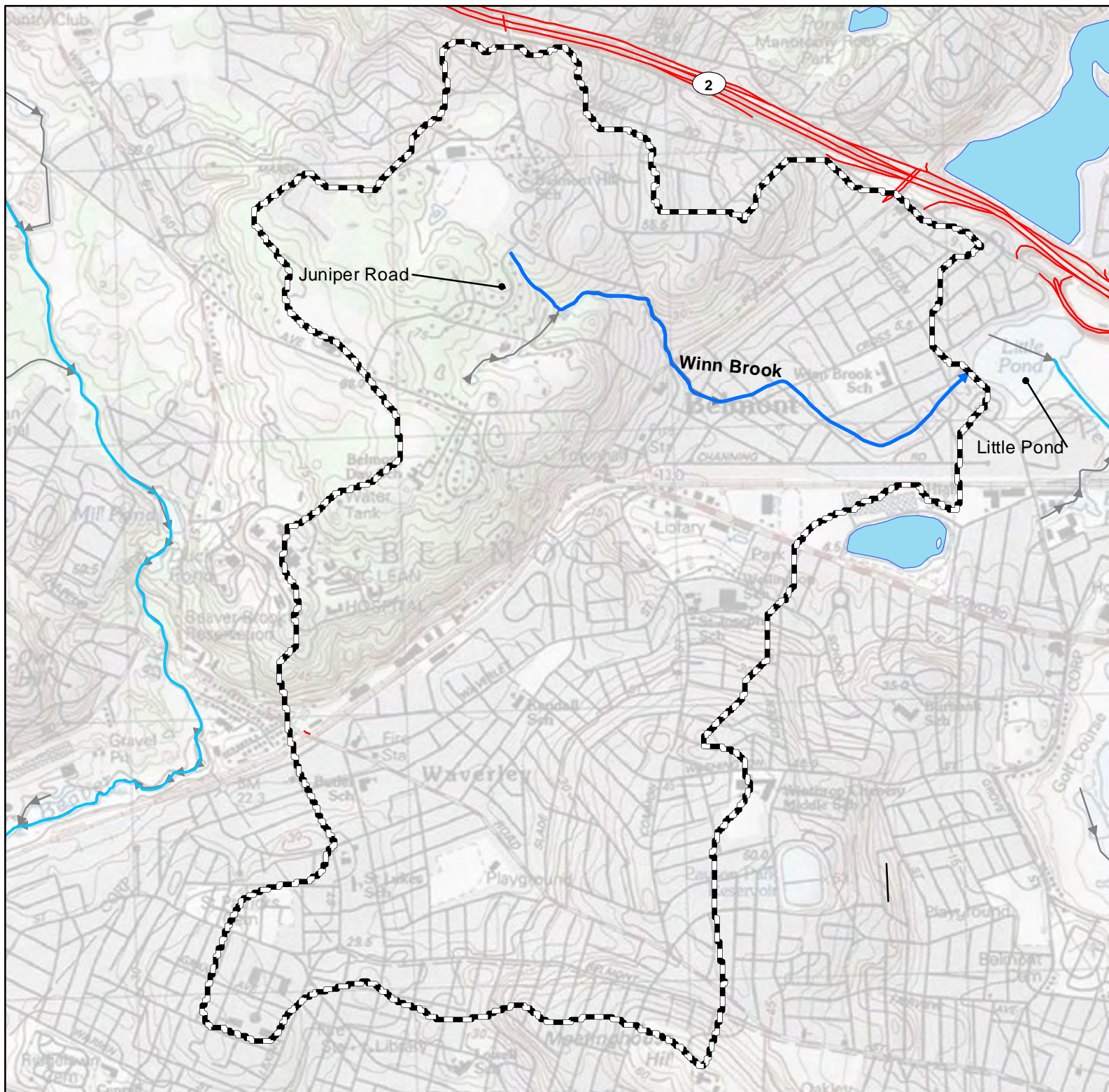
<http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/71wqar09.pdf>








Massachusetts Department of Environmental Protection (MassDEP). (2011). Draft Pathogen TMDL for the Boston Harbor Watershed. Retrieved October 5, 2011. Available at:

<http://www.mass.gov/dep/water/resources/bharbor1.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from:

<http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>



-  Total and Subwatershed
-  Winn Brook
-  Impaired Stream Segment
-  Impaired Water Body
-  Non-Impaired Stream Segments
-  MassDOT Urban Area Roads
-  MassDOT Roads



0 800 1,600 2,400 3,200 ft

1 inch = 1,600 feet

**Figure 1**  
**Winn Brook**  
**No Discharge**  
**MA71-09**

June 2013

# Impaired Waters Assessment for Charles River (MA72-33)

## Impaired Waterbody

Name: Charles River

Location: Milford and Hopedale, Massachusetts

Water Body ID: MA72-33

## Impairments

According to the MassDEP Final Year 2012 Integrated List of Waters, this segment is listed under Category 5 as impaired for physical substrate habitat alterations, *Escherichia coli*, and nutrient/eutrophication biological indicators.

Two TMDL reports have been finalized that address the Charles River Watershed, which includes this segment.

- *TMDL for Nutrients in the Upper/Middle Charles River (CN 272.0)* addressing nutrient/eutrophication biological indicators.
- *Final Pathogens TMDL for the Charles River Watershed (CN 156.0)* addressing *Escherichia coli*.

The *Charles River Watershed 2002-2006 Water Quality Assessment Report* lists urban runoff/stormwater and discharges from municipal separate storm sewer systems and among the main causes of impairments to this segment. Other causes of impairments in the subwatershed include potential illicit connections to the municipal storm sewer system flowing to the Charles River via Godfrey Brook.

## Relevant Water Quality Standards

- Water Body Classification: B
- 301 CMR § 4.05 (3)(b) – *Class B. These waters are designed as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth, and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.*
- 314 CMR § 4.05 (3)(b)(4) – *Bacteria.*
  - a. *At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where E. coli is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61*



*colonies per 100 ml;*

*b. for other waters and, during the non bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all E. coli samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department;*

- 314 CMR § 4.05 (5)(b) – *Bottom Pollutants or Alterations. All surface waters shall be free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations of non-mobile or sessile benthic organisms.*
- 314 CMR § 4.05 (5)(c) – *Nutrients. Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses. Human activities that result in the nonpoint source discharge of nutrients to any surface water may be required to be provided with cost effective and reasonable best management practices for nonpoint source control.*

## Site Description

The Charles River (Segment MA72-33) is located within the Towns of Milford and Hopedale, Massachusetts. This segment was previously part of Segment MA72-02; however the segment was shortened to exclude Cedar Swamp Pond and renamed Segment MA72-33. The upstream end of Segment MA72-33 originate at the outlet of Cedar Swamp Pond and it flows southeast 2.0 miles to its confluence with the Charles River Segment MA72-03 approximately 0.5 miles south of the Hopedale/Milford town line. It is impaired for physical substrate habitat alterations, *Escherichia coli*, and nutrient/eutrophication biological indicators. According to the 2006 Water Quality Assessment Report, the estimated percent impervious cover for this subwatershed is 15.5% and the primary land uses of the 11.75 square mile subwatershed (excluding water) are residential (40%), forest (41%), and open land (7%).

MassDOT property does not discharge directly to this segment of the Charles River. Within the subwatershed of Segment MA72-33, MassDOT owns a portion of South Main Street (Route 140), East Main Street (Route 16), and Medway Road (Route 109). VHB professionals conducted a field visit on December 19, 2012 to determine the fate of stormwater runoff from MassDOT properties.

The drainage from Route 140 in the subwatershed south of the South Main Street and Cape Road intersection is collected in catch basins along the roadway which discharge to a large wetland system surrounding the Charles River, over 1,500 feet away. Stormwater from Cape Road, north of its intersection with South Main Street discharges along the roadway and likely reaches the Charles River via Godfrey Brook. Stormwater from MassDOT-owned portions of East Main Street and Medway Road flow into catch basins along the street which outfall into an unnamed stream flowing from north to south and eventually flowing to a second unnamed stream, east of the Charles River.

## References

EPA 2002. *National Recommended Water Quality Criteria: 2002*. EPA 822R-02-047.

United States Geological Survey (USGS), 2009. Highway-Runoff Database (HRDB Version 1.0): A Data Warehouse and Preprocessor for the Stochastic Empirical Loading and Dilution Model: Federal Highway Administration Publication No. FHWA-HEP-09-004, 57. Available at: <http://webdamurl.er.usgs.gov/g1/FHWA/FHWA-HEP-09-004/FHWA-HEP-09-004.pdf>

Massachusetts Department of Environmental Protection (Mass DEP) 2007. *Final Total Maximum Daily Load for Nutrients in the Lower Charles River Basin, Massachusetts (CN 310.0)*. Available at: <http://www.mass.gov/dep/water/resources/charlesp.pdf>

Mass DEP 2007. *Final Pathogen TMDL for the Charles River Watershed (CN 0156.0)*. Available at: <http://www.mass.gov/dep/water/resources/charles1.pdf>

Mass DEP 2008. *Charles River Watershed 2002-2006 Water Quality Assessment Report*, Massachusetts Department of Environmental Protection. Available at: <http://www.mass.gov/dep/water/resources/72wqar07.pdf>

Mass DEP 2013. Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Massachusetts Department of Environmental Protection. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>

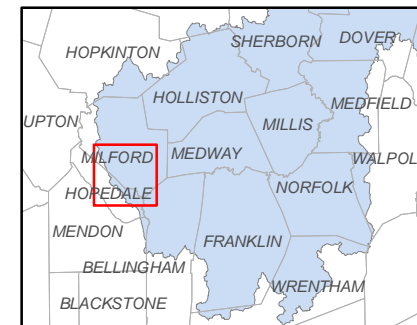
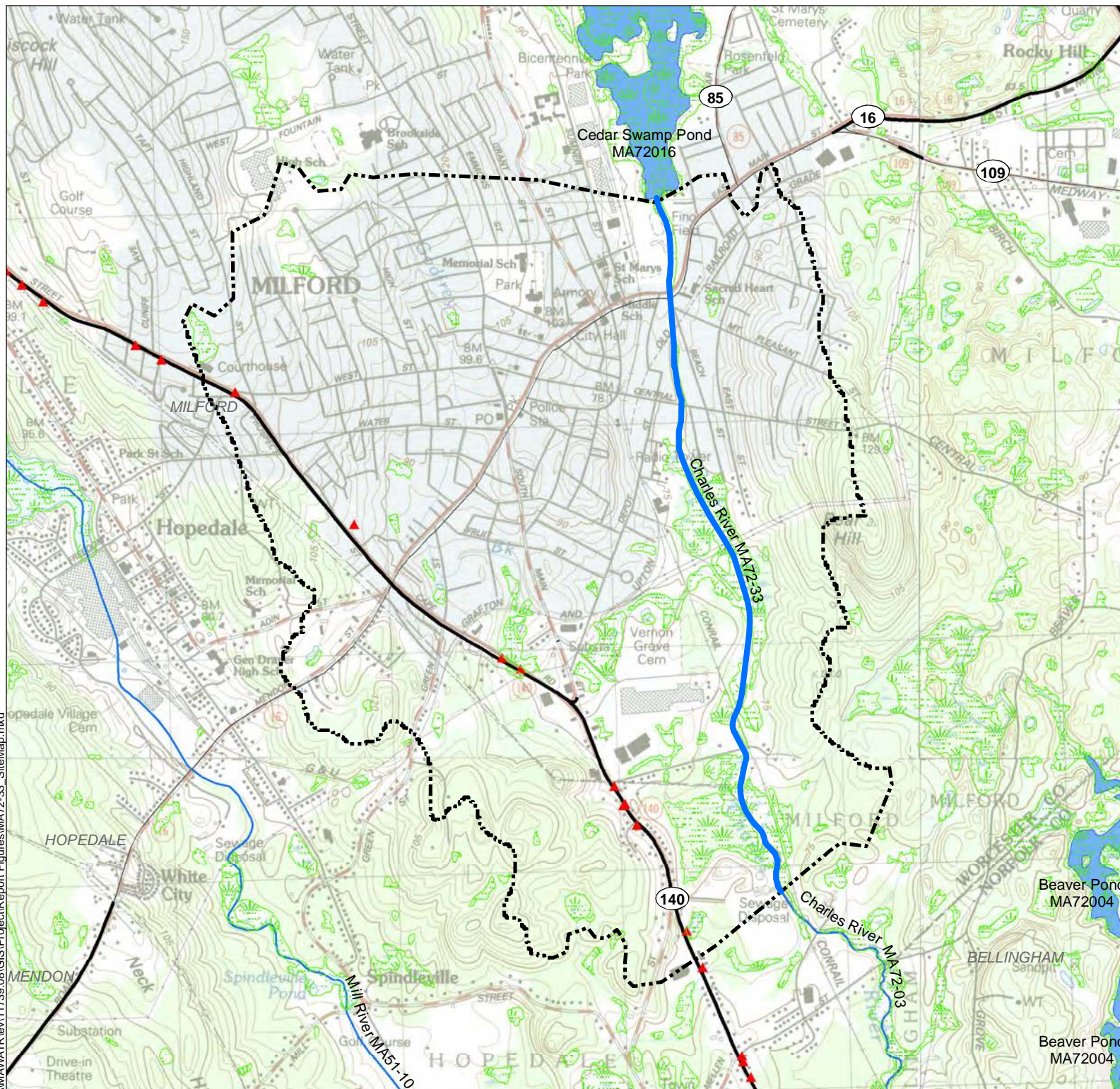
Massachusetts Department of Transportation (MassDOT), January 11, 2008. NPDES Stormwater Management Plan for MassDOT Owned and Operated Highways. Available at: <http://www.mhd.state.ma.us/downloads/projDev/swmp.pdf>

MassGIS Impervious Surfaces datalayer taken from 2005 orthoimagery. Available at: [http://www.mass.gov/mgis/impervious\\_surface.htm](http://www.mass.gov/mgis/impervious_surface.htm)

USDA NRCS. 2010. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database for [Middlesex County, MA]. Available online at <http://soildatamart.nrcs.usda.gov>.

