

Attachment 4:

No Discharges from MassDOT Outfalls

List of Impaired Water Bodies

Waterbody ID	Waterbody Name
MA35099	Whites Mill Pond
MA36165	Lake Whitmore
MA42-06	French River
MA51110	Newton Pond
MA51157	Southwick Pond
MA51185	Woodbury Pond
MA51-18	Peters River
MA51-27	Coal Mine Brook
MA51-28	Cook Allen Brook
MA82015	Carding Mill Pond
MA82042	Fort Meadow Brook
MA82A-06	Hop Brook
MA91-05	Rowley River
MA93-40	Proctor Brook

Impaired Waters Assessment for Whites Mill Pond (MA35099)

Impaired Water Body

Name: Whites Mill Pond

Location: Winchendon, MA

Water Body ID: MA35099

Impairments

Whites Mill Pond (MA35099) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Whites Mill Pond is impaired for the following:

- Aquatic Plants (Macrophytes)
- Mercury in Fish Tissue

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 (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 822-R-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

Whites Mill Pond (MA35099) is a 42.43 acre pond located east of U.S. Route 202 (Glenallen Street) in Winchendon, MA approximately 1.3 miles south of the New Hampshire border (Figure 1). Whites Mill Pond receives water from its subwatershed and outlets to the North Branch Millers River. Whites Mill Pond's 1.3 square mile watershed extends north from the pond to Lake Monomonic, south to transmission lines, and west approximately 0.4 miles. There are no MassDOT owned roadways within the Whites Mill Pond subwatershed.

Assessment under BMP 7R for No Discharge Determination

The TMDL for phosphorus for Whites Mill Pond addresses the impairment of aquatic plants (macrophytes). Therefore, MassDOT assessed the contribution of phosphorus from MassDOT property directly draining to this water body to address this impairment. The assessment was completed using the approach described in BMP 7R (TMDL Watershed Review).

According to the final *Massachusetts Year 2012 Integrated List of Waters*, non-native aquatic plants are non-pollutant stressors which indicates that restoration will require measures other than TMDL development and implementation. As a result, MassDOT has concluded that stormwater runoff from its roadways does not contribute to this impairment found in Whites Mill Pond.

Based on a review of the topography and a site visit on October 21, 2013, it was determined that MassDOT does not directly contribute runoff into Whites Mill Pond. The nearest MassDOT owned roadways are U.S. Route 202 (Maple Street) and a bridge on U.S. Route 202 (Glenallen Street) over the North Branch Millers River. These roadways are lower in elevation than the Whites Mill Pond outlet into the North Branch Millers River, and outside of the Whites Mill Pond watershed, and therefore do not contribute runoff into Whites Mill Pond.

Conclusions

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

MassDOT will continue to ensure proper non-structural BMPs are being implemented within the watershed of Whites Mill Pond, including regular roadway and drainage system maintenance, erosion and sedimentation control, and outreach and education. Further work by MassDOT on programmed projects, which often include broader scale road layout changes, may provide additional opportunities for construction of new treatment BMPs. This is consistent with an iterative adaptive management approach to address impairments.

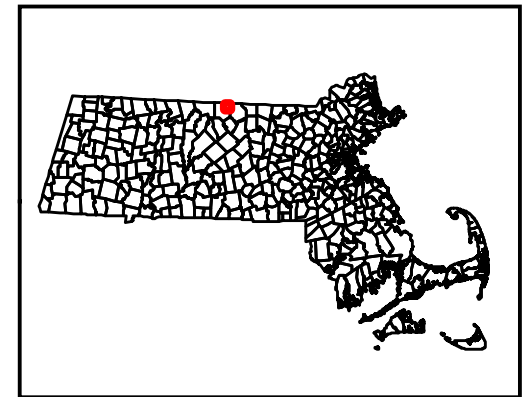
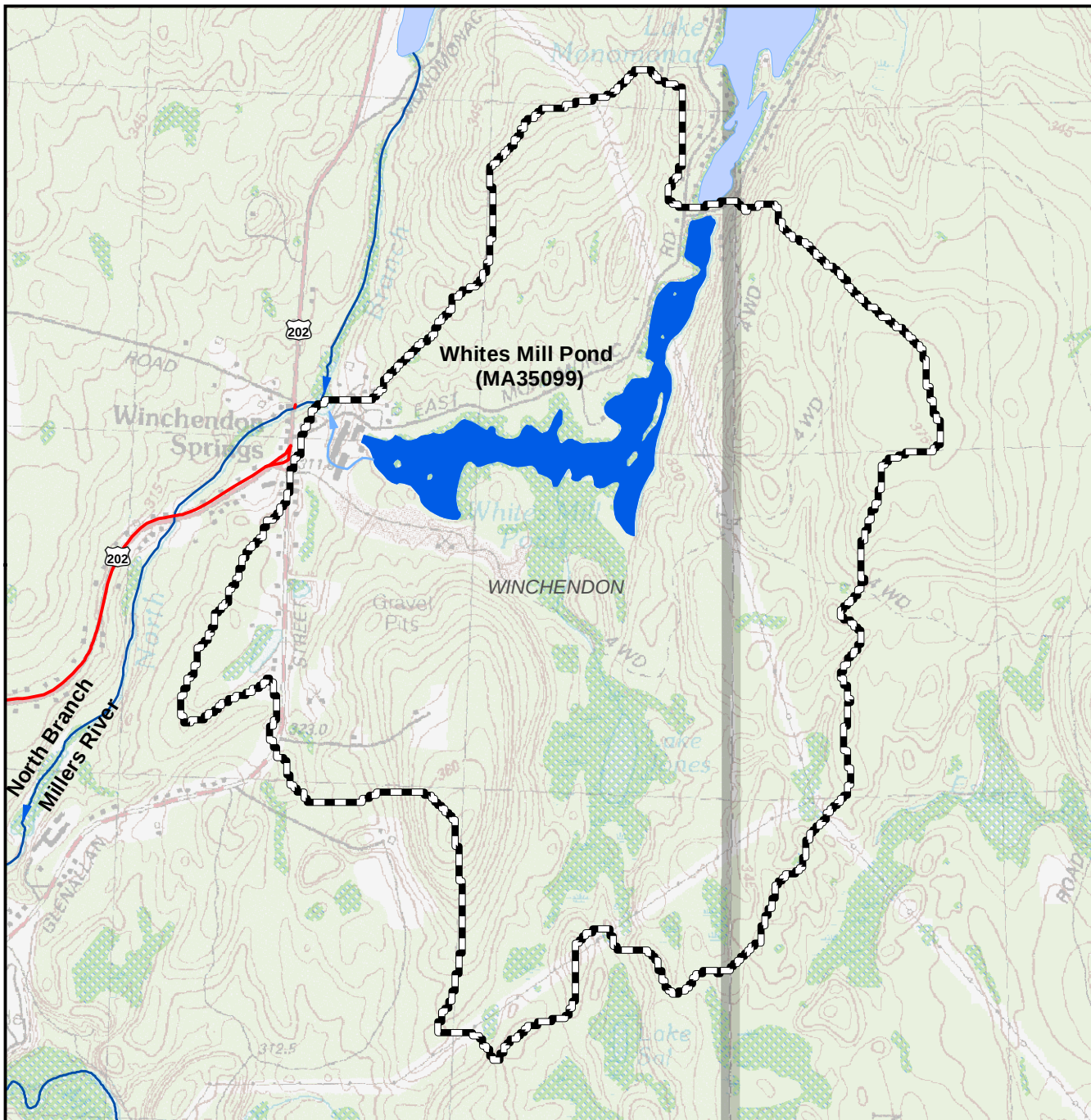
References

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, CN:400.1. Retrieved from: [Massachusetts Year 2012 Integrated List of Waters](#)

Massachusetts Department of Environmental Protection (MassDEP). (2003). Total Maximum Daily Loads of Phosphorus for Selected Millers Basin Lakes. Retrieved from: <http://www.mass.gov/dep/water/resources/millers.pdf>

Massachusetts Department of Environmental Protection (MassDEP). (2000). Millers River Watershed 2000 Water Quality Assessment Report. Retrieved from: [Millers River Watershed 2000 Water Quality Assessment Report](#)

Massachusetts Department of Transportation (MassDOT). (2012). Description of MassDOT's TMDL Method in BMP 7R.



-  Whites Mill Pond (MA35099)
-  Impaired Water Bodies
-  Impaired Stream Segment
-  Non-Impaired Stream Segment
-  Total & Subwatershed
-  NWI Wetland Areas
-  MassDOT Roads in Urban Areas
-  MassDOT Roads
-  Town Boundaries

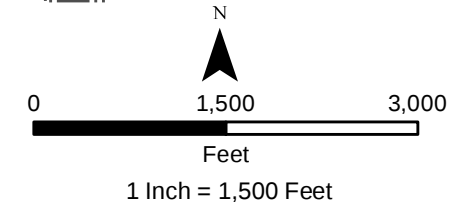


Figure 1

Whites Mill Pond
MA35099
Total & Subwatershed

October 2013

Impaired Waters Assessment for Lake Whittemore (MA36165)

Impaired Water Body

Name: Lake Whittemore

Location: Spencer, MA

Water Body ID: MA36165

Impairments

Lake Whittemore (MA36165) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Lake Whittemore is impaired for the following:

- Turbidity

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 (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

Lake Whittemore (MA36165) is a 52.0 acre lake located in the Chicopee River Watershed in Spencer, MA. Lake Whittemore lies west of Paxton Road, east of Route 31 (Pleasant Street), and north of Route 9 (Main St). It is approximately 1.3 miles west of the Leicester border. The total watershed draining to Lake Whittemore is 417 acres (0.65 miles). Lake Whittemore's total and subwatershed are the same, as shown in **Figure 1**. Approximately 0.7 miles of MassDOT roadway (Route 9) in Spencer passes through the Lake Whittemore watershed.

Assessment under BMP 7U for No Discharge Determination

Based on a site visit on October 23, 2013, it was determined that MassDOT does not directly contribute runoff to Lake Whittemore (MA36165). The nearest MassDOT-owned roadway is Route 9 (Main Street). Runoff from the roadway is collected in catch basins and outlets on the north side of Route 9. This runoff then drains through a well-vegetated area where it infiltrates, before reaching an intermittent stream that flows into Lake Whittemore.

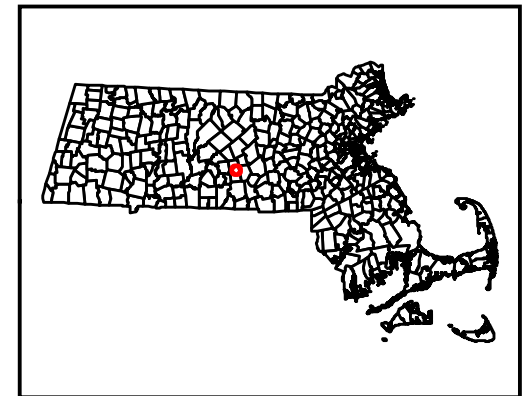
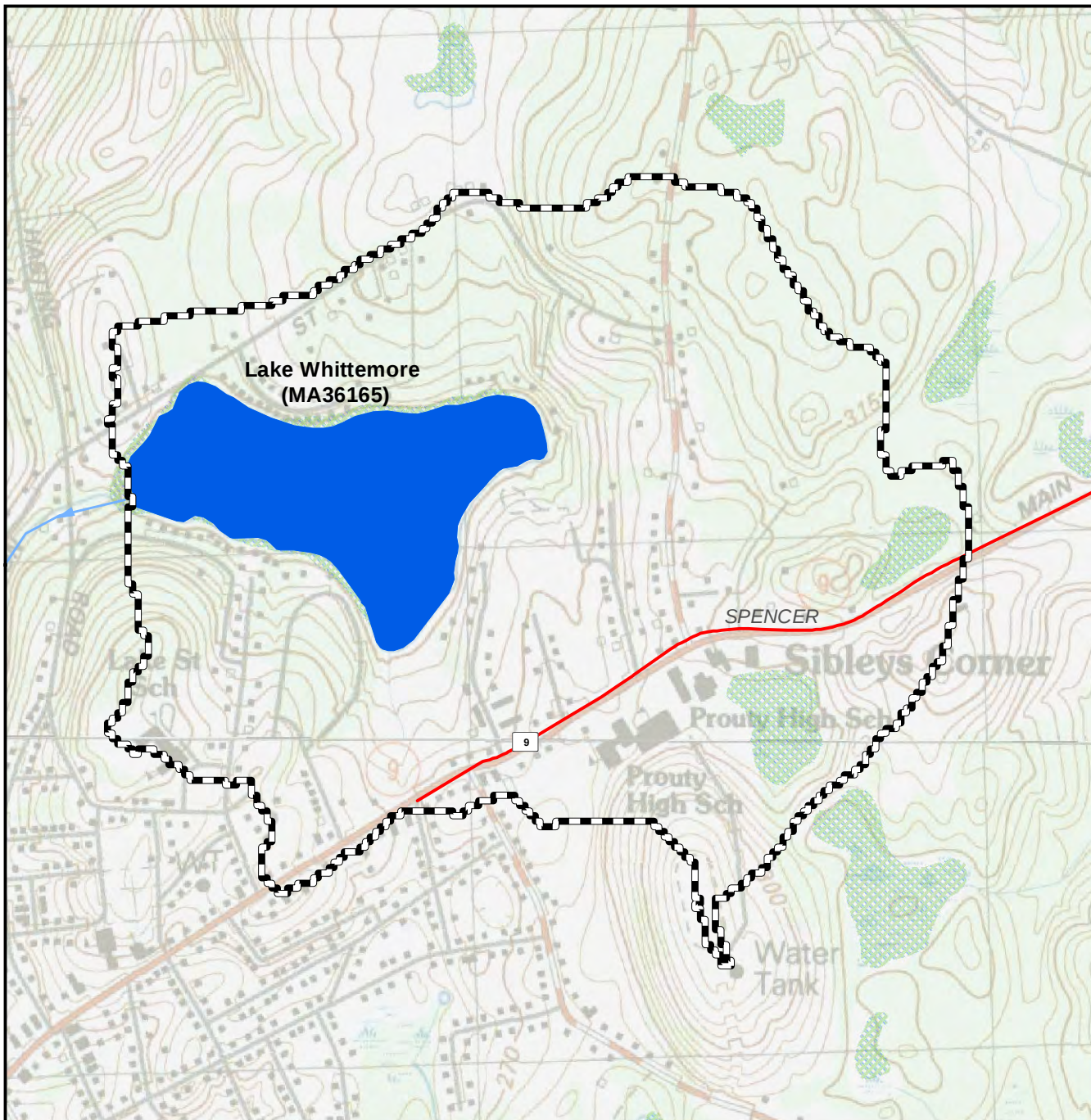
Conclusions

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

MassDOT will continue to ensure proper non-structural BMPs are being implemented within the watershed of Lake Whittemore, including regular roadway and drainage system maintenance, erosion and sedimentation control, and outreach and education. Further work by MassDOT on programmed projects, which often include broader scale road layout changes, may provide additional opportunities for construction of new treatment BMPs. This is consistent with an iterative adaptive management approach to address impairments.

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, CN:400.1. Retrieved from: <http://www.mass.gov/dep/water/resources/12list2.pdf>
- Massachusetts Department of Transportation (MassDOT). (2011). Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).



-  Lake Whittemore (MA36165)
-  Impaired Water Bodies
-  Impaired Stream Segment
-  Non-Impaired Stream Segment
-  Total & Subwatershed
-  NWI Wetland Areas
-  MassDOT Roads in Urban Areas
-  MassDOT Roads
-  Town Boundaries

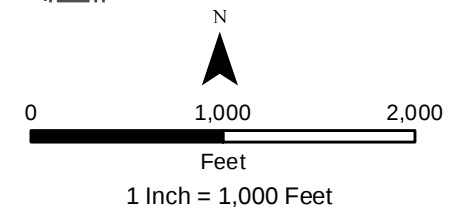


Figure 1

**Lake Whittemore
(MA36165)
Total & Subwatershed**

November 2013

Impaired Waters Assessment for French River (MA42-06)

Impaired Water Body

Name: French River

Location: Dudley/Webster, MA

Water Body ID: MA42-06

Impairments

French River (MA42-06) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). French River is impaired for the following:

- Aquatic Macroinvertebrate Bioassessments
- Fecal Coliform
- Sediment Screening Value (Exceedance)
- Taste and Odor
- Turbidity
- (Debris/Floatables/Trash*)
- Other.

According to MassDEP's *French and Quinebaug River Watersheds 2004-2008 Water Quality Assessment Report* (MassDEP, 2009), This segment of the French River is impaired due to aquatic macroinvertebrate bioassessments, fecal coliform, sediment screening value (exceedance), taste and odor, turbidity, (debris/floatables/trash) and other causes. The report recommends conducting water quality sampling and macroinvertebrate sampling to assess the *Aquatic Life Uses* and as an upstream reference station to attempt an evaluation of the Webster WWTP discharge on the French River.

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 (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;

o 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 (3)(b) Solids. These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

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) 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

Segment MA42-06 of the French River extends 1.0 miles from the outfall of the Dudley/Webster Waste Water Treatment Plant (WWTP) to the Massachusetts/Connecticut state line. Land use adjacent to this segment of the French River consists of bordering wetlands and several larger industrial facilities which are west of the river fronting on Route 12. A railroad line extends parallel to the east side of the river (generally 200-400 feet from the river's edge). Residential areas exist further east of the railroad line.

The closest roadways under MassDOT's jurisdiction in this area is Route 12. Route 12 in this area is approximately 500-700 feet west of the French River (Figure 2). The area between Route 12 and the French River is mostly forested upland and wetlands. Several larger industrial/commercial buildings exist along Route 12 in the north end of the segment. A small residential neighborhood exists at the southern end of the segment along Perryville Road near the Massachusetts/Connecticut state line.

Assessment under BMP 7U for No Discharge Determination

Based on a review of 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, as well as a site visit, it was determined that MassDOT does not directly contribute runoff to the French River (MA42-06).

During a site visit on October 30, 2013, five outfall locations along Route 12 were identified – two at unnamed, non-impaired National Hydrography Dataset (NHD) streams and one discharging to a heavily wooded swale. Due to the fact that stormwater travels approximately 750-1000 feet from these outfall locations to the French River, stormwater from Route 12 was determined to be an indirect discharge. The distance from the outfall locations to French River was determined to be significant where infiltration and/or treatment are likely to occur.

Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to the French 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.

MassDOT will continue to ensure proper non-structural BMPs are being implemented within the watershed of the French River, including regular roadway and drainage system maintenance, erosion and sedimentation control, and outreach and education. Further work by MassDOT on programmed projects, which often include broader scale road layout changes, may provide additional opportunities for

12/8/2013



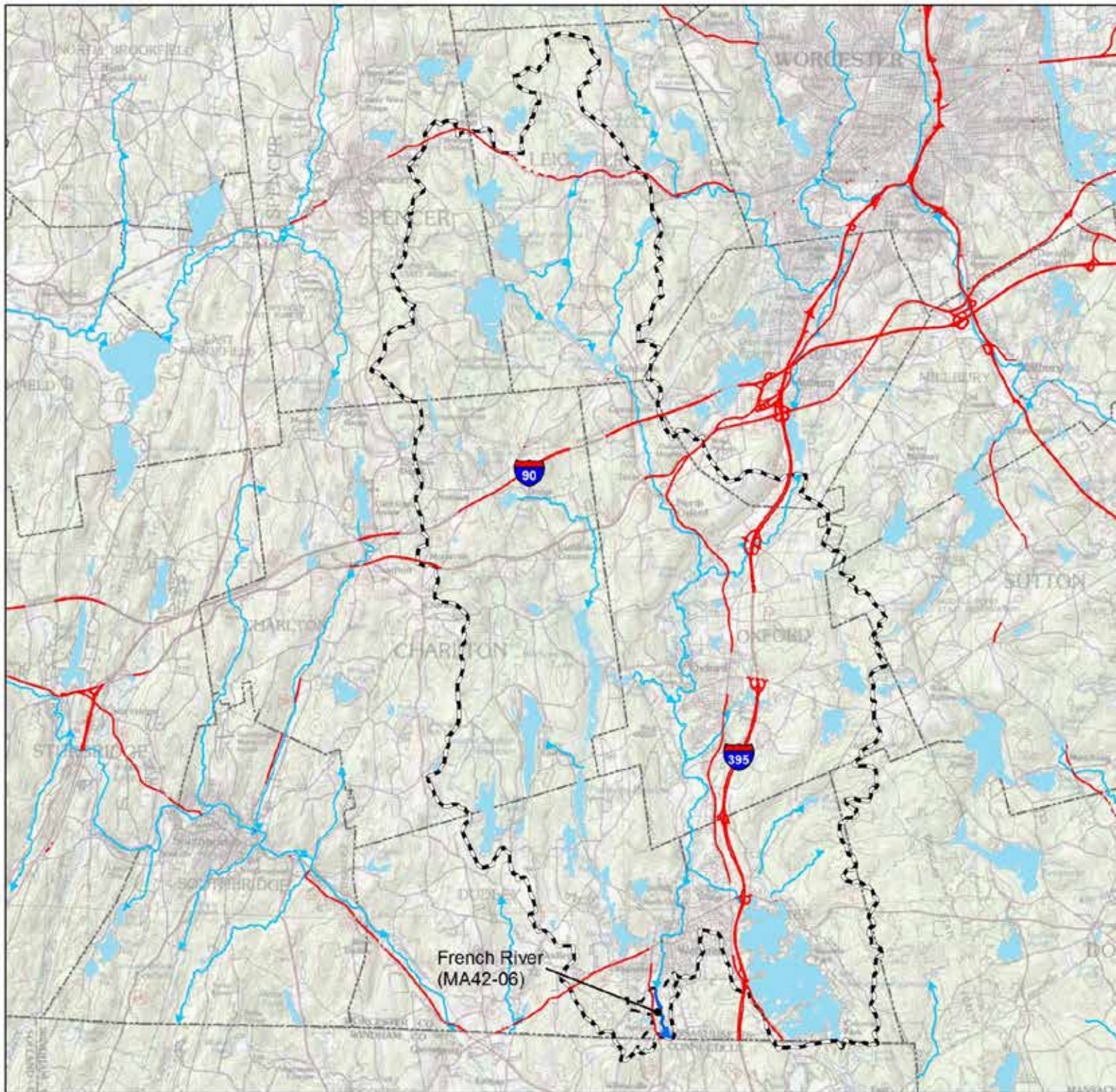
construction of new treatment BMPs. This is consistent with an iterative adaptive management approach to address impairments.

References

Massachusetts Department of Environmental Protection (MassDEP). (2004-2008). *French and Quinebaug River Watersheds 2004-2008 Water Quality Assessment Report* (MassDEP, 2009), <http://www.mass.gov/dep/water/resources/4142wqar04.pdf>
[Hyperlink to MassDEP French and Quinebaug River Watersheds 2004-2008 Water Quality Assessment Reports](#)

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>
[Hyperlink to MassDEP 2012 Final Listing of Massachusetts Waters \(303\(d\) list\)](#)

Massachusetts Department of Transportation (MassDOT). (2011). Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).