USGS Data Series 451 Local and Cumulative Impervious Cover of Massachusetts Stream Basins Available at: <http://pubs.usgs.gov/ds/451/>





- DEP Wetlands
- MassDOT Roadways
- Impaired Streams
- Impaired Lakes
- Outfall Locations
- Watershed



0 0.25 0.5  
Miles

**Figure1**  
**LocusMap**  
**Charles River**  
**MA72-33**  
**June 2013**



## Impaired Waters Assessment for Cochato River (MA74-06)

### Impaired Water Body

Name: Cochato River

Location: Braintree, Massachusetts

Water Body ID: MA74-06

### Impairments

Cochato River (MA74-06) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final Massachusetts Year 2008 Integrated List of Waters (MassDEP, 2011). Cochato River is impaired due to the following:

- pesticides
- organic enrichment/Low DO
- pathogens

According to MassDEP's *Weymouth and Weir River Basin 2004 Water Quality Assessment Report* (MassDEP, 2004), fish tissue samples taken between 2000 and 2002 showed elevated concentrations of contaminants including DDT and Chlordane. The EPA conducted their second five year review of the site in 2004. The Massachusetts Department of Public Health issued a site-specific fish consumption advisory for brown bullhead, carp, and American eel. Due to the presence of a site specific fish consumption advisory, the fish consumption use is assessed as impaired. The report indicated that the source of impairment is Cercla NPL (Superfund) Sites. Cochato River is not included in a TMDL report. However, Cochato River is covered by a draft Total Maximum Daily Load (TMDL) for pathogens according to MassDEP's Draft Pathogen TMDL for the Boston Harbor Watershed (excluding the Neponset River sub-basin) (MassDEP, no date).

### Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- **314 CMR 4.05 (5) (e) Toxic Pollutants.** All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. Where the Department determines that naturally occurring background concentrations are higher, those concentrations shall be the allowable receiving water concentrations. The Department shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction of metals when EPA's 304(a) recommended criteria provide for use of the dissolved fraction. The EPA recommended

criteria based on total recoverable metals shall be converted to dissolved metals using EPA's published conversion factors. Permit limits will be written in terms of total recoverable metals. Translation from dissolved metals criteria to total recoverable metals permit limits will be based on EPA's conversion factors or other methods approved by the Department. The Department may establish site specific criteria for toxic pollutants based on site specific considerations.

- *314 CMR 4.05 (3) (b) 1 Dissolved Oxygen.* Shall not be less than 6.0 mg/l in cold water fisheries and not less than 5.0 mg/l in warm water fisheries. Where natural background conditions are lower, DO shall not be less than natural background conditions. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained.
- *314 CMR 4.05 (3)(b) 4 Bacteria.*
  - a. At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where *E. coli* is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml;
  - b. for other waters and, during the non bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department.

## Site Description

Cochato River (MA74-06) is a water body in Braintree, Massachusetts that flows for approximately 4.17 miles. The Cochato River is Lake Holbrook's primary inlet and outlet which confluence with Farm River and Monatiquot River. The closest MassDOT roadways are Route 37 (Washington Street) which is located east of the river and Route 28 (Main Street) which is located west of the river ( Figure 1).

As shown in Figure 1, Route 37 and Route 28 are over 1,500 feet from the Cochato River. The area between these two MassDOT roadways, which includes the Cochato River, is mostly residential and forested.

During the desktop analysis, it was concluded that local topography and the presence of residential development, forested lands, and other waterbodies between the Cochato River and both Route 37 (Washington Street) and Route 28 (Main Street) prevent stormwater runoff from directly draining to the Cochato River.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to the Cochato River (MA74-06). The nearest MassDOT-owned urban roadway is Route 37 (Washington Street) in Braintree. Runoff from Route 37 flows off the roadway into adjacent developed areas where it infiltrates into forested woodlands between the roadway and the Cochato River. Runoff that drains to the woodlands or residential areas is considered indirect drainage to the Cochato River. Runoff from Route 37 and Route 28 do not reach the Cochato River.

## Conclusions

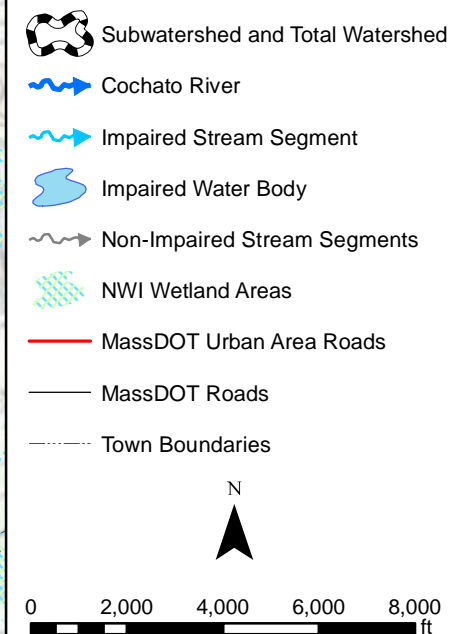
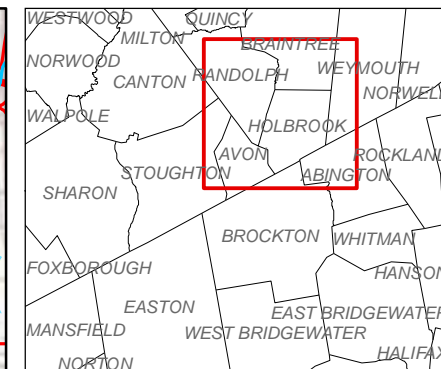
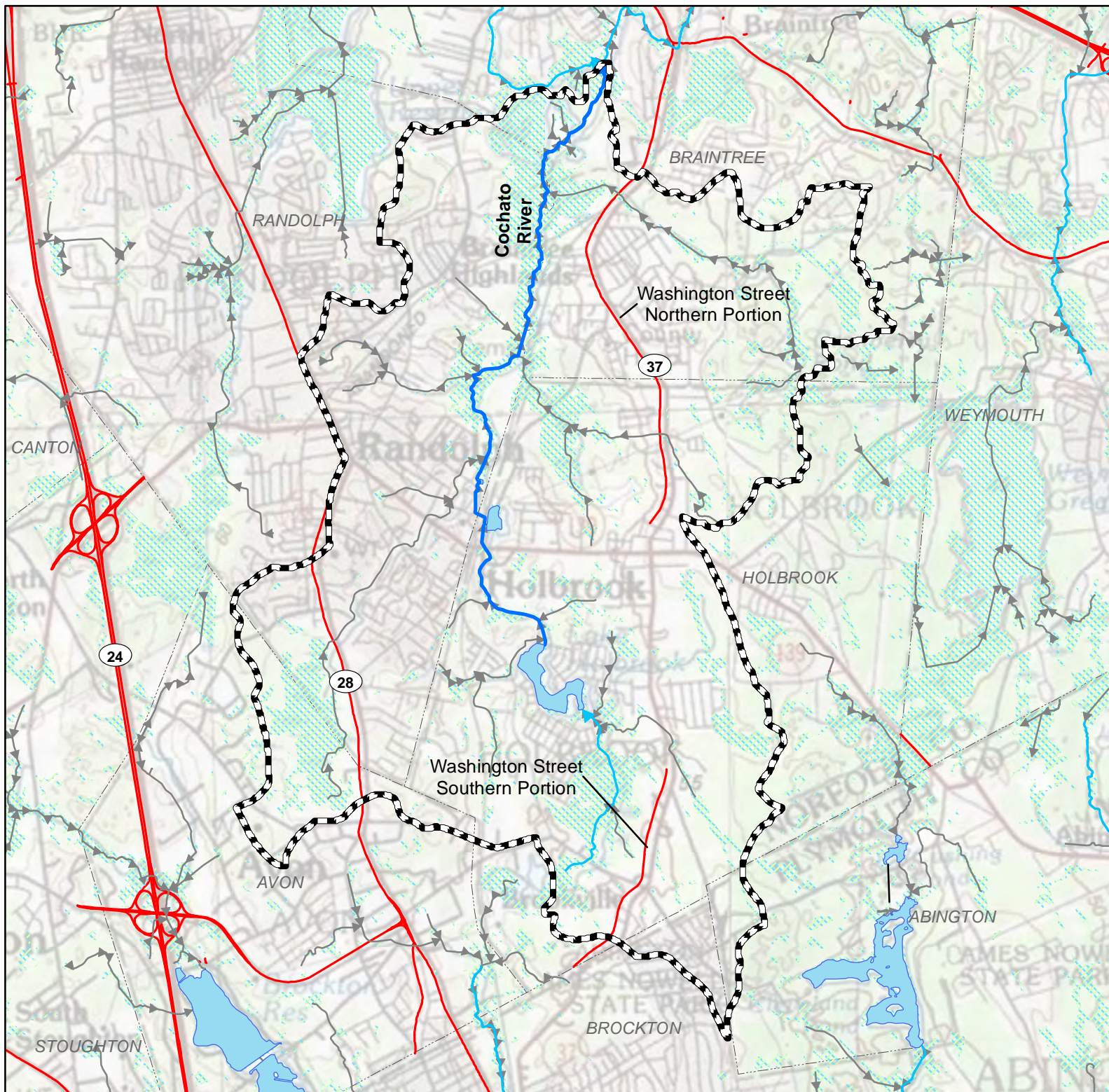
Because MassDOT urban property does not directly contribute stormwater runoff to the Cochato River, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

- Massachusetts Department of Environmental Protection (MassDEP). (2004). Weymouth and Weir River Basin 2004 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/dep/water/resources/74wqar04.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2011). Massachusetts Year 2010 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/dep/water/resources/10list6.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (no date). Draft Pathogen TMDL for the Boston Harbor Watershed (excluding the Neponset River sub-basin). Massachusetts. Retrieved from <http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/bharbor1.pdf>





1 inch = 4,000 feet

**Figure 1**  
**Cochato River**  
**No Discharge**  
**MA74-06**

June 2013



# Impaired Waters Assessment for Shawsheen River (MA 83-08)

## Impaired Water Body

Name: Shawsheen River

Location: Lincoln and Bedford, Massachusetts

Water Body ID: MA 83-08

## Impairments

Shawsheen River (MA 83-08) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Shawsheen River is impaired for the following:

- (physical substrate habitat alterations\*)
- fecal coliform

According to MassDEP's *Shawsheen River Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003a), segment MA 83-08 of the Shawsheen River is impaired for pathogens and other habitat alterations. The report recommends implementing BMPs designed to enhance groundwater recharge and reduce high stormwater flows and pollutant loads, assessing the feasibility of potential restorative actions along the riparian corridor and the river itself, implementing an instream habitat restoration/improvement project to improve habitat quality and support aquatic life, and conducting a shoreline survey to document aesthetic quality. The report also recommends coordinating with Hanscom Air Force Base regarding the Hanscom Field NPL site (MassDEP, 2003a). MassDEP's 2003 *Draft Storm Water TMDL for Headwaters of the Shawsheen River* calls for stormwater and watershed controls to mitigate peak runoff which would decrease erosion and increase groundwater recharge. This segment of the Shawsheen River is covered by the final *Bacteria TMDL for the Shawsheen River Basin* (MassDEP, 2002).

## Relevant Water Quality Standards

Water Body Classification: Class B, Warm Water Fishery

Applicable State Regulations:

- 314 CMR 4.05 (3)(b) 2 Temperature.
  - a. Shall not exceed 68°F (20°C) based on the mean of the daily maximum temperature over a seven day period in cold water fisheries, unless naturally occurring. Where a reproducing cold water aquatic community exists at a naturally occurring higher temperature, the temperature necessary to protect the community shall not be exceeded and the natural daily and seasonal temperature fluctuations necessary to protect the community shall be maintained. Temperature shall not exceed 83°F (28.3°C) in warm water fisheries. The rise in temperature due to a discharge shall not exceed 3°F (1.7°C) in rivers and streams designated as cold water fisheries nor 5°F (2.8°C) in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month); in lakes and ponds



the rise shall not exceed 3°F (1.7°C) in the epilimnion (based on the monthly average of maximum daily temperature);

- b. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from natural background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms;
- 314 CMR 4.05 (3)(b) 4 *Bacteria*.
  - a. At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where *E. coli* is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml;
  - b. For other waters and, during the non bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department.
- 314 CMR 4.05 (5)(b) *Bottom Pollutants or Alterations*
  - All surface waters shall be free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations of non-mobile or sessile benthic organisms.