- Total Watershed
- Subwatershed
- Impaired Water Bodies
- Impaired Stream Segments
- French River (MA42-06)
- MassDOT Urban Area Roads
- Town Boundaries



0 6,250 12,500 25,000
Feet

Figure 1

**French River (MA42-06)
Dudley/Webster, MA
Total Watershed**

December 2013

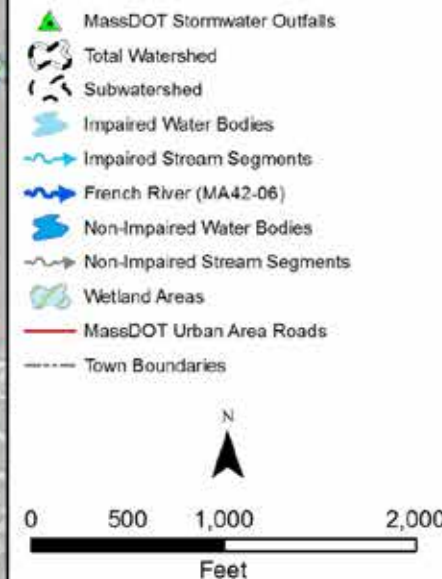
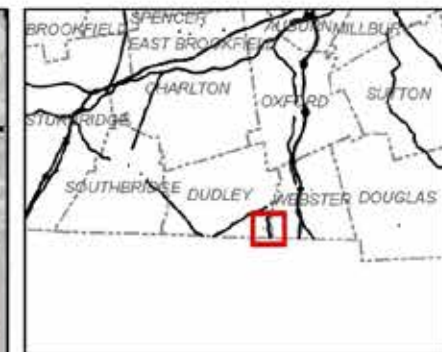
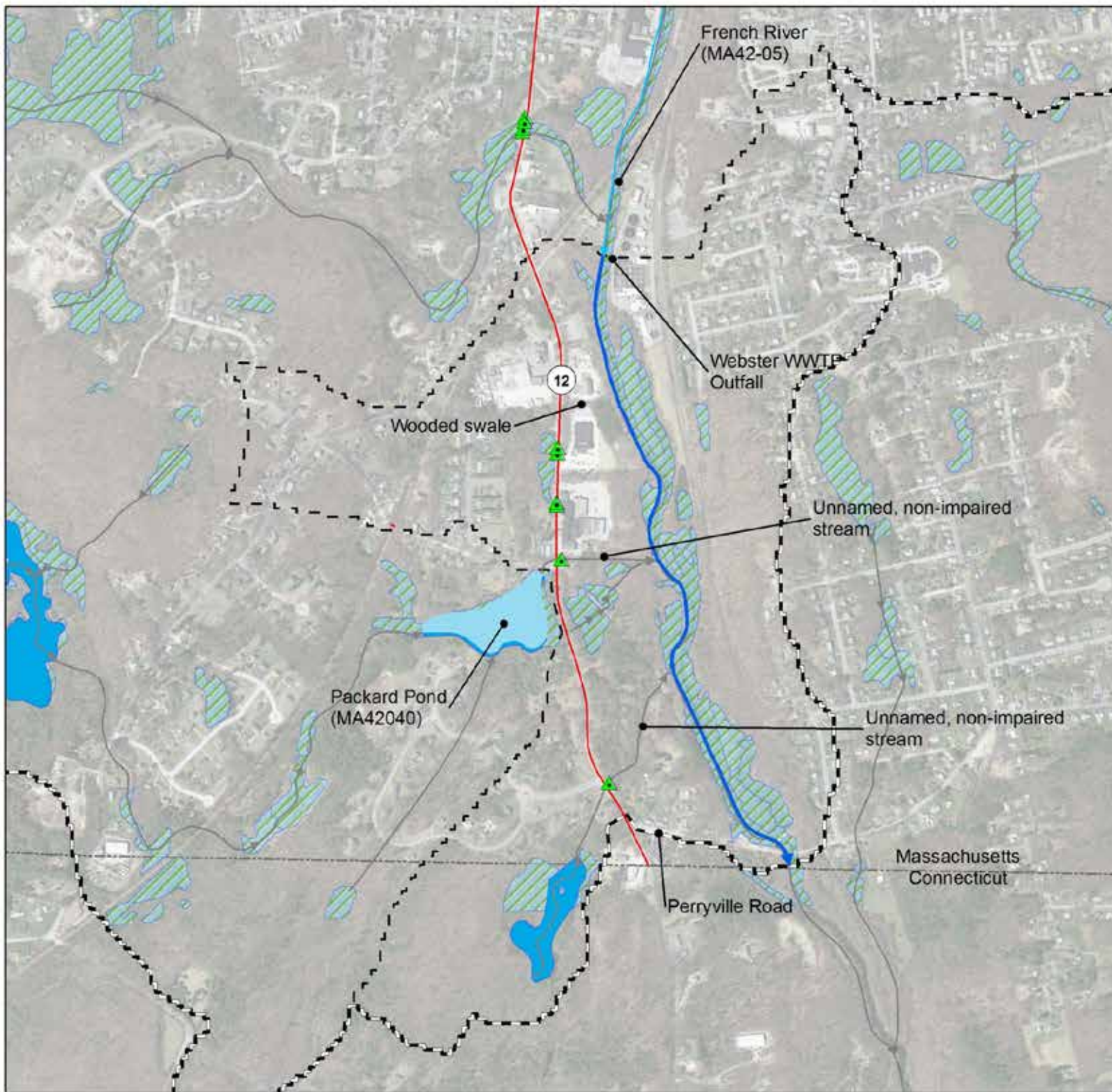


Figure 2

**French River (MA42-06)
Dudley/Webster, MA
Subwatershed**

December 2013

Impaired Waters Assessment for Newton Pond (MA51110)

Impaired Water Body

Name: Newton Pond

Location: Boylston/Shrewsbury, Massachusetts

Water Body ID: MA51110

Impairments

Newton Pond (MA51110) is listed under Category 4A, "TMDL is completed", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Newton Pond is impaired due to the following:

- non-native aquatic plants.

According to MassDEP's *Blackstone River Watershed 2003-2007 Water Quality Assessment Report* (MassDEP, 2010), the non-native aquatic plant species *Myriophyllum heterophyllum* and *Cabomba Carolinian* were identified in Newton Pond.

Newton Pond is covered by MassDEP's *Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes* (MassDEP, 2002), which states that Newton Pond is impaired for noxious aquatic plants.

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.

- 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

Newton Pond (MA51110) is a water body in Boylston/Shrewsbury, Massachusetts that covers approximately 54 acres. The pond has one primary inlet, the Sewall Pond, and one primary outlet, Shirley Street Pond. The closest MassDOT roadways are Route 70 (Main Street) which runs west of Newton Pond and Route 290 which runs south of Newton Pond. See Figure 1.

Assessment under BMP 7R for No Discharge Determination

Based on the proximity of the MassDOT roadways (the closest MassDOT roadway is approximately 1,400 feet west of Newton Pond) to Newton Pond, a desktop review of the available Blackstone River Watershed assessment report, 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 Newton Pond (MA51110). The nearest MassDOT-owned urban roadways are Route 70 (Main Street) in Boylston/Shrewsbury and Route 290 in Shrewsbury. Runoff from Route 70 flows off the roadway into well-vegetated woods where it infiltrates; therefore, runoff from Route 70 is considered indirect drainage to Newton Pond. Runoff from Route 290 is not within the Newton Pond's subwatershed, and the closest outfalls to Newton Pond discharge to waterways that are not impaired.

Conclusions

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

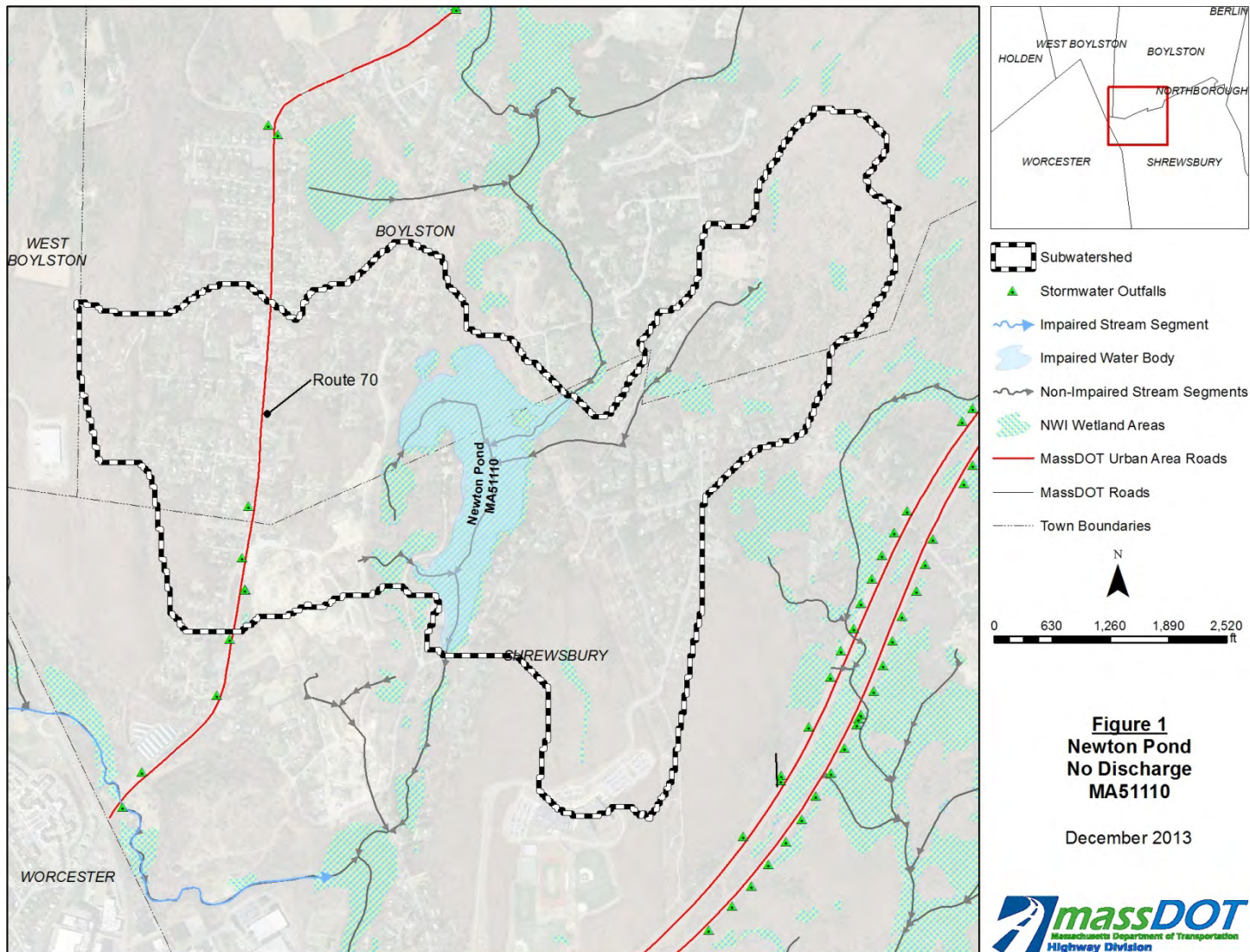
During programmed projects, which often include broader scale road layout changes, MassDOT will consider improvements to the stormwater management system to maximize the treatment of stormwater runoff before draining off-site.

References

Massachusetts Department of Environmental Protection (MassDEP). (2010). Blackstone River Watershed 2003-2007 Water Quality Assessment Report. Retrieved from: [MADEP 2010 Blackstone River Watershed 2003-2007 Water Quality Assessment Report](#)

Massachusetts Department of Environmental Protection (MassDEP). (2002). Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes. Retrieved from: [MADEP 2002 Total Maximum Daily Loads of Phosphorus for Selected](#)

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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)



Impaired Waters Assessment for Southwick Pond (MA51157)

Impaired Waterbody

Name: Southwick Pond

Location: Paxton and Leicester, MA

Water Body ID: MA51157

Impairments

Southwick Pond (MA51157) is listed under Category 4a, "TMDL is completed", on MassDEP's final *Massachusetts Year 2010 Integrated List of Waters* (MassDEP, 2011). The pond is a tributary for Worcester's public water supply, and is, therefore, classified as a Class A\PWS\ORW water body. Southwick Pond is impaired for the following:

- Aquatic Plants (Macrophytes)

Southwick Pond is covered by MassDEP's *Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes* (MassDEP, 2002), which states that Southwick Pond is impaired for noxious aquatic plants.