## Site Description

Segment MA 83-08 is the headwater of the Shawsheen River. This 2.09 mile segment begins in Lincoln, Massachusetts and flows north through Hanscom Air Force Base and into Bedford, Massachusetts. The closest MassDOT roadways are Hanscom Drive to the west and State Road 2A to the south. Other MassDOT Roads within the watershed of this segment of the Shawsheen River are Interstate 95 and State Road 4. See Figure 1.

## Assessment under BMP 7U for No Discharge Determination

Based on a site visit on May 9, 2013, it was determined that MassDOT does not directly contribute runoff to the Shawsheen River (MA 83-08). The nearest MassDOT-owned urban roadways are Hanscom Drive and State Road 2A in Lincoln, Massachusetts. Runoff from Hanscom Drive flows into well-vegetated wetland areas where it infiltrates. Runoff along State Road 2A in areas closest to the Shawsheen River (east of Hanscom Drive) is subject to country drainage and flows into forested areas. Catch basins were observed on State Road 2A west of Hanscom Drive, but runoff from this portion of the road is also indirect, based on site observations of stormwater system and distance to the Shawsheen River (>1,500 feet). The portions of Interstate 95 and State Road 4

within the watershed of this segment of the Shawsheen River drain to an impaired water body, Kiln Brook (MA83-10), prior to reaching the Shawsheen River.

## **Conclusions**

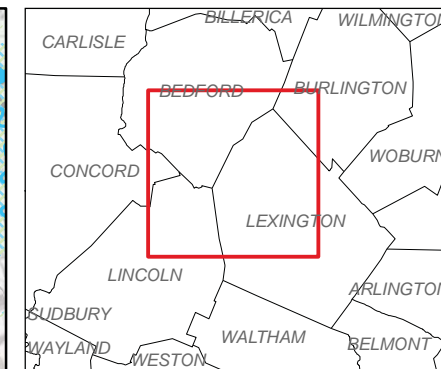
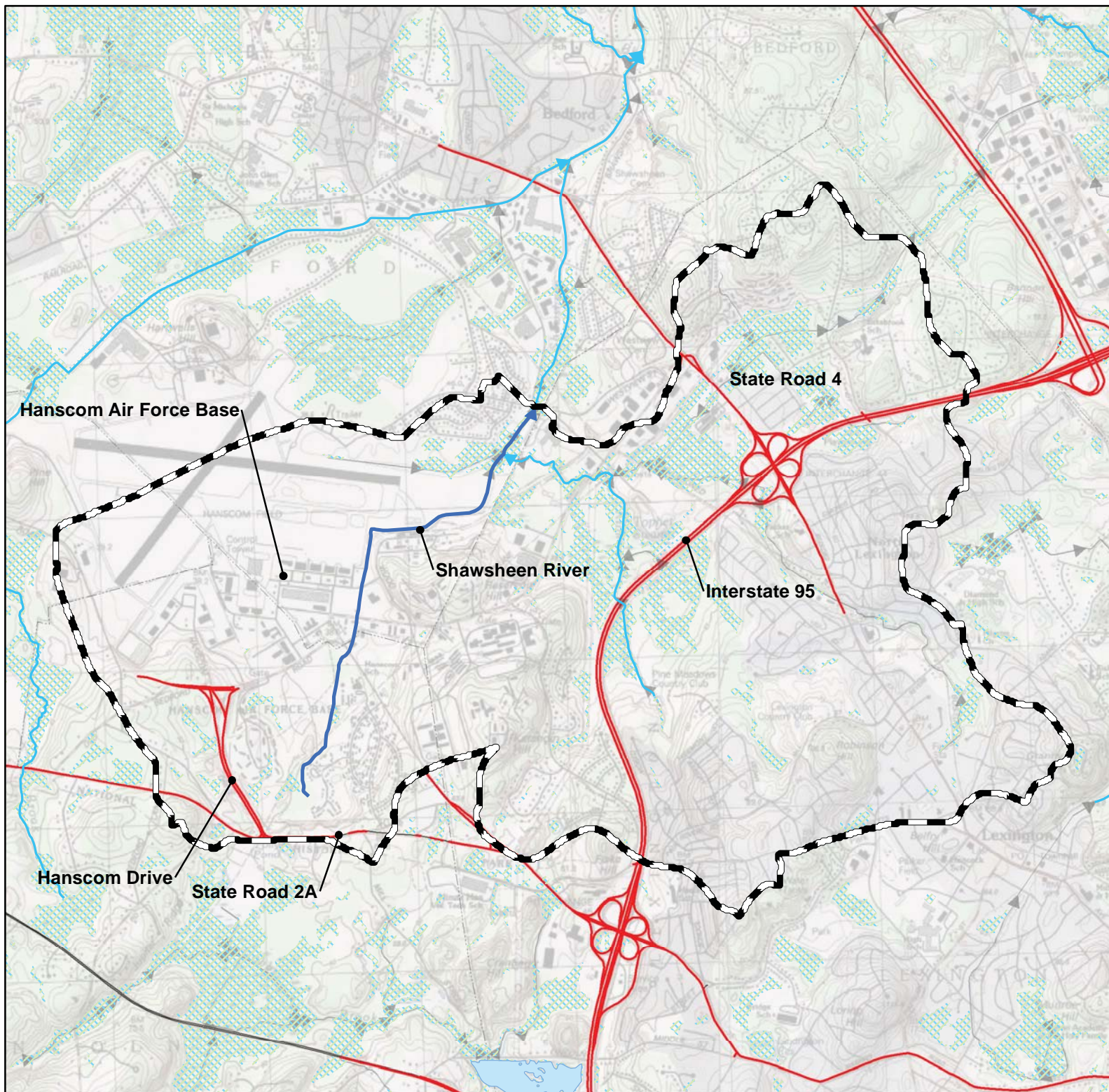
Because MassDOT urban property does not directly contribute stormwater runoff to Shawsheen River, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

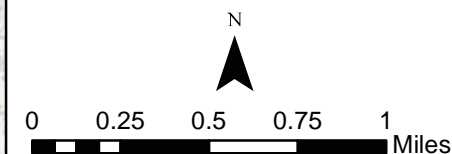
## References

- Massachusetts Department of Environmental Protection (MassDEP). (2002). Bacteria TMDL for the Shawsheen River Basin. Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/shawshee.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2003a). Shawsheen River Watershed 2000 Water Quality Assessment Report, Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/83wqar.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2003b). Draft Storm Water TMDL for Headwaters of the Shawsheen River. Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/shawhead.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act.





- Total and Subwatershed
- Shawsheen River
- Impaired Stream Segment
- Impaired Water Bodies
- NWI Wetland Areas
- Non-Impaired Stream Segment
- MassDOT Roads in Urban Areas
- MassDOT Roads
- Town Boundaries



1 in = 1 miles

**Figure 1**

**Shawsheen River  
Total and Subwatershed  
MA83-08**

June 2013

# Impaired Waters Assessment for Hussey Pond (MA83009)

## Impaired Water Body

Name: Hussey Pond

Location: Andover, Massachusetts

Water Body ID: MA83009

## Impairments

Hussey Pond (MA83009) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2010 Integrated List of Waters* (MassDEP, 2011). Hussey Pond is impaired due to the following:

- excess algal growth

According to MassDEP's *Shawsheen River Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003), the designated uses were not assessed. Trophic status was estimated as eutrophic. Survey observations noted clear water below very dense algal mats and duckweed, possible nutrients from Andover Country Club, bottom sediments emit hydrogen sulfide odor, and non-native species.

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- 314 CMR 4.05 (5)(a) *Noxious Aquatic Plants*. Aesthetics. All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.

## Site Description

Hussey Pond (MA83009) is a water body in Andover, Massachusetts that covers approximately 1.383 acres. The pond has one primary inlet (Hussey Brook) that enters from the west and one primary outlet (Hussey Brook) which exits to the east. The closest MassDOT roadways are Route 28 (Main Street) which runs north-south to the east of the pond. See Figure 1.

## Assessment under BMP 7U for No Discharge Determination

Based on an assessment of available drainage plans, aerial maps, and topography, it was determined that MassDOT does not directly contribute runoff to Hussey Pond (MA83009). The



nearest MassDOT-owned urban roadways are Route 28 (Main Street) in Andover. Runoff from Route 28 is collected in catch basins and piped to the outlet stream which flows into the Shawsheen River. Interstate 495 runs north of the pond and passes through the watershed and indirectly contributes discharge to the pond. This discharge flows over land and through other waterbodies before flowing through Hussey Pond.

## **Conclusions**

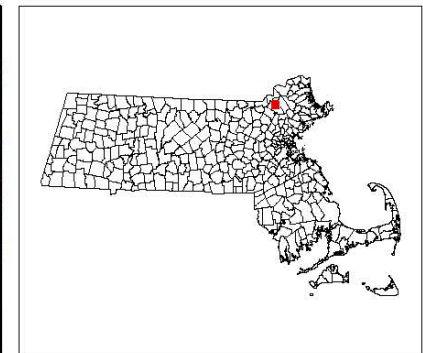
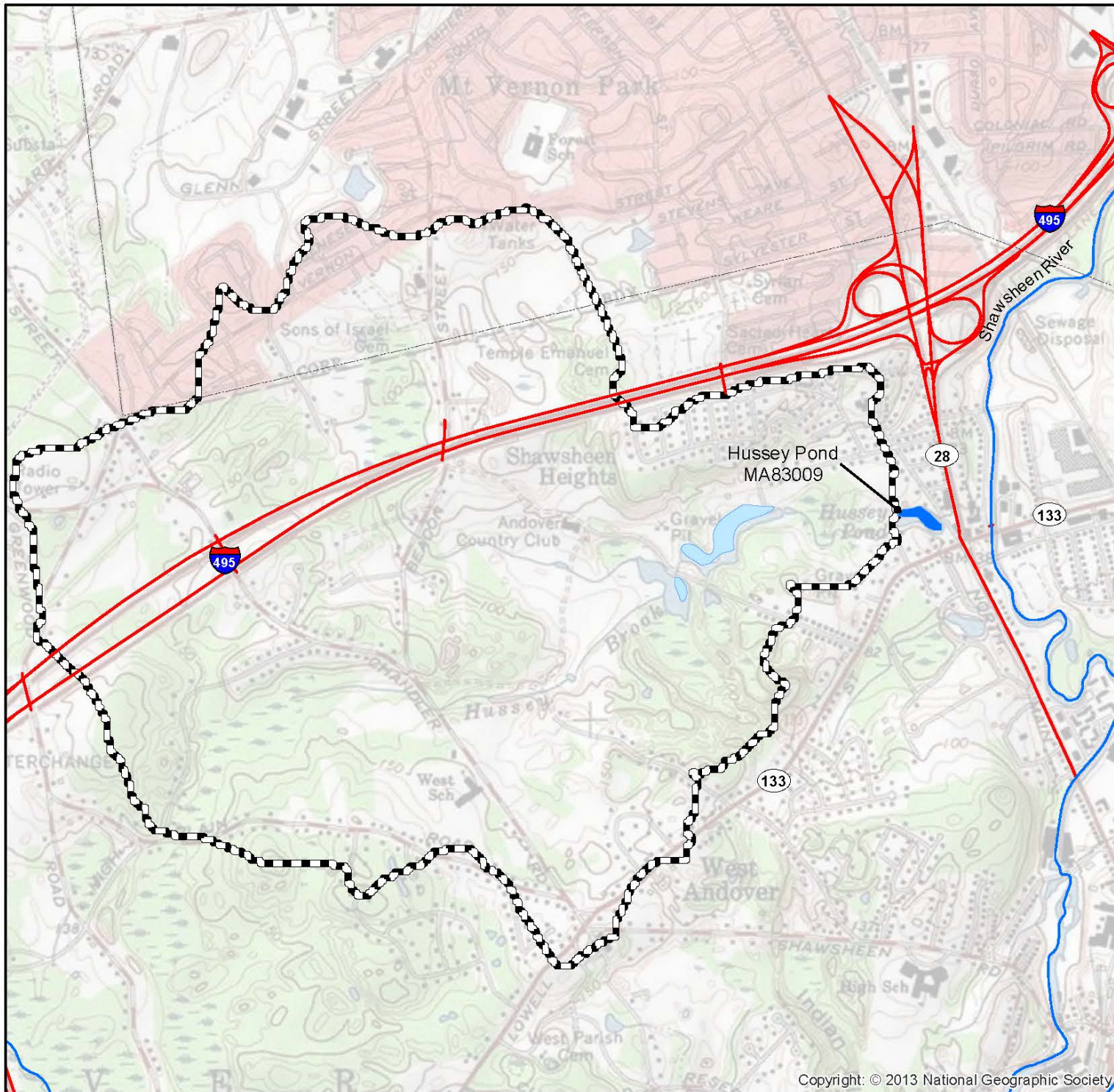
Because MassDOT urban property does not directly contribute stormwater runoff to Hussey Pond, further assessment of this water body is not warranted under the Impaired Waters program.


MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

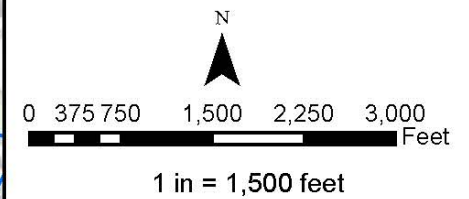
## References

Massachusetts Department of Environmental Protection (MassDEP). (2003). Shawsheen River Watershed 2000 Water Quality Assessment Report. Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/83wqar.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>



-  Impaired Stream Segment
-  Hussey Pond
-  Impaired Water Bodies
-  MassDOT Roads in Urban Areas
-  MassDOT Roads
-  Town Boundaries
-  Total and Subwatershed



**Figure 1**

**Hussey Pond  
Total and Subwatershed  
MA83009**

May 2013



# Impaired Waters Assessment for Rabbit Pond (MA83015)

## Impaired Water Body

Name: Rabbit Pond

Location: Andover, Massachusetts

Water Body ID: MA83015

## Impairments

Rabbit Pond (MA83015) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Rabbit Pond is impaired due to the following:

- turbidity

According to MassDEP's *Shawsheen River Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003), the designated uses were not assessed. Trophic status was estimated as eutrophic. Survey observations noted a pea-soup green color, Secchi-disk likely < 4', most likely an algal bloom, and essentially no aquatic plants.

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3)(b) 6 Color and Turbidity*. These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.

## Site Description

Rabbit Pond (MA83015) is a water body in Andover, Massachusetts that covers approximately 1.86 acres. Rabbit Pond is within the Shawsheen River Watershed. The closest MassDOT roadway is Route 28, approximately 800 feet west of the pond (Figure 1).

## Assessment under BMP 7U for No Discharge Determination

Based on a site visit on May 22 2013, it was determined that MassDOT does not directly contribute runoff to Rabbit Pond (MA83015). The nearest MassDOT-owned urban roadway is Route 28 (Main Street) in Andover. Runoff from Route 28 is collected in catch basins and piped to Rogers Brook (MA 83-04) which is impaired. Rogers Brook is covered under a separate assessment.

## Conclusions

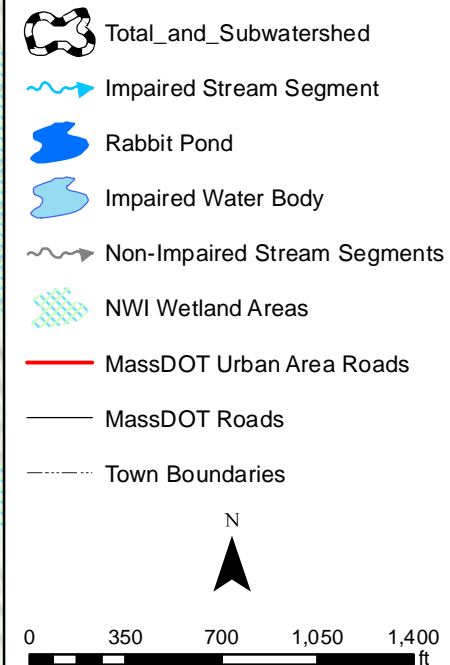
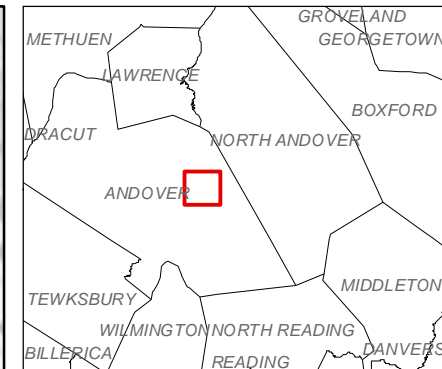
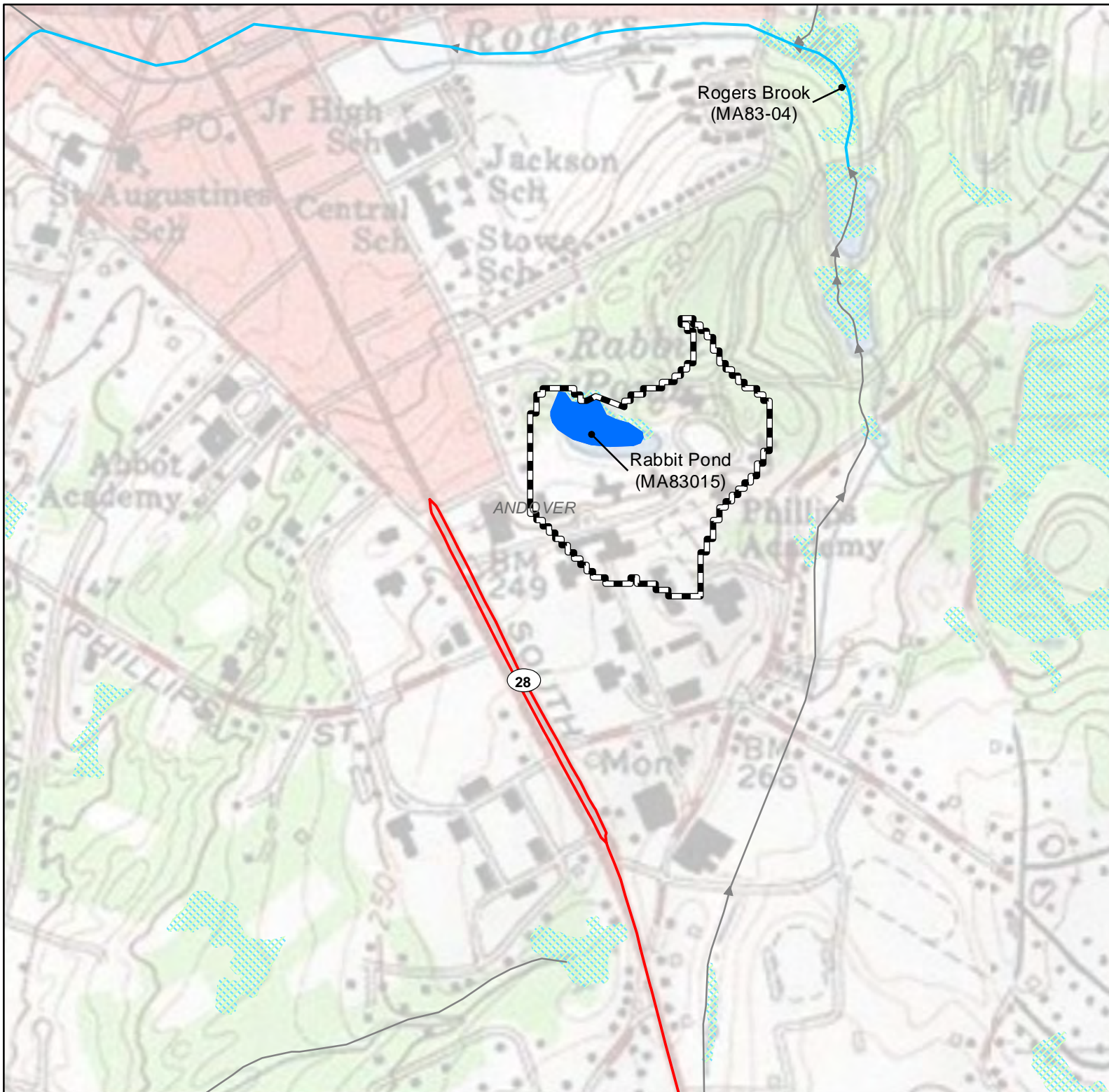
Because MassDOT urban property does not directly contribute stormwater runoff to Rabbit Pond, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

Massachusetts Department of Environmental Protection (MassDEP). (2003). Shawsheen River Watershed 2000 Water Quality Assessment Report. Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/83wqar.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from:  
<http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>



1 inch = 700 feet

**Figure 1**  
**Rabbit Pond**  
**No Discharge**  
**MA83015**

June 2013



# Impaired Waters Assessment for Long Meadow Brook (MA83-11)

## Impaired Water Body

Name: Long Meadow Brook

Location: Burlington, Massachusetts

Water Body ID: MA83-11

## Impairments

Long Meadow Brook (MA83-11) is listed under Category 4A, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2010 Integrated List of Waters* (MassDEP, 2011). Long Meadow Brook is impaired due to the following:

- pathogens

According to MassDEP's *Shawsheen River Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003), there are no WMA regulated water withdrawals or NPDES regulated surface wastewater discharges in this subwatershed. The report indicates that too little data are available to assess the designated uses of Long Meadow Brook. Long Meadow Brook is covered by the *Total Maximum Daily Loads (TMDL) of Bacteria for the Shawsheen River Basin* (MassDEP, 2002). However, there are no known or suspected sources of the bacteria for this particular water body.

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

*314 CMR 4.05 (3)(b) 4 Bacteria.* a. At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where *E. coli* is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml.

b. for other waters and, during the non bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml.

These criteria may be applied on a seasonal basis at the discretion of the Department;

## Site Description

Long Meadow Brook (MA83-11) is a water body in Burlington, Massachusetts that has a drainage area of approximately 0.75 square miles and extends a length of approximately 1.3 miles. The stream develops from a wetland located east of Lexington Street and north of Independence Drive and extends to the confluence with Vine Brook in Burlington MA. The closest MassDOT roadways are Route 3A (Cambridge Street), which is located east of the stream, Route 95, which is located south of the stream, and Route 3 which is located west of the stream (Figure 1).

As shown in Figure 1, Route 3A is approximately 1,300 feet from Long Meadow Brook and Route 95 and Route 3 are both located downstream of Long Meadow Brook. Runoff from Route 3A would enter vegetated wetlands before reaching the stream and therefore is not considered direct drainage. The area between Route 3A and the stream includes residential, forest and open land.

During the desktop analysis, it was concluded that local topography and the presence of residential development, wetlands, and other waterbodies between the stream and Route 3A prevent stormwater runoff from directly draining to Long Meadow Brook.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to Long Meadow Brook (MA83-11). The nearest MassDOT-owned urban roadways are Route 3A (Cambridge Street), Route 95 and Route 3 in Burlington. Runoff from Route 3A flows off the roadway into adjacent developed areas where it infiltrates or to vegetated wetlands between the roadway and the Long Meadow Brook. Runoff that drains to the wetlands is considered indirect drainage to Long Meadow Brook. Runoff from Route 95 and Route 3 do not reach Long Meadow Brook.

## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Long Meadow Brook, further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

Massachusetts Department of Environmental Protection (MassDEP). (2003). Shawsheen River Watershed 2000 Water Quality Assessment Report. Retrieved from:  
<http://www.mass.gov/dep/water/resources/83wqar.pdf>