Relevant Water Quality Standards

Water Body Classification: Class A\PWS\ORW

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.

Site Description

Southwick Pond is a water body covering 42 acres across the town line of Paxton and Leicester, MA. The pond is surrounded by mostly vegetated area. Several non-impaired streams discharge into the pond and two non-impaired streams outlet at the southern end of the pond. Route 122 runs upstream of Southwick Pond, as shown in **Figure 1**.

Assessment under BMP 7R for No Discharge Determination

There are only non-impaired streams flowing in and out of Southwick Pond. Route 122 is separated by more than 0.25 miles of heavily vegetated area and wetlands. As displayed in **Figure 1**, one non-impaired stream drains from Route 122 to the pond, but the stream drains for a sufficiently long distance that drainage from Route 122 entering the stream would not be considered directly contributing to Southwick Pond. Therefore, Route 122 is not directly contributing to Southwick Pond.

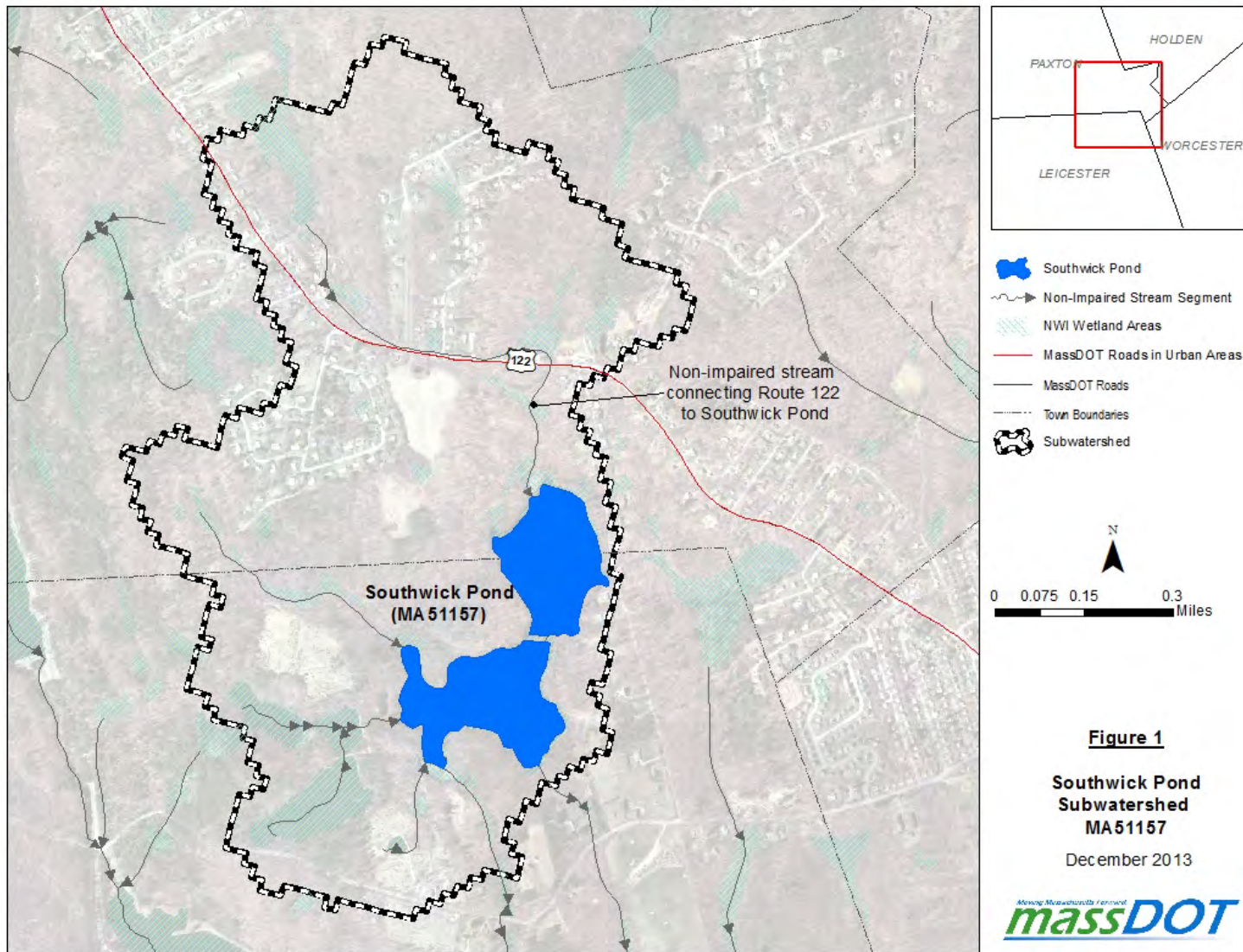
Conclusions

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

During programmed projects, such as when Route 122 is resurfaced or undergoes upgrades, MassDOT will consider improvements to the stormwater management system to maximize the treatment of stormwater runoff before draining off-site.

References

- Massachusetts Department of Environmental Protection (MassDEP). (2002). Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes. Retrieved from: [Phosphorus TMDL for Blackstone](#)
- 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 Transportation (MassDOT). (2011). Description of MassDOT's Application of Impervious Cover Method in BMP 7R (MassDOT Application of IC Method).



Impaired Waters Assessment for Woodbury Pond (MA51185)

Impaired Water Body

Name: Woodbury Pond

Location: Sutton, Massachusetts

Water Body ID: MA51185

Impairments

Woodbury Pond (MA51185) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Woodbury Pond is impaired due to the following:

- Non-Native Aquatic Plants
- Aquatic Plants (Macrophytes)

According to MassDEP's *Blackstone River Watershed 2003-2007 Water Quality Assessment Report* (MassDEP 2010), two non-native aquatic macrophyte species, *Myriophyllum heterophyllum* and *Cabomba caroliniana*, were observed in Woodbury Pond during the 1994 Blackstone River Watershed synoptic lake surveys.

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.

Site Description

Woodbury Pond (MA51185) is a water body in Sutton, Massachusetts that covers approximately 5 acres. The pond has one primary inlet and outlet, the non-impaired Spring Brook. The closest MassDOT roadway is the Worcester-Providence Turnpike (Route 146) which lies to the west of the pond. See Figure 1.

Assessment under BMP 7U for No Discharge Determination

Based upon a desktop review of available 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 Woodbury Pond (MA51185). As indicated above, the nearest MassDOT-owned urban roadway is Route 146, and is located more than 1,700 feet to the west of Woodbury Pond. In addition, the portion of Spring Brook that feeds Woodbury Pond (located between Route 146 and the pond) is currently categorized as a non-impaired stream segment (see Figure 2).