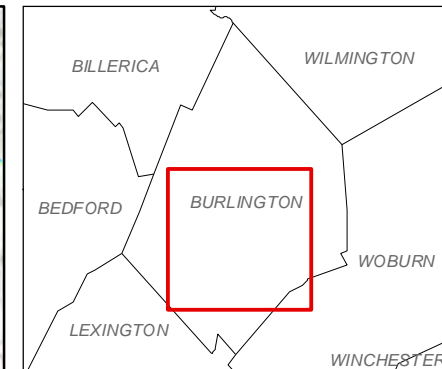
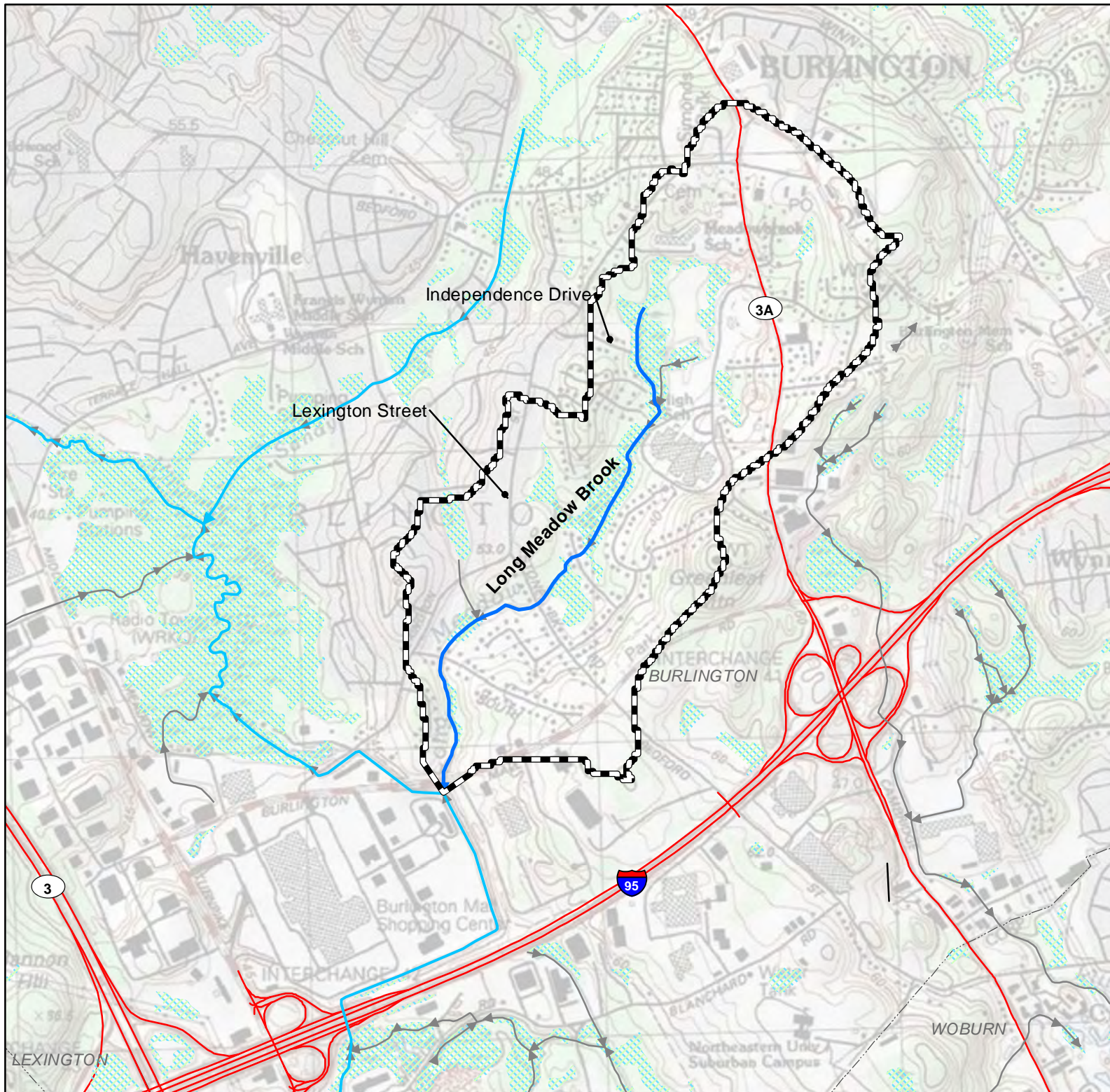
Massachusetts Department of Environmental Protection (MassDEP). (2002). Total Maximum Daily Loads of Bacteria for the Shawsheen River Basin. Retrieved from:  
<http://www.mass.gov/dep/water/resources/shawshee.pdf>










Massachusetts Department of Environmental Protection (MassDEP). (2011). Massachusetts Year 2010 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters

06/08/2013

Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from:  
<http://www.mass.gov/dep/water/resources/10list6.pdf>





-  Total and Subwatershed
-  Long Meadow Brook
-  Impaired Stream Segment
-  Impaired Water Body
-  Non-Impaired Stream Segments
-  NWI Wetland Areas
-  MassDOT Urban Area Roads
-  MassDOT Roads
-  Town Boundaries



0 750 1,500 2,250 3,000 ft

1 inch = 1,500 feet

**Figure 1**  
**Long Meadow Brook**  
**No Discharge**  
**MA83-11**

June 2013

# Impaired Waters Assessment for Sandy Brook (MA83-13)

## Impaired Water Body

Name: Sandy Brook

Location: Burlington, Massachusetts

Water Body ID: MA83-13

## Impairments

Sandy Brook (MA83-13) is listed under Category 4A, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2010 Integrated List of Waters* (MassDEP, 2011). Sandy Brook is impaired due to the following:

- pathogens

According to MassDEP's *Shawsheen River Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003), there are no WMA regulated water withdrawals or NPDES regulated surface wastewater discharges in this subwatershed. The report indicates that too little data are available to assess the designated uses of Sandy Brook. Sandy Brook is covered by the *Total Maximum Daily Loads (TMDL) of Bacteria for the Shawsheen River Basin* (MassDEP, 2002). However, there are no known or suspected sources of the bacteria for this particular water body

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3)(b) 4 Bacteria*. a. At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where *E. coli* is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml; alternatively, where enterococci are the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml  
b. for other waters and, during the non bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department;



## Site Description

Sandy Brook (MA83-13) is a water body in Burlington, Massachusetts that has a drainage area of approximately 1.1 square miles. The stream extends approximately 1.2 miles from its headwaters located north of Bedford Street and east of Fairfax Street in Burlington to its confluence with Vine Brook. The closest MassDOT owned urban roadways are Route 3A (Cambridge Street) which runs east of the stream, Route 95 which runs south of the stream and Route 3 which runs west of the stream (Figure 1).

As shown in Figure 1, Route 3A is over 2,000 feet east of the stream and Route 95 and Route 3 are both located downstream of Sandy Brook. Runoff from Route 3A would enter vegetated wetlands before reaching the stream and therefore is not considered direct drainage. The area between Route 3A and the stream includes residential, forest and open land.

During the desktop analysis, it was concluded that local topography and the presence of residential development, wetlands, and other waterbodies between the stream and Route 3A prevent stormwater runoff from directly draining to Sandy Brook.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to Sandy Brook (MA83-13). The nearest MassDOT-owned urban roadways are Route 3A (Cambridge Street), Route 3 and Route 95 in Burlington. Runoff from Route 3A flows off the roadway into adjacent developed areas where it infiltrates or to vegetated wetlands between the roadway and the Sandy Brook. Runoff that drains to the wetlands is considered indirect drainage to Sandy Brook. Runoff from Route 95 and Route 3 do not reach Sandy Brook.

## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Sandy Brook, further assessment of this water body is not warranted under the Impaired Waters program.

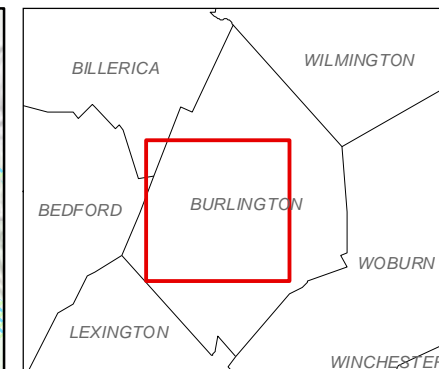
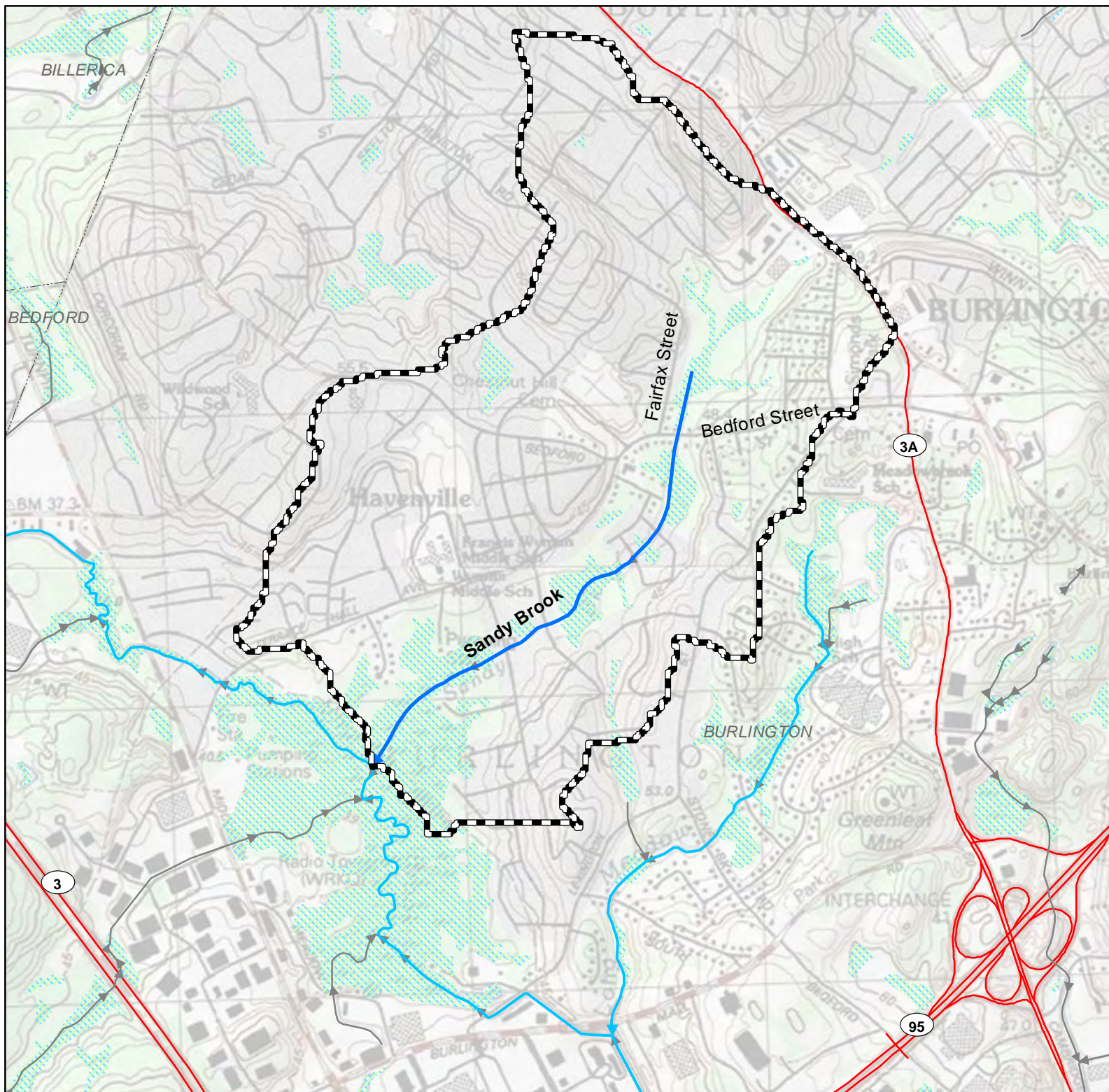
MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.










## References

- Massachusetts Department of Environmental Protection (MassDEP). (2003). Shawsheen River Watershed 2000 Water Quality Assessment Report. Retrieved from:  
<http://www.mass.gov/dep/water/resources/83wqar.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2002). Total Maximum Daily Loads of Bacteria for the Shawsheen River Basin. Retrieved from:  
<http://www.mass.gov/dep/water/resources/shawshee.pdf>



Massachusetts Department of Environmental Protection (MassDEP). (2011). Massachusetts Year 2010 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/dep/water/resources/10list6.pdf>



-  Total and Subwatershed
-  Sandy Brook
-  Impaired Stream Segment
-  Impaired Water Body
-  Non-Impaired Stream Segments
-  NWI Wetland Areas
-  MassDOT Urban Area Roads
-  MassDOT Roads
-  Town Boundaries



0 750 1,500 2,250 3,000 ft

1 inch = 1,500 feet

**Figure 1**  
**Sandy Brook**  
**No Discharge**  
**MA83-13**

June 2013

# Impaired Waters Assessment for Cape Pond (MA93011)

## Impaired Waterbody

Name: Cape Pond

Location: Rockport, Massachusetts

Water Body ID: MA93011

## Impairments

According to the MassDEP Final Year 2012 Integrated List of Waters, this segment is listed under Category 5 as impaired for turbidity.

The *North Shore Coastal Watersheds 2002 Water Quality Assessment Report* does not list any causes of impairments to this segment. The Rockport Water Treatment Plant has a NPDES permit to discharge to Cape Pond. The Rockport Water Department is registered to withdraw water from the Pond and has undertaken a Water Loss Prevention Grant Project for the Pond.

## Relevant Water Quality Standards

- Water Body Classification: A
- 314 CMR § 4.05 (3)(a) - *Class A. These waters include waters designated as a source of public water supply and their tributaries. They are designated as excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation, even if not allowed. These waters shall have excellent aesthetic value. These waters are protected as Outstanding Resource Waters*
- 314 CMR § 4.05 (3)(a)(6) – *Turbidity. These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.*

## Site Description

Cape Pond is within the Town of Rockport, Massachusetts. The pond is 42 acres and receives flow from surrounding wetlands and provides water for the Rockport Water Treatment Plant. The watershed to Cape Pond is shown on Figure 1. Flow from Cape Pond discharges to an unnamed stream which flows into the Atlantic Ocean at Good Harbor Beach.

MassDOT property does not discharge directly to Cape Pond. Portions of MassDOT-owned Route 127 is within the watershed to Cape Pond, approximately 1,000 feet west of Cape Pond. Stormwater from Route 127 in this area discharges to the wetland system surrounding Cape Pond and is not considered a direct discharge. No other MassDOT properties exist within the watershed to Cape Pond.



## References

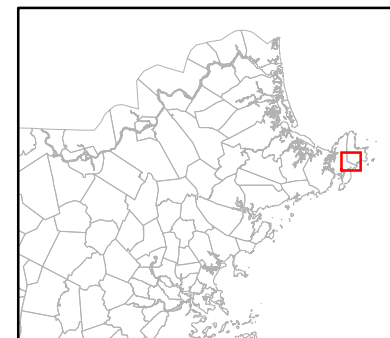
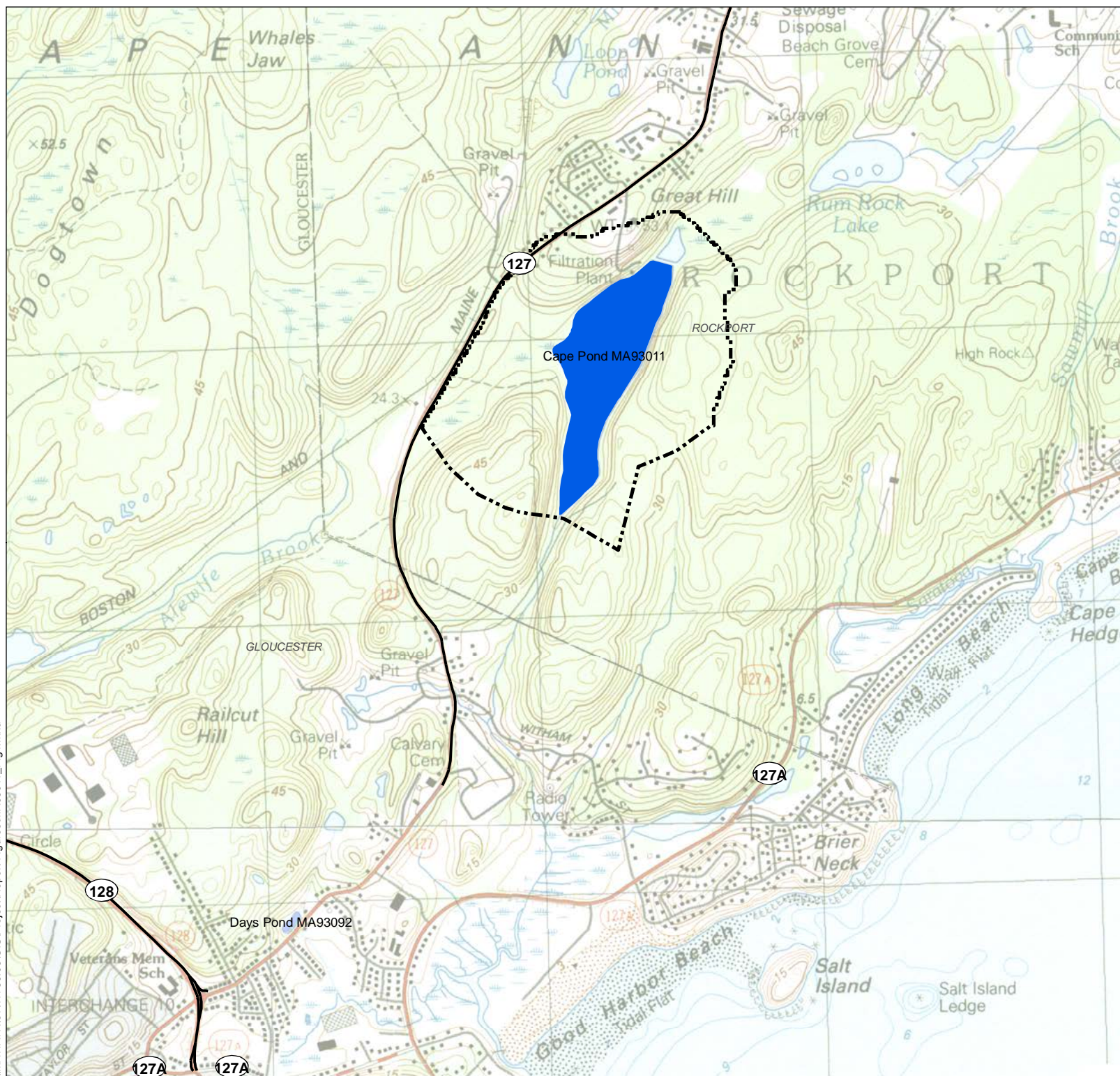
Massachusetts Department of Environmental Protection (MassDEP 2008). *North Coastal Watershed 2002 Water Quality Assessment Report*. Available at:  
<http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/93wqar06.pdf>

Mass DEP 2013. Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Massachusetts Department of Environmental Protection. Available at:  
<http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>

MassDOT, 6 April, 2011. Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).

USGS Data Series 451 Local and Cumulative Impervious Cover of Massachusetts Stream Basins  
Available at: <http://pubs.usgs.gov/ds/451/>

\\MAWAT\Rev11739.08\GIS\Project\Report\Figures\MA93011\_Fig1.mxd



- MassDOT Roadways
- Impaired Lakes
- Impaired Streams
- Assessed Segment
- Watershed



0 0.25 0.5 Miles

Figure 1

Cape Pond (MA93011)  
Watershed

June 2013

# Impaired Waters Assessment for White Island Pond (MA95166)

## Impaired Water Body

Name: White Island Pond (East Basin)

Location: Plymouth and Wareham, Massachusetts

Water Body ID: MA95166

## Impairments

White Island Pond (MA95166) is listed under Category 4a, "TMDL is completed", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). White Island Pond is impaired due to the following:

- Secchi disk transparency
- excess algal growth
- (non-native aquatic plants\*)
- chlorophyll –a
- dissolved oxygen
- total phosphorus

According to MassDEP's Buzzards Bay Watershed 2000 Water Quality Assessment Report (MassDEP, 2003), the east basin of White Island Pond is impaired for the Aquatic Life, Primary and Secondary Contacts and the Aesthetics designated uses. Non-native aquatic plant (*Cabomba caroliniana*) was identified during the 2000 TMDL survey (Mattson 2003). Purple loosestrife (*Lythrum salicaria*) was also noted during 2000 survey. Although dissolved oxygen concentrations met criteria, supersaturation was evident during the August and September surveys (100 to 105%). Chlorophyll-a concentrations were also high (35 mg/m<sup>3</sup>). Elevated total phosphorus concentrations (ranging from 0.077 to 0.12 mg/L) were measured in the basin, as well as from several inlets to the pond from draining cranberry bogs (0.066 to 1.4 mg/L). Fish toxics monitoring was also conducted in 2000; however, no advisory was issued by MDPH. Secchi disk depth measurements were at or below 1.2 m (the bathing beach guideline) on all three sampling dates. Low biovolume density may be associated with phytoplankton dominance (field observations indicated phytoplankton blooms). Suspected sources of impairment include irrigated, specialty crop production related to cranberry bogs and on-site treatment systems (septic systems).

The Phosphorous impairment is covered under the *Final Total Maximum Daily Load of Total Phosphorus for White Island Pond, Plymouth/Wareham, MA* (MassDEP, 2010).

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (5) (a) Aesthetics.* All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
- *314 CMR 4.05 (5) (c) Nutrients.* Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses. Human activities that result in the nonpoint source discharge of nutrients to any surface water may be required to be provided with cost effective and reasonable best management practices for nonpoint source control.
- *314 CMR 4.05 (3)(b) 1 Dissolved Oxygen.* Shall not be less than 6.0 mg/l in cold water fisheries and not less than 5.0 mg/l in warm water fisheries. Where natural background conditions are lower, DO shall not be less than natural background conditions. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained.
- *314 CMR 4.05 (3)(b) 2 Temperature.*
  - a. Shall not exceed 68°F (20°C) based on the mean of the daily maximum temperature over a seven day period in cold water fisheries, unless naturally occurring. Where a reproducing cold water aquatic community exists at a naturally occurring higher temperature, the temperature necessary to protect the community shall not be exceeded and the natural daily and seasonal temperature fluctuations necessary to protect the community shall be maintained. Temperature shall not exceed 83°F (28.3°C) in warm water fisheries. The rise in temperature due to a discharge shall not exceed 3°F (1.7°C) in rivers and streams designated as cold water fisheries nor 5°F (2.8°C) in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month); in lakes and ponds the rise shall not exceed 3°F (1.7°C) in the epilimnion (based on the monthly average of maximum daily temperature);
  - b. natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from natural background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms;
- *314 CMR 4.05 (3)(b) 3 pH.* Shall be in the range of 6.5 through 8.3 standard units but not more than 0.5 units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class.

## Site Description

White Island Pond is located in Plymouth and Wareham and qualifies as a "Great Pond of Massachusetts". White Island Pond is comprised of two basins, White Island Pond East Basin (MA95166) and White Island Pond West Basin (MA95173). White Island Pond East Basin covers approximately 165 acres. The pond is located in a groundwatershed in which no MassDOT roadways are located (Figure 1). Therefore, during the desktop analysis, it was concluded that



MassDOT roadways do not discharge stormwater runoff to White Island Pond East Basin (MA95166).

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to White Island Pond East Basin (MA95166) because no MassDOT roadways are located in the contributing groundwatershed.

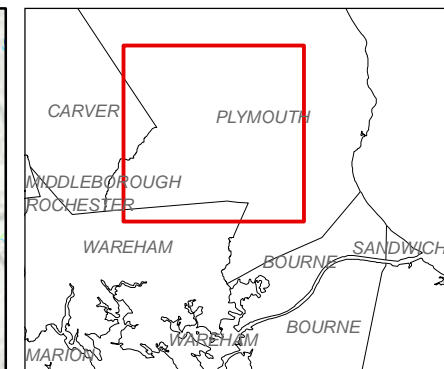
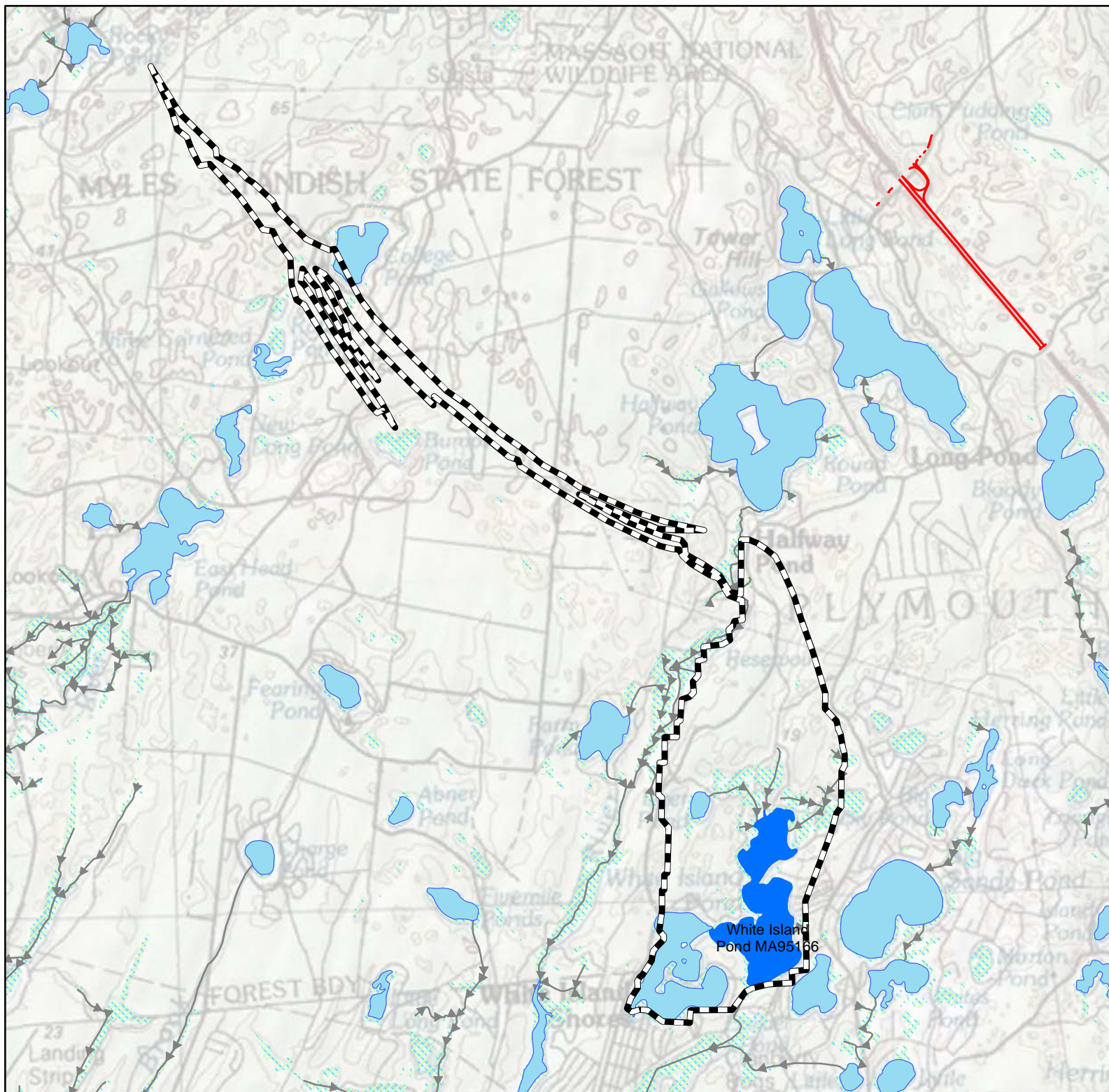
## Conclusions







Because MassDOT urban property does not directly contribute stormwater runoff to White Island Pond (East Basin), further assessment of this water body is not warranted under the Impaired Waters program.