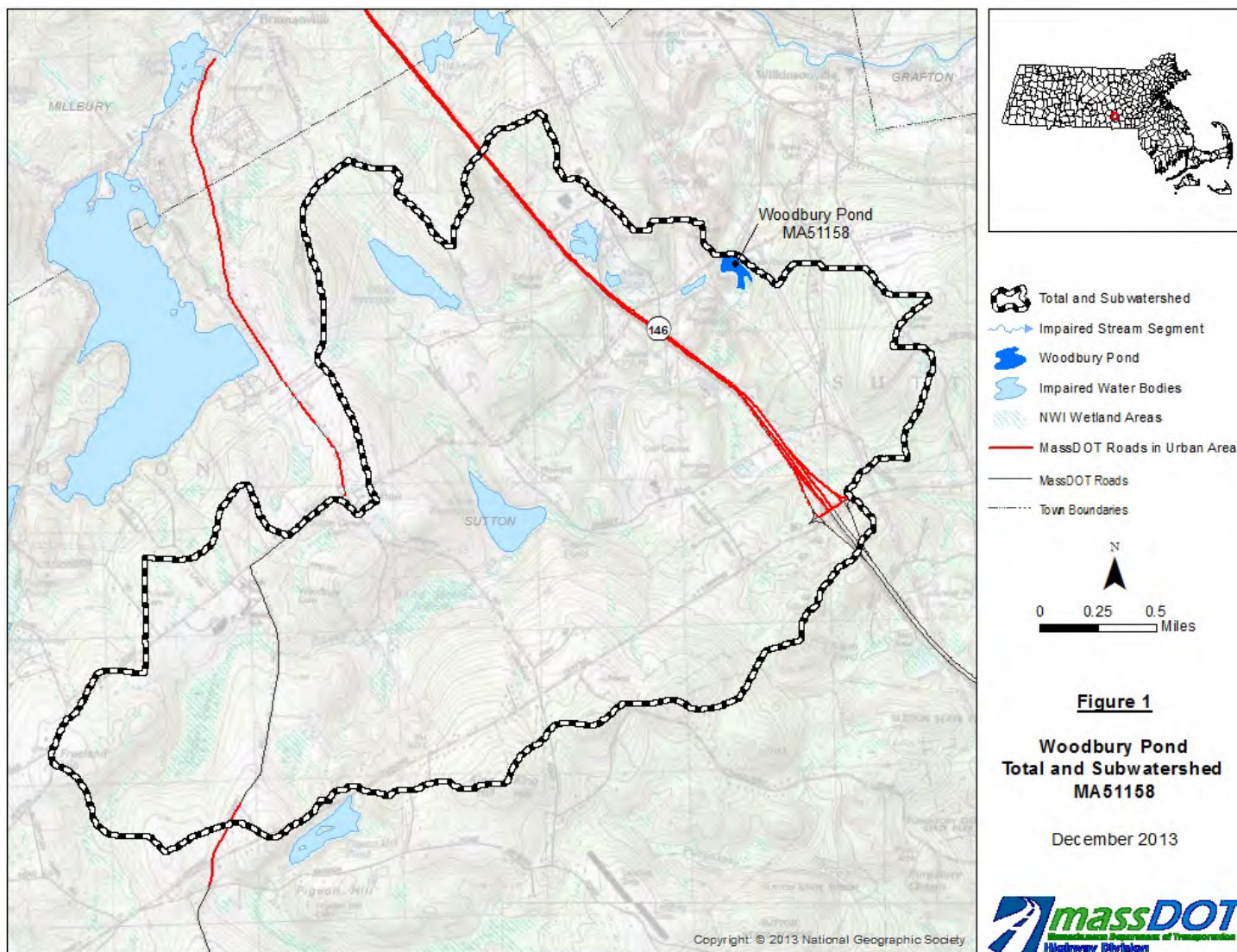
Conclusions

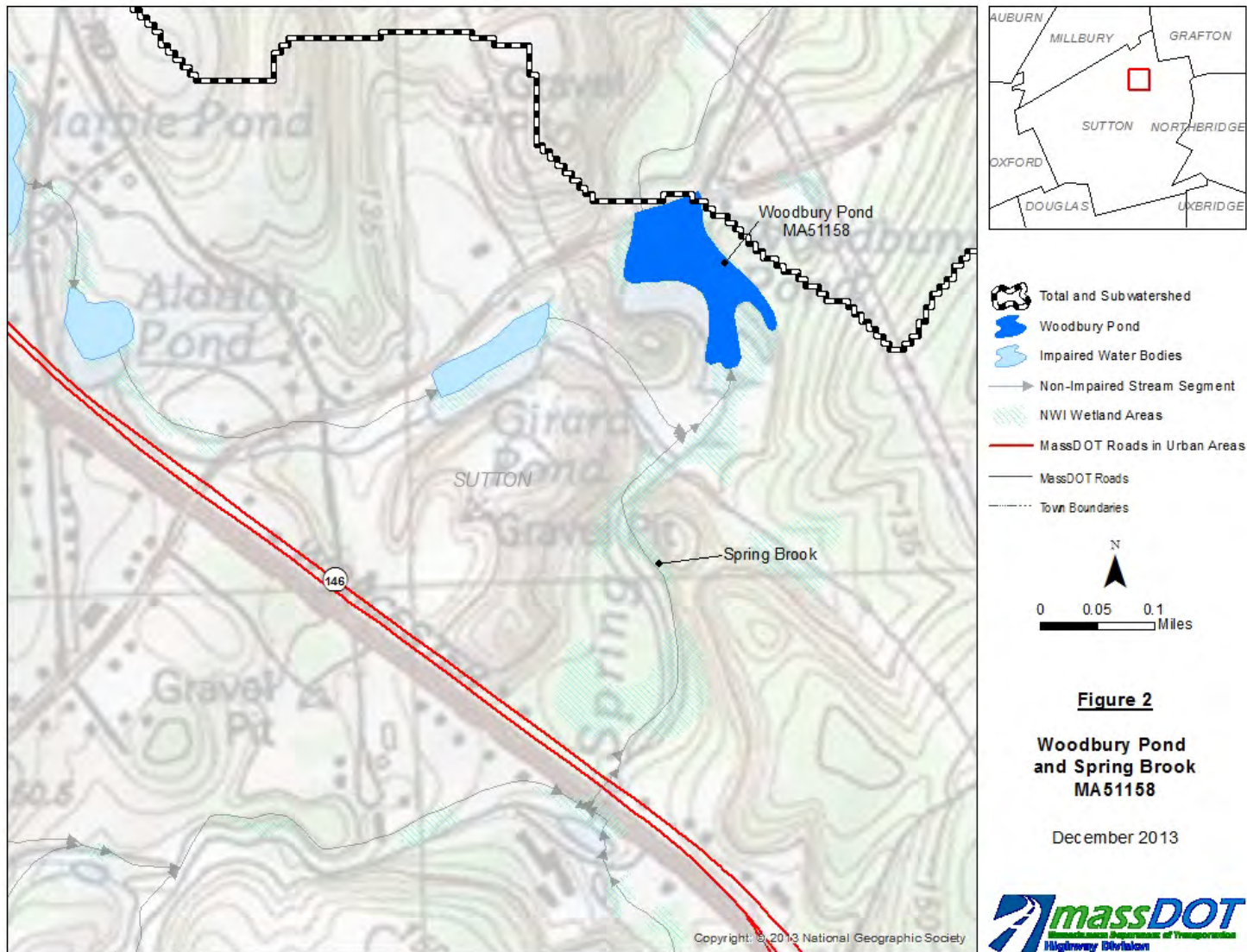
Because MassDOT urban property does not directly contribute stormwater runoff to Woodbury Pond, further assessment of this water body is not warranted under the Impaired Waters program.

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). (2010). Blackstone River Watershed 2003-2007 Water Quality Assessment Report. Retrieved from: [Blackstone River Watershed Water Quality Assessment Report](#)
- 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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)





Impaired Waters Assessment for Peters River (MA51-18)

Impaired Water Body

Name: Peters River

Location: Bellingham, MA

Water Body ID: MA51-18

Impairments

Peters River (MA51-18) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Peters River is impaired due to the following:

- copper
- Escherichia coli
- lead

According to MassDEP's *Blackstone River Watershed 2003-2007 Water Quality Assessment Report* (MassDEP, 2010), a 4-mile reach of Peters River, which flows from the outlet of Silver Lake in Bellingham to the Rhode Island and Massachusetts State border in Bellingham, is impaired for metals and pathogens from possible causes such as illicit connections to storm sewers, upstream sources from Arnolds Brook, and sanitary sewer overflows.

A draft Pathogen TMDL, which includes Peters River, has been prepared for the Blackstone River Watershed (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) 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

Peters River (MA51-18) begins at the outlet of Silver Lake in Bellingham and continues for a 4.0 mile stretch until it reaches the Rhode Island and Massachusetts state border. This lower 2.2 miles of the segment is classified as impaired due to pathogens according to the *Blackstone River Watershed 2003-2007 Water Quality Assessment Report*. The closest MassDOT roadway is Route 140, which runs north of the pond. See Figure 1 for the location of the MassDOT property, the total watershed, and the subwatershed for Peters River (MA51-18).

Assessment under BMP 7U for No Discharge Determination

Based on a desktop review of available 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 Peters River (MA51-18). The nearest MassDOT-owned urban roadway is Route 140, approximately 8,000 ft away. A portion of Route 140, approximately 1,000 ft long, is inside the northern portion of the total watershed of Peters River (MA51-18) and there are no MassDOT properties within the subwatershed. Runoff from Route 140 flows off the roadway into a non-impaired water body or

stream, prior to reaching Silver Lake and then Peters River (MA51-18). This runoff is considered indirect drainage to Peters River.

Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Peters 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.

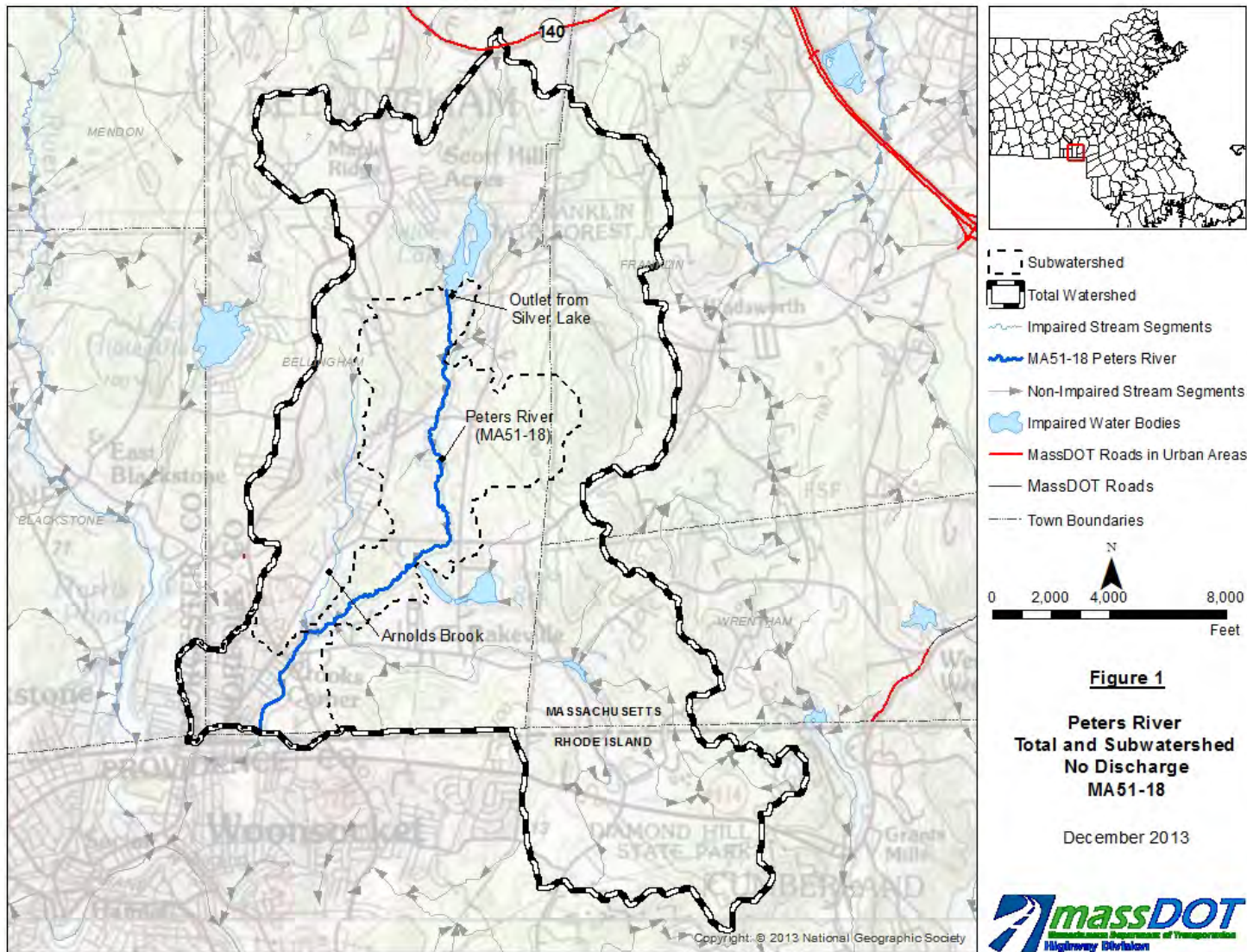
References

Massachusetts Department of Environmental Protection (MassDEP). (2010). Blackstone River Watershed 2003-2007 Water Quality Assessment Report. Retrieved from: [MADEP 2010 Blackstone River Watershed 2003-2007 Water Quality Assessment Report](#)

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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)

Massachusetts Department of Environmental Protection (MassDEP) (no date). Draft Pathogen TMDL for the Blackstone River Watershed. Massachusetts. Retrieved from: [MADEP Draft Pathogen TMDL for Blackstone River Watershed](#)

Massachusetts Department of Transportation (MassDOT). (2011). Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).



Impaired Waters Assessment for Coal Mine Brook (MA51-27)

Impaired Water Body

Name: Coal Mine Brook

Location: Millbury, Massachusetts

Water Body ID: MA51-27

Impairments

Coal Mine Brook (MA51-27) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Coal Mine Brook is impaired due to the following:

- (Fish kills*)
- Fishes Bioassessments
- Sedimentation/Siltation
- Water Temperature

According to MassDEP's *Blackstone River Watershed 2003 - 2007 Water Quality Assessment Report* (MassDEP, 2010), Coal Mine Brook is impaired for aquatic life due to sedimentation/siltation, lack of fish (fishes bioassessment), fish kills, and elevated water temperature. The source of these impairments is considered to be impervious surface/parking lot runoff and permitted construction stormwater discharge.

The Water Quality report indicates that local construction projects were responsible for several erosion and siltation events that resulted in fines for siltation and elevated turbidity in the brook. In addition, numerous fish kills have been observed at Coal Mine Brook which were assumed to be caused by thermal pulse, caused by rain flowing overland in the summer on heated impervious surfaces covering much of the drainage area (MassDEP, 2010). An electrofishing study was conducted in Coal Mine Brook, upstream of Lake Avenue, and results indicated a lack of fish in the brook.

Volunteers with the Blackstone River Coalition Volunteer Water Quality Monitoring Program have been noting the conditions near Plantation Street on Coal Mine Brook since 2004. Through the time period of the study, the volunteers noted that turbidity was slight or not visible. Also, the Division of Watershed Management also noted no objectionable conditions (e.g. color turbidity odors, deposits of debris/floatable/trash) during the electrofishing surveys (MassDEP 2010).

Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3)(b) 5 Solids.* These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
- *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) (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)(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.*a. 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

Coal Mine Brook (MA51-27) is approximately 0.4 miles in length and extends from an unnamed road (not a MassDOT roadway) approximately 0.2 miles upstream from Plantation Street (located outside of the Coal Mine Brook subwatershed) to the inlet of Lake Quinsigamond in Worcester. This segment is defined as the perennial portion of the brook as there are non-impaired segments upstream of the unnamed road as shown on Figure 1.