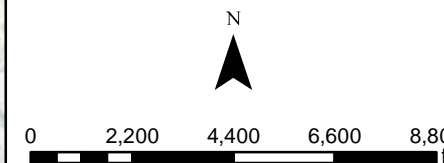
MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

- Massachusetts Department of Environmental Protection (MassDEP). (2003). Buzzards Bay Watershed 2000 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/95wqar4.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2010) Final Total Maximum Daily Load of Total Phosphorus for White Island Pond Plymouth/Wareham, MA. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/whisland.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>
- Mattson, M. 2003. Baseline Lake Survey 2000 Technical Memorandum DWM CN 161.0 . (TM-S-15). Massachusetts Department of Environmental Protection, Division of Watershed Management. Worcester, MA



-  Groundwater Contributing Area
-  White Island Pond
-  Impaired Water Body
-  Non-Impaired Stream Segments
-  NWI Wetland Areas
-  MassDOT Urban Area Roads



1 inch = 4,167 feet

**Figure 1**  
**White Island Pond**  
**(East Basin)**  
**No Discharge**  
**MA95166**

June 2013

# Impaired Waters Assessment for White Island Pond (MA95173)

## Impaired Water Body

Name: White Island Pond (West Basin)

Location: Plymouth and Wareham, Massachusetts

Water Body ID: MA95173

## Impairments

White Island Pond (MA95173) is listed under Category 4a, "TMDL is completed", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). White Island Pond is impaired due to the following:

- (non-native aquatic plants\*)
- excess algal growth
- dissolved oxygen
- total phosphorus

According to MassDEP's Buzzards Bay Watershed 2000 Water Quality Assessment Report (MassDEP, 2003), the west basin of White Island Pond is impaired for the Aquatic Life due to non-native plants. Fish Consumption, Primary and Secondary contacts, and the Aesthetics have not been assessed. Non-native aquatic plant (*Cabomba caroliniana*) was identified during the 2000 TMDL survey and the 1995 synoptic survey). Purple loosestrife (*Lythrum salicaria*) and common reed (*Phragmites australis*) were also noted during the 2000 survey (Mattson 2003). Although dissolved oxygen concentrations met criteria, supersaturation was evident during the September survey (104 to 106%). Chlorophyll a concentrations were moderate (5.7 – 13.1 mg/m<sup>3</sup>) and in-lake total phosphorus concentrations ranged from 0.037 to 0.076 mg/L (. Fish toxics monitoring was conducted in 2000; however, no advisory was issued by MDPH. Secchi disk depth measurements were above 1.2 m (the bathing beach guideline) on all three sampling dates. The biovolume density was very low and may be associated with phytoplankton dominance (field observations indicated phytoplankton blooms and filamentous algae). The pond has no public bathing beach, although it may be used by area residents for recreation. No fecal coliform bacteria data are available; therefore, the Recreational and Aesthetic uses are currently not assessed. However, these uses are identified with an Alert Status because of the noted phytoplankton bloom. Suspected sources include on-site treatment systems (septic systems).

The Phosphorous impairment is covered under the *Final Total Maximum Daily Load of Total Phosphorus for White Island Pond, Plymouth/Wareham, MA* (MassDEP, 2010).

## Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (5) (a) Aesthetics.* All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
- *314 CMR 4.05 (5) (c) Nutrients.* Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses. Human activities that result in the nonpoint source discharge of nutrients to any surface water may be required to be provided with cost effective and reasonable best management practices for nonpoint source control.
- *314 CMR 4.05 (3)(b) 1 Dissolved Oxygen.* Shall not be less than 6.0 mg/l in cold water fisheries and not less than 5.0 mg/l in warm water fisheries. Where natural background conditions are lower, DO shall not be less than natural background conditions. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained.
- *314 CMR 4.05 (3)(b) 2 Temperature.*
  - a. Shall not exceed 68°F (20°C) based on the mean of the daily maximum temperature over a seven day period in cold water fisheries, unless naturally occurring. Where a reproducing cold water aquatic community exists at a naturally occurring higher temperature, the temperature necessary to protect the community shall not be exceeded and the natural daily and seasonal temperature fluctuations necessary to protect the community shall be maintained. Temperature shall not exceed 83°F (28.3°C) in warm water fisheries. The rise in temperature due to a discharge shall not exceed 3°F (1.7°C) in rivers and streams designated as cold water fisheries nor 5°F (2.8°C) in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month); in lakes and ponds the rise shall not exceed 3°F (1.7°C) in the epilimnion (based on the monthly average of maximum daily temperature);
  - b. natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from natural background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms;
- *314 CMR 4.05 (3)(b) 3 pH.* Shall be in the range of 6.5 through 8.3 standard units but not more than 0.5 units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class.

## Site Description

White Island Pond is located in Plymouth and Wareham and qualifies as a "Great Pond of Massachusetts". White Island Pond is comprised of two basins, White Island Pond East Basin (MA95166) and White Island Pond West Basin (MA95173). White Island Pond West Basin covers approximately 122 acres. The pond is located in a groundwatershed in which no MassDOT roadways are located (See Figure 1). Therefore, during the desktop analysis, it was concluded that



MassDOT roadways do not discharge stormwater runoff to White Island Pond West Basin (MA95173).

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to White Island Pond (MA95173).

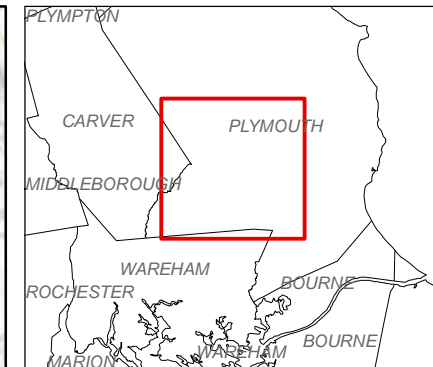
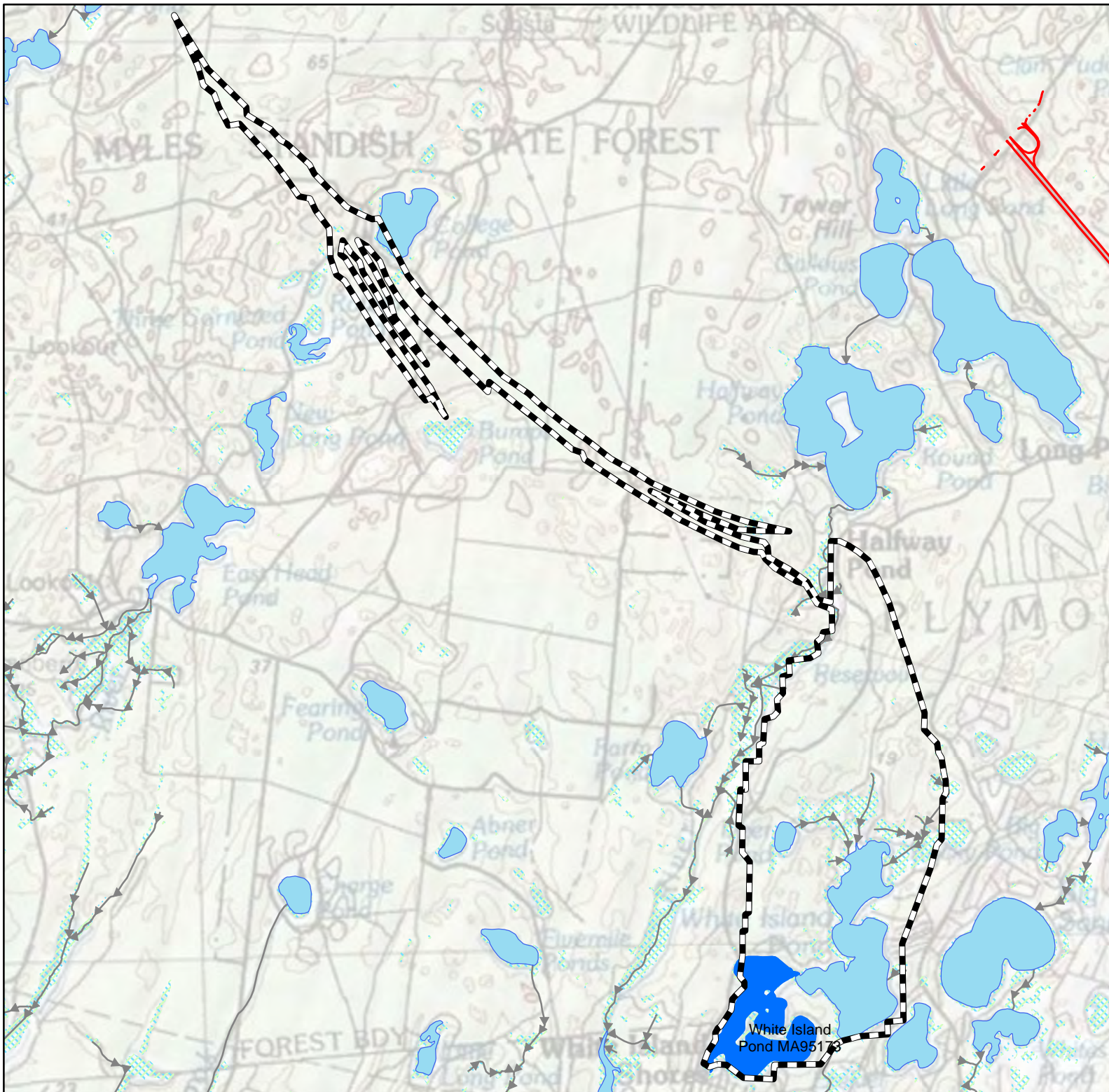
## Conclusions







Because MassDOT urban property does not directly contribute stormwater runoff to White Island Pond (West Basin), further assessment of this water body is not warranted under the Impaired Waters program.

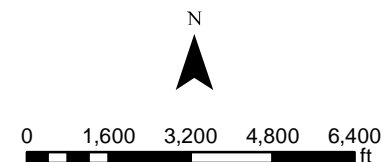
MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

- Massachusetts Department of Environmental Protection (MassDEP). (2003). Buzzards Bay Watershed 2000 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/95wqar4.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2010) Final Total Maximum Daily Load of Total Phosphorus for White Island Pond Plymouth/Wareham, MA. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/whisland.pdf>
- Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>
- Mattson, M. 2003. Baseline Lake Survey 2000 Technical Memorandum DWM CN 161.0 . (TM-S-15). Massachusetts Department of Environmental Protection, Division of Watershed Management. Worcester, MA



-  Groundwater Contributing Area
-  White Island Pond
-  Impaired Water Body
-  Non-Impaired Stream Segments
-  NWI Wetland Areas
-  MassDOT Urban Area Roads



1 inch = 3,750 feet

**Figure 1**  
**White Island Pond**  
**(West Basin)**  
**No Discharge**  
**MA95173**

June 2013

# Impaired Waters Assessment for Mattapoissett Harbor (MA95-35)

## Impaired Water Body

Name: Mattapoissett Harbor

Location: Mattapoissett, Massachusetts

Water Body ID: MA95-35

## Impairments

Mattapoissett Harbor (MA95-35) is listed under Category 4A, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2010 Integrated List of Waters* (MassDEP, 2011). Mattapoissett Harbor is impaired due to the following:

- Fecal coliform

According to MassDEP's *Buzzards Bay Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003), Mattapoissett Harbor is approximately 1.1 mi<sup>2</sup> and approximately 0.1 mi<sup>2</sup> is impaired due to fecal coliform bacteria which prohibits shellfish harvesting in this area. It is suspected that the source of the fecal coliform is the municipal separate storm sewer system. Mattapoissett Harbor is covered by the *Final Pathogen Total Maximum Daily Load (TMDL) for the Buzzards Bay Watershed* report (MassDEP, 2009).

## Relevant Water Quality Standards

Water Body Classification: Class SA

Applicable State Regulations:

- 314 CMR 4.05 (3)(a) 4 Bacteria.
  - a. Waters designated for shellfishing: fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the samples exceed an MPN of 28 per 100 ml, or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the Guide For The Control of Molluscan Shellfish (more stringent regulations may apply, see 314 CMR 4.06(1)(d)(5));
  - b. at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010, no single enterococci sample taken during the bathing season shall exceed 104 colonies per 100 ml, and the geometric mean of the five most recent samples taken within the same bathing season shall not exceed a geometric mean of 35 enterococci colonies per 100 ml. In non-bathing beach waters and bathing beach waters during the non bathing season, no single enterococci sample shall exceed 104 colonies per 100 ml and the geometric mean of all samples taken within the most recent six months typically based on a minimum of five samples shall not exceed 35 enterococci colonies per 100 ml.