The MassDOT roadways within the subwatershed include a section of Interstate 290 and the Marsh Avenue Bridge (Figure 1). Consistent with the Lake Quinsigamond (MA51125) assessment, much of the MassDOT owned roadway that is closest to the 0.4 mile stretch of Coal Mine Brook (MA51-27) directly discharges to Lake Quinsigamond rather than Coal Mine Brook; catch basins along Interstate 290 capture stormwater runoff and direct it to a drainage ditch, as shown on Figure 2. However, portions of Interstate 290 discharge to Coal Mine Brook, but this discharge is direct to the non-impaired segments of the brook upstream of the unnamed roadway (Figure 2). Therefore, it has been determined that there is no direct drainage from MassDOT owned urban roadways to Segment MA51-27.

Assessment under BMP 7U for No Discharge Determination

Based on a desktop review of available 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 assessments completed for nearby water bodies, it was determined that MassDOT does not directly contribute runoff to Coal Mine Brook (MA51-27). The nearest MassDOT-owned urban roadways include Interstate 290 and the Marsh Avenue Bridge in Worcester. Runoff from portions of Interstate 290 flow off the roadway into vegetated areas and the non-impaired segment of Coal Mine Brook, while portions other portions of Interstate 290 flow to Burncoat Pond (MA51012) or Lake Quinsigamond (MA51125).

Conclusions

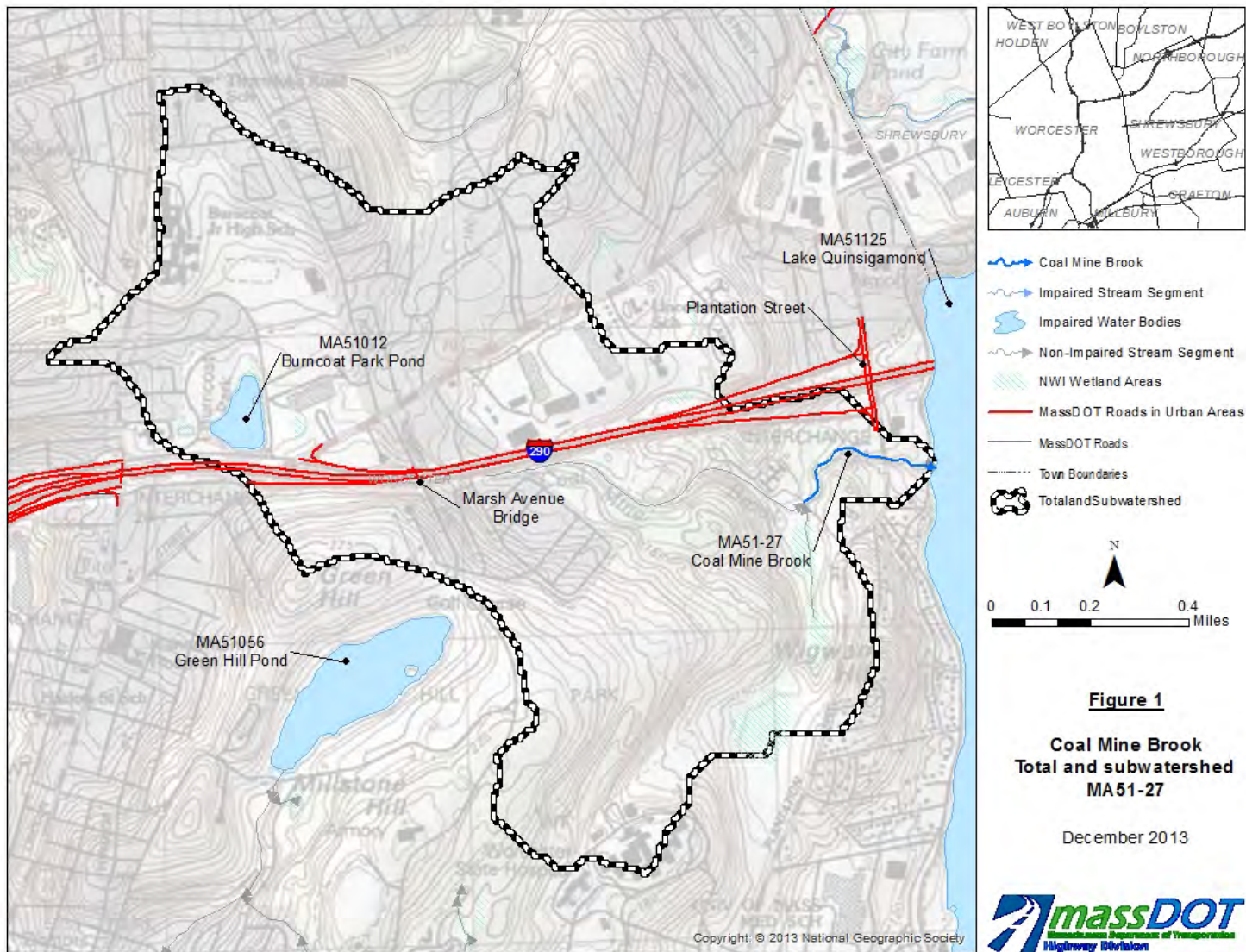
Because MassDOT urban property does not directly contribute stormwater runoff to Coal Mine Brook (MA51-27), further assessment of this water body is not warranted under the Impaired Waters program.

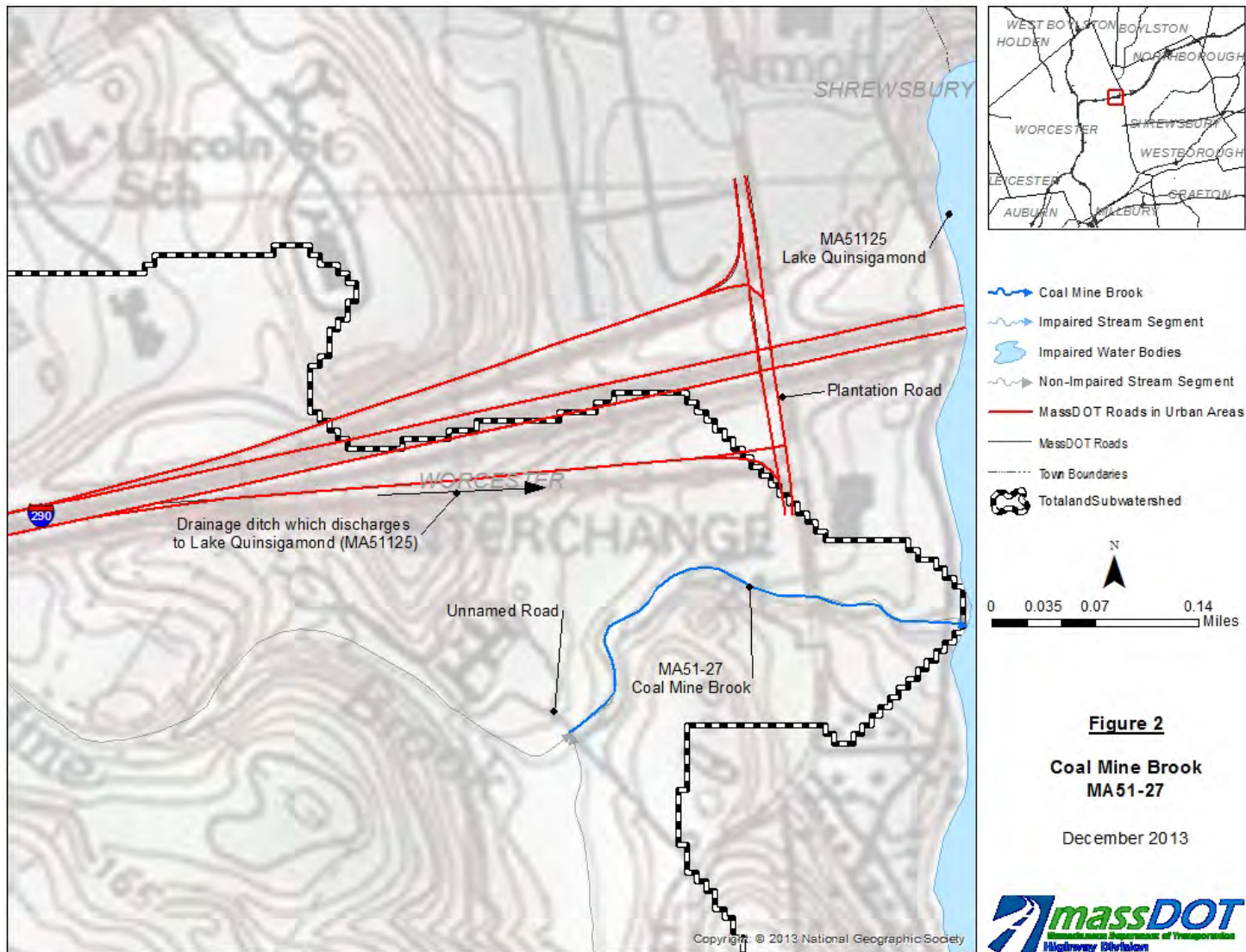
MassDOT will continue to implement the measures outlined in its Stormwater Management Plan (SWMP) to minimize the impacts of stormwater from its property.

References

Massachusetts Department of Environmental Protection (MassDEP). (2010). Blackstone River Watershed 2003 - 2007 Water Quality Assessment Report. Retrieved from: [MADEP 2010 Blackstone River Watershed 2003 to 2007 Water Quality Assessment Report](#)

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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)





Impaired Waters Assessment for Cook Allen Brook (MA51-28)

Impaired Water Body

Name: Cook Allen Brook

Location: Sutton and Northbridge, Massachusetts

Water Body ID: MA51-28

Impairments

Cook Allen Brook (MA51-28) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Cook Allen Brook is impaired due to the following:

- Fishes Bioassessment

According to MassDEP's *Blackstone River Watershed 2003-2007 Water Quality Assessment Report* (MassDEP, 2010), the Massachusetts Division of Fisheries and Game identified this water body as a 'Cold Water Fishery'. However, the report also indicates that the water body has a fishes bioassessment, or aquatic life, impairment due to flow alterations from water diversions. Three impoundments exist along this water body; Reservoir No.4, 5, and 6 which are operated by the Whitinsville Water Company to meet water supply needs for Sutton. A study nearby on the Mumford River indicated that dam gates are often closed, resulting in no flow other than leakage. In addition, the Division of Wildlife conducted an electrofishing study in Cook Allen Brook resulting in the Aquatic Life Use assessment as impaired due to the lack of fish in optimal habitat (MassDEP, 2010).

Relevant Water Quality Standards

Water Body Classification: Class B

Applicable State Regulations:

- *314 CMR 4.05 (3)(b)5 Solids*. These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
- *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*. a. 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.
- 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

Cook Allen Brook (MA51-28) headwaters at the outlet of Reservoir No. 5 in Sutton, MA and extends to the inlet of Whitins Pond in Northbridge. The Brook extends through Reservoir No. 4, but the Reservoir is not considered part of this water body segment according to the MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). The list identifies Reservoir No. 4 as a separate water body (MA51128). The closest MassDOT roadway is State Route 146 which crosses over Cook Allen Brook; however, this portion of the road is not considered 'urban roadway'. The Impaired Waters Program does not assess the stormwater discharge from portions of non-urban roadway since they are not covered by MassDOT's NPDES permit. See Figure 1.

Assessment under BMP 7U for No Discharge Determination

Based on a desktop review of available 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 Cook Allen Brook (MA51-28). The nearest MassDOT-owned roadway is Route 146 in Sutton. However, the portion of Route 146 within the subwatershed for Cook Allen Brook is not identified as urban roadway and therefore is not included in the Retrofit Initiative.

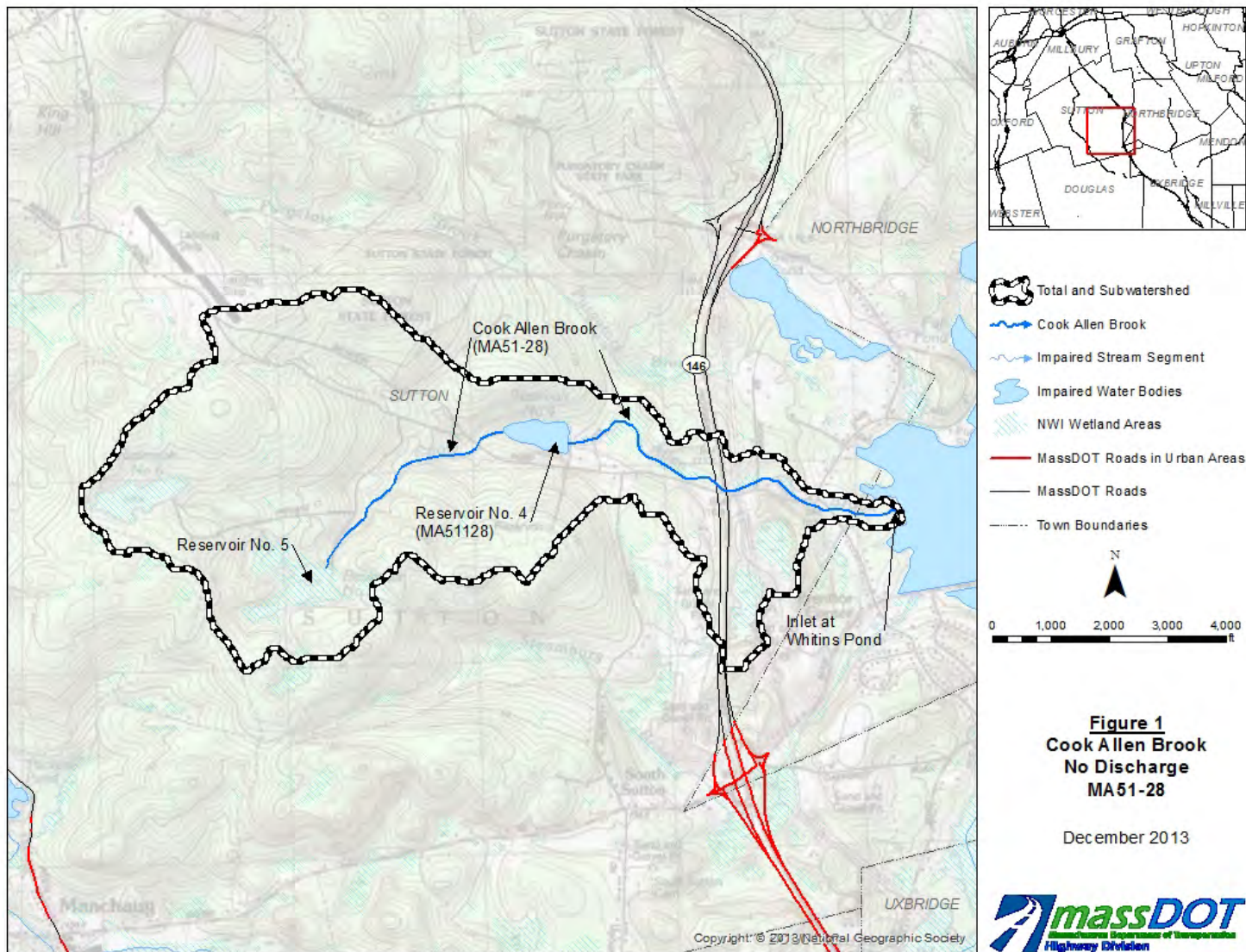
Conclusions

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

References

Massachusetts Department of Environmental Protection (MassDEP). (2010). Blackstone River Watershed 2003-2007 Water Quality Assessment Report). Retrieved from: [MADEP 2004 Ipswich River Watershed 2000 Water Quality Assessment Report](#)

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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)



Impaired Waters Assessment for Carding Mill Pond (MA82015)

Summary

		Stormwater	Non-Stormwater ²
Impaired Waters¹	Impairments:	Aquatic plants (Macrophytes), dissolved oxygen saturation, excess algal growth, total phosphorus	Non-native aquatic plants
	Category:	5 (Waters requiring a TMDL)	
	Final TMDLs:	None	
	WQ Assessment:	SuAsCo Watershed Year 2001 Water Quality Assessment Report ³	
Location	Towns:	Sudbury	
	MassDOT Roads:	Route 20	
Assessment Method(s)	7R (TMDL Method)	☐	
	7U (IC Method)	☒	
	No Discharge	☒	

Site Description

Carding Mill Pond (MA85015) is in Sudbury, Massachusetts. Carding Mill Pond is approximately 40 acres large and surrounded by land protected for conservation and historic purposes. The pond receives flow from Unnamed Tributary (MA82A-17) to the southwest and an unnamed stream to the southeast. The pond discharges to Hop Brook (MA82A-05) to the north. Route 20 is approximately 1,000 feet south of the pond. The watershed to Carding Mill Pond is shown on Figure 1⁴.

According to the SuAsCo Watershed Year 2001 Water Quality Assessment Report, a major source of phosphorus in Carding Mill Pond is the Marlborough East Wastewater Treatment Facility which discharges to Unnamed Tributary (MA82A-15) and eventually flows to Carding Mill Pond. Carding Mill Pond is within the Wayside Inn Local Historic District and the Carding Mill and Pond Historic Area.

After review, it was determined that the MassDOT property does not discharge directly to Carding Mill Pond. Two catch basins along Route 20 collect stormwater from approximately 0.65 acres of

¹ 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. Massachusetts. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>

² MassDOT, December 2012. Impaired Waters Assessment for Impaired Waters with Impairments Unrelated to Stormwater. Available at: http://www.mhd.state.ma.us/downloads/projDev/ImpairedWaters_3/Year3_ImpairedWatersAssessment_1.pdf#page=308

³ MassDEP, 2005. SuAsCo Watershed 2001 Water Quality Assessment Report. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/82wqar5.pdf>

⁴ USGS Data Series 451 Local and Cumulative Impervious Cover of Massachusetts Stream Basins Available at: <http://pubs.usgs.gov/ds/451/>

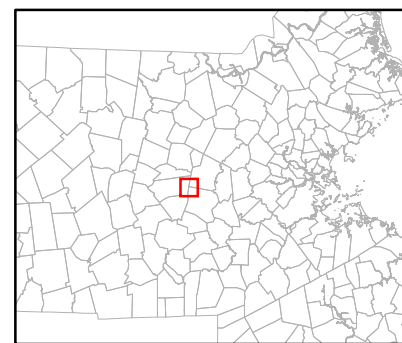
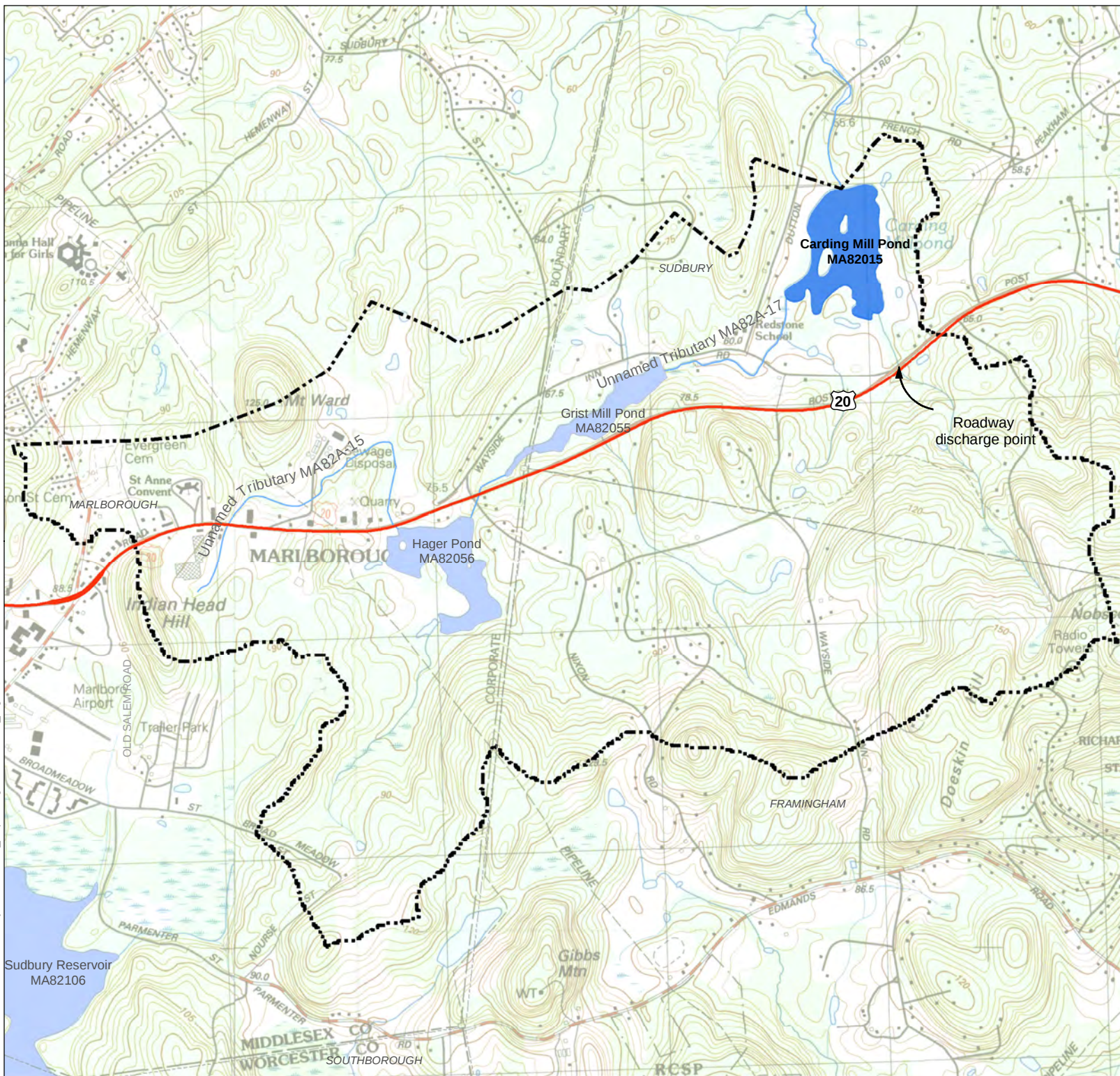
roadway. The roadway stormwater discharges to the unnamed stream (as shown on Figure 1) to the southeast of Carding Mill Pond and flows for approximately 900 feet before entering the Pond. After a review of record plans and a field investigation, it was determined that the roadway runoff does not discharge directly to Carding Mill Pond.

As defined in MassDOT's assessment methodologies⁵, since this portion of MassDOT's urban area property does not directly contribute stormwater runoff to Hop 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) statewide to minimize the impacts of stormwater from its property.

MassDOT will continue to ensure proper non-structural BMPs are being implemented within the watershed of Carding Mill Pond, including regular roadway and drainage system maintenance, erosion and sedimentation control, and outreach and education. Further work by MassDOT on programmed projects, which often include broader scale road layout changes, may provide additional opportunities for construction of new treatment BMPs. This is consistent with an iterative adaptive management approach to address impairments.

⁵ MassDOT, 6 April, 2011. Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method). http://www.mhd.state.ma.us/downloads/projDev/BMP_7U_ImpairedWaterbodiesAssessment.pdf

\\MAWATRev12441.05\GIS\Project\MA82015_Report Figure\MA82015_Fig1.mxd



- MassDOT Roadways in Urban Area
- Assessed Segment
- Impaired Lakes
- Impaired Streams
- Watershed

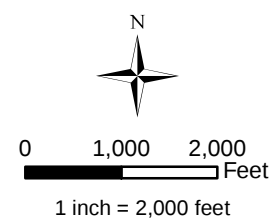


Figure 1
Carding Mill Pond (MA82015)
Watershed

December 2013



Impaired Waters Assessment for Fort Meadow Reservoir (MA82042)

Summary

		Stormwater	Non-Stormwater ²
Impaired Water¹	Impairments:	Chlordane, total phosphorus	Euriason water milfoil
	Category:	5 (Waters requiring a TMDL)	
	WQ Assessment:	The SuAsCo Watershed 2001 Water Quality Assessment Report ³	
Location	Towns:	Marlborough, Hudson	
	MassDOT Roads:	Route 85 Connector to I-495 and I-290, Fitchburg Street, Pleasant Street, Washington Street	
Assessment Method(s)	7R (TMDL Method)	☐	
	7U (IC Method)	☒	
	No Discharge	☒	

Site Description

Fort Meadow Reservoir is located in Marlborough and Hudson, east of the I-495 and I-290 Interchange. The reservoir is 248 acres in size and has a watershed of 4,039 acres. The watershed to Fort Meadow Reservoir is shown on Figure 1.⁴ The reservoir receives flow from surrounding wetlands and Flagg Brook. Flow from Fort Meadow Reservoir discharges to the Assabet River via Fort Meadow Brook. The water body is impaired for euriason water milfoil, chlordane, and total phosphorus and MassDEP's Water Quality Assessment Report³ for this receiving water identified non-native aquatic plants as the impairment cause.

After review, it was determined that the MassDOT property does not discharge to Fort Meadow Reservoir. Portions of MassDOT-owned Route 85, Route 85 Connector to I-495 and I-290, Fitchburg Street, Pleasant Street, and Washington Street are within the watershed to Fort Meadow Reservoir, and are all approximately 1,500 to 2,500 feet west of Fort Meadow Reservoir. Stormwater from the MassDOT owned roads within Fort Meadow Reservoir's watershed discharges to wetland systems or natural brooks surrounding Fort Meadow Reservoir. The distance stormwater must travel before entering Fort Meadow Reservoir, MassDOT determined that the

¹ 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. Massachusetts. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>

² MassDOT, December 2012. Impaired Waters Assessment for Impaired Waters with Impairments Unrelated to Stormwater. Available at: http://www.mhd.state.ma.us/downloads/projDev/ImpairedWaters_3/Year3_ImpairedWatersAssessment_1.pdf#page=308

³ MassDEP, 2001. SuAsCo Watershed 2001 Water Quality Assessment Report. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/82wqar5.pdf>

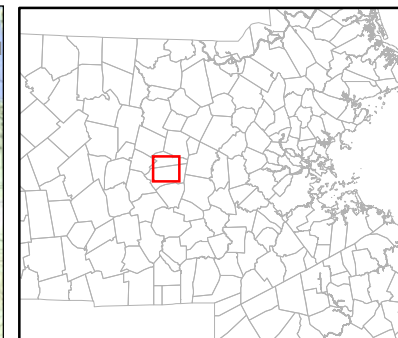
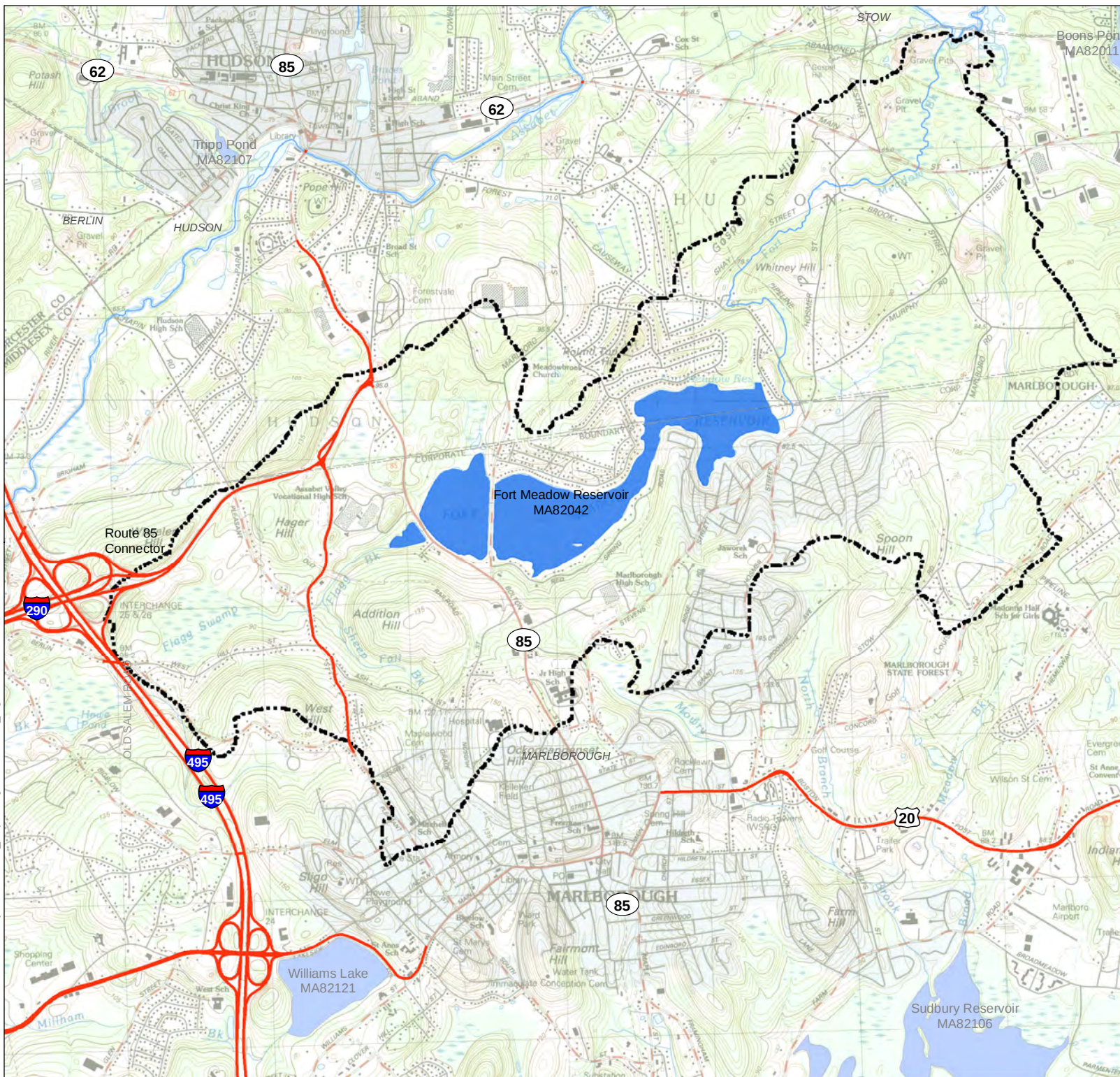
⁴ USGS Data Series 451 Local and Cumulative Impervious Cover of Massachusetts Stream Basins Available at: <http://pubs.usgs.gov/ds/451/>

stormwater runoff is not directly discharging. No other MassDOT properties exist within the watershed to Fort Meadow Reservoir.

As defined in MassDOT's assessment methodologies⁵, since this portion of MassDOT's urban area property does not directly contribute stormwater runoff to Fort Meadow Reservoir 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) statewide to minimize the impacts of stormwater from its property.

MassDOT will continue to ensure proper non-structural BMPs are being implemented within the watershed of Hop Brook (MA82A-06), including regular roadway and drainage system maintenance, erosion and sedimentation control, and outreach and education. Further work by MassDOT on programmed projects, which often include broader scale road layout changes, may provide additional opportunities for construction of new treatment BMPs. This is consistent with an iterative adaptive management approach to address impairments.

⁵ MassDOT, 6 April, 2011. Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).
http://www.mhd.state.ma.us/downloads/projDev/BMP_7U_ImpairedWaterbodiesAssessment.pdf



- MassDOT Roadways in Urban Area
- Assessed Segment
- Impaired Lakes
- Impaired Streams
- - - Watershed



0 1,500 3,000 Feet

1 inch = 3,000 feet

Figure 1

Fort Meadow Reservoir (MA82042) Watersheds

December 2013

Impaired Waters Assessment for Hop Brook (MA82A-06)

Summary

Impaired Water¹	Impairments:	Excess algal growth, dissolved oxygen, total phosphorus, fecal coliform
	Category:	5 (Waters requiring a TMDL)
	Final TMDLs:	None
	WQ Assessment:	SuAsCo Watershed Year 2001 Water Quality Assessment Report ²
Location	Towns:	Sudbury and Wayland
	MassDOT Roads:	Route 20
Assessment Method(s)	7R (TMDL Method)	☐
	7U (IC Method)	☒
	No Discharge	☒

Site Description

Hop Brook (MA82A-06) is in Sudbury and Wayland, Massachusetts. It flows from west to east, parallel to and south of Route 20 for approximately 2 miles where it joins the Sudbury River (MA82A-04) in Wayland. The total and sub watersheds to Hop Brook (MA82A-06) are shown on Figure 1³. The subwatershed to Hop Brook is approximately 2 square miles in size and includes portions of Framingham, Sudbury and Wayland and is shown on Figure 2. The total watershed to Hop Brook is 22 square miles and extends west to include portions of Marlborough and Hudson. The brook runs through a large wetland system and the Great Meadows National Wildlife Refuge, which is managed by the US Fish and Wildlife Service.

According to the SuAsCo Watershed Year 2001 Water Quality Assessment Report, Hop Brook was identified with an "Alert" status for recreational uses due to elevated fecal coliform bacteria count during a wet weather event. According to the Water Quality Assessment Report, the Sudbury Water District is permitted to discharge and withdraw from the Hop Brook and the Coatings Engineering Corp (a hazardous material site) is permitted to discharge to Hop Brook.

¹ 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. Massachusetts. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>

² MassDEP, 2005. SuAsCo Watershed 2001 Water Quality Assessment Report. Available at: <http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/82wqar3.pdf>

³ USGS Data Series 451 Local and Cumulative Impervious Cover of Massachusetts Stream Basins Available at: <http://pubs.usgs.gov/ds/451/>

After review, it was determined that the MassDOT property does not directly discharge to Hop Brook. MassDOT property in the watershed to Hop Brook includes Route 20 and the Landham Road bridge over the Massachusetts Bay Commuter Rail (MBCR) Rail line. Discharges from Route 20 enter the large wetland system surrounding Hop Brook. An abandoned, elevated rail line, located between the roadway and the brook, blocks any roadway runoff from discharging directly into Hop Brook. After a review of record plans and a field investigation, it was determined that the roadway runoff is contained in the wetland system and does not discharge directly to Hop Brook. Stormwater from the Landham Road bridge discharges to an upland area and does not flow to Hop Brook.

As defined in MassDOT's assessment methodologies⁴, since this portion of MassDOT's urban area property does not directly contribute stormwater runoff to Hop 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) statewide to minimize the impacts of stormwater from its property.

MassDOT will continue to ensure proper non-structural BMPs are being implemented within the watershed of Hop Brook (MA82A-06), including regular roadway and drainage system maintenance, erosion and sedimentation control, and outreach and education. Further work by MassDOT on programmed projects, which often include broader scale road layout changes, may provide additional opportunities for construction of new treatment BMPs. This is consistent with an iterative adaptive management approach to address impairments.

⁴ MassDOT, 6 April, 2011. Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method). http://www.mhd.state.ma.us/downloads/projDev/BMP_7U_ImpairedWaterbodiesAssessment.pdf

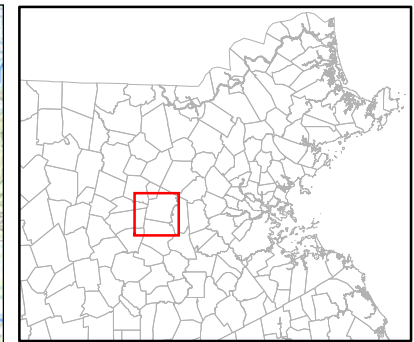