These criteria may be applied on a seasonal basis at the discretion of the Department.

## Site Description

Mattapoisett Harbor (MA95-35) is a water body in Mattapoisett, Massachusetts that covers approximately 1.1 square miles. Several waterbodies discharge to the Harbor including Eel Pond (MA95-61), Mattapoisett River (MA95-60), and an unnamed tributary east of Eel Pond. Mattapoisett Harbor opens up into Buzzards Bay. The closest MassDOT roadway is Route 6 which is located north of the harbor and runs east-west (Figure 1).

As shown in Figure 1, Route 6 is over 1,800 feet from Mattapoisett Harbor. Runoff from Route 6 would enter the Mattapoisett River, Eel Pond, the unnamed tributary or marshland adjacent to the harbor before reaching the harbor and therefore is not considered direct drainage. The area between Route 6 and the pond is mostly residential.

During the desktop analysis, it was concluded that local topography and the presence of residential development, wetlands, and other waterbodies between the harbor and Route 6 prevent stormwater runoff from directly draining to Mattapoisett Harbor.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, it was determined that MassDOT does not directly contribute runoff to Mattapoisett Harbor (MA95-35). The nearest MassDOT-owned urban roadway is Route 6 in Mattapoisett. Runoff from Route 6 flows off the roadway into the Mattapoisett River, Eel Pond, or an unnamed tributary which are not impaired in this location. Runoff that drains to these waterbodies is considered indirect drainage to Mattapoisett Harbor.

## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Mattapoisett Harbor Pond, further assessment of this water body is not warranted under the Impaired Waters program.

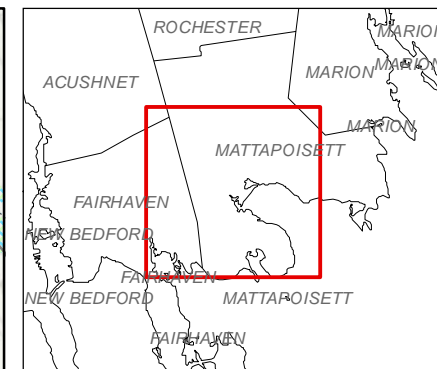
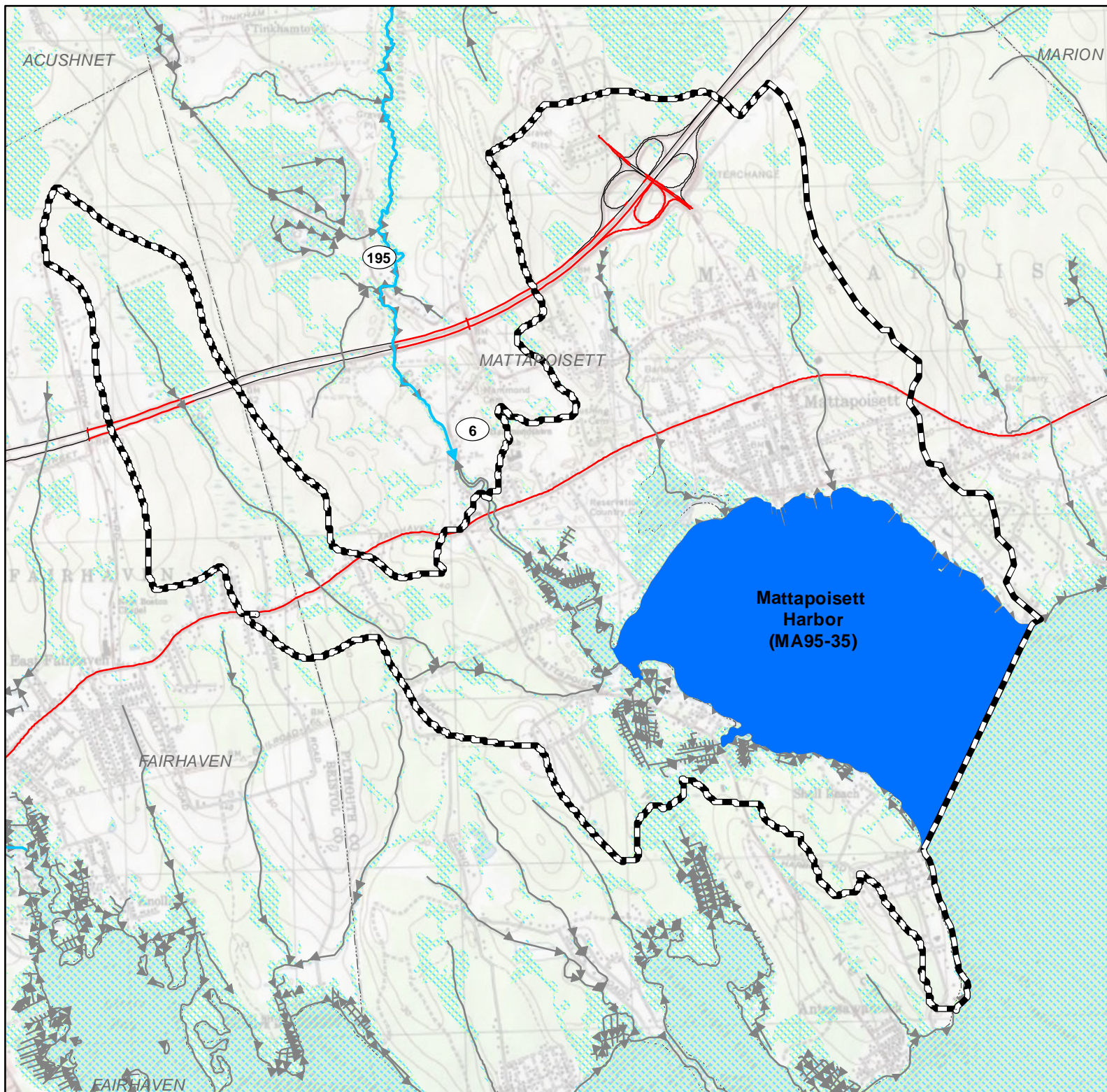
MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.









## References

Massachusetts Department of Environmental Protection (MassDEP). (2003). Buzzards Bay Watershed 2000 Water Quality Assessment Report. Retrieved from:  
[www.mass.gov/dep/water/resources/92wqar.pdf](http://www.mass.gov/dep/water/resources/92wqar.pdf)

Massachusetts Department of Environmental Protection (MassDEP). (2009). Final Pathogen TMDL for the Buzzards Bay Watershed. Retrieved from:  
<http://www.mass.gov/dep/water/resources/ipswich1.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2011). Massachusetts Year 2010 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/dep/water/resources/10list6.pdf>



-  Subwatershed
-  Impaired Stream Segment
-  Mattapoissett Harbor
-  Non-Impaired Stream Segments
-  NWI Wetland Areas
-  MassDOT Urban Area Roads
-  MassDOT Roads
-  Town Boundaries



0 1,300 2,600 3,900 5,200  
ft

1 in = 0.5 miles

**Figure 1**  
**Mattapoissett Harbor**  
**No Discharge**  
**MA95-35**

June 2013



# Impaired Waters Assessment for Little Bay (MA95-64)

## Impaired Water Body

Name: Little Bay

Location: Fairhaven, Massachusetts

Water Body ID: MA95-64

## Impairments

Little Bay (MA95-64) is listed under Category 4a, "TMDL is Completed", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Little Bay is impaired due to the following:

- fecal coliform

According to MassDEP's *Buzzards Bay Watershed 2000 Water Quality Assessment Report* (MassDEP, 2003), the primary and secondary contact recreational uses and aquatic life use of Little Bay (MA95-64) have not been assessed.

According to the *Final Pathogen TMDL for the Buzzards Bay Watershed*, which includes this waterbody, Little Bay (MA95-64) is impaired due to pathogens; the potential source of this impairment is listed as "unknown" (MassDEP, 2009). In addition, according to the *Final Pathogen TMDL for the Buzzards Bay Watershed*, shellfishing is prohibited in Little Bay (MA95-64) (MassDEP, 2009).

## Relevant Water Quality Standards

Water Body Classification: Class SA

Applicable State Regulations:

- 314 CMR 4.05 (4)(a) 4 Bacteria.
  - a. Waters designated for shellfishing: fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the samples exceed an MPN of 28 per 100 ml, or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the Guide For The Control of Molluscan Shellfish (more stringent regulations may apply, see 314 CMR 4.06(1)(d)(5));
  - b. at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010, no single enterococci sample taken during the bathing season shall exceed 104 colonies per 100 ml, and the geometric mean of the five most recent samples taken within the same bathing season shall not exceed a geometric mean of 35 enterococci colonies per 100 ml. In non bathing beach waters and bathing beach waters during the non bathing season, no single

enterococci sample shall exceed 104 colonies per 100 ml and the geometric mean of all samples taken within the most recent six months typically based on a minimum of five samples shall not exceed 35 enterococci colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department; *314 CMR 4.05 (3) (b) 6 Color and Turbidity*. These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this Class.

## Site Description

Little Bay (MA95-64) is a water body located off the coast of Fairhaven that covers approximately 0.36 square miles (Figure 1). Little Bay (MA95-64) extends from the confluence with the Nasketucket River, Fairhaven south to the confluence with Nasketucket Bay at a line from the southernmost tip of Mirey Neck, Fairhaven to a point near Shore Drive, Fairhaven (MassDEP, 2009). The harbor has a number of inlets, including Nasketucket River which is impaired due to nitrogen (total), and numerous non-impaired streams, as shown on Figure 1.

The closest MassDOT roadway is Route 6 (Huttleston Avenue) which runs north of Little Bay (MA95-64). As shown in Figure 1, Route 6 is over 1,600 feet from Little Bay. The area along Route 6 is primarily commercial and between Route 6 and the harbor is mostly residential and forested with wetland areas. During the desktop analysis, it was concluded that local topography and the presence of residential development, wetlands, and forest between the harbor and Route 6 prevent stormwater runoff from directly draining to Little Bay.

## Assessment under BMP 7U for No Discharge Determination

Using drainage plans, aerial imagery, topography data, MassDOT's outfall GIS database, resource protection areas provided by MassGIS, National Resources Conservation (NRCS) soils data and National Wetlands Inventory (NWI) wetlands data provided by MassGIS, and the *Atlas of Stormwater Discharges in the Buzzards Bay Watershed* (Buzzards Bay NEP, 2007), which includes a map outlining stormwater systems in this area, it was determined that MassDOT does not directly contribute runoff to Little Bay (MA95-64). The nearest MassDOT-owned urban roadway is Route 6 in Fairhaven. Runoff along Route 6 is collected in catch basins that discharge to outfalls along Route 6. Route 6 crosses over Nasketucket River, which then flows southeast approximately 2,200 ft to Little Bay, and a non-impaired stream which flows to Nasketucket River. Route 6 discharges via outfalls to both waterways. Both waterways pass through wetlands upstream of Little Bay. Runoff from Route 6 to Nasketucket River flows through wetlands prior along Nasketucket River and the non-impaired stream, and is discharged over 2,500 feet from Little Bay (MA95-64). Therefore, runoff from Route 6 is considered indirect drainage to Little Bay (MA95-64).

## Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Little Bay (MA95-64), further assessment of this water body is not warranted under the Impaired Waters program.

MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

## References

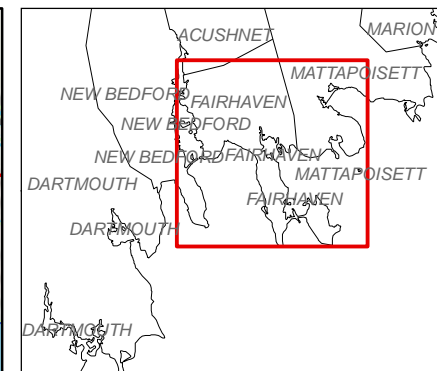
Buzzards Bay National Estuaries Program (NEP). (2007) Atlas of Stormwater Discharges in the Buzzards Bay Watershed; 2007 Stormwater Atlas Updates (Fairhaven Map 4). Retrieved from <http://buzzardsbay.org/stormatlas.htm>.

Massachusetts Department of Environmental Protection (MassDEP). (2003). Buzzards Bay Watershed 2000 Water Quality Assessment Report. Retrieved from: <http://www.mass.gov/eea/agencies/massdep/water/watersheds/buzzards-bay-watershed-2000.html>

Massachusetts Department of Environmental Protection (MassDEP). (2009). Final Pathogen TMDL for the Buzzards Bay Watershed. Available at: <http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html#7>

Massachusetts Department of Environmental Protection (MassDEP). (2013). Massachusetts Year 2012 Integrated List of Waters - Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act. Retrieved from: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>





- Total Watershed
- Subwatershed
- Impaired Stream Segment
- Impaired Water Body
- Non-Impaired Stream Segments
- NWI Wetland Areas
- MassDOT Urban Area Roads
- MassDOT Roads



0 2,000 4,000 6,000 8,000 ft

1 inch = 4,000 feet

**Figure 1**  
**Little Bay**  
**No Discharge**  
**MA95-64**

June 2013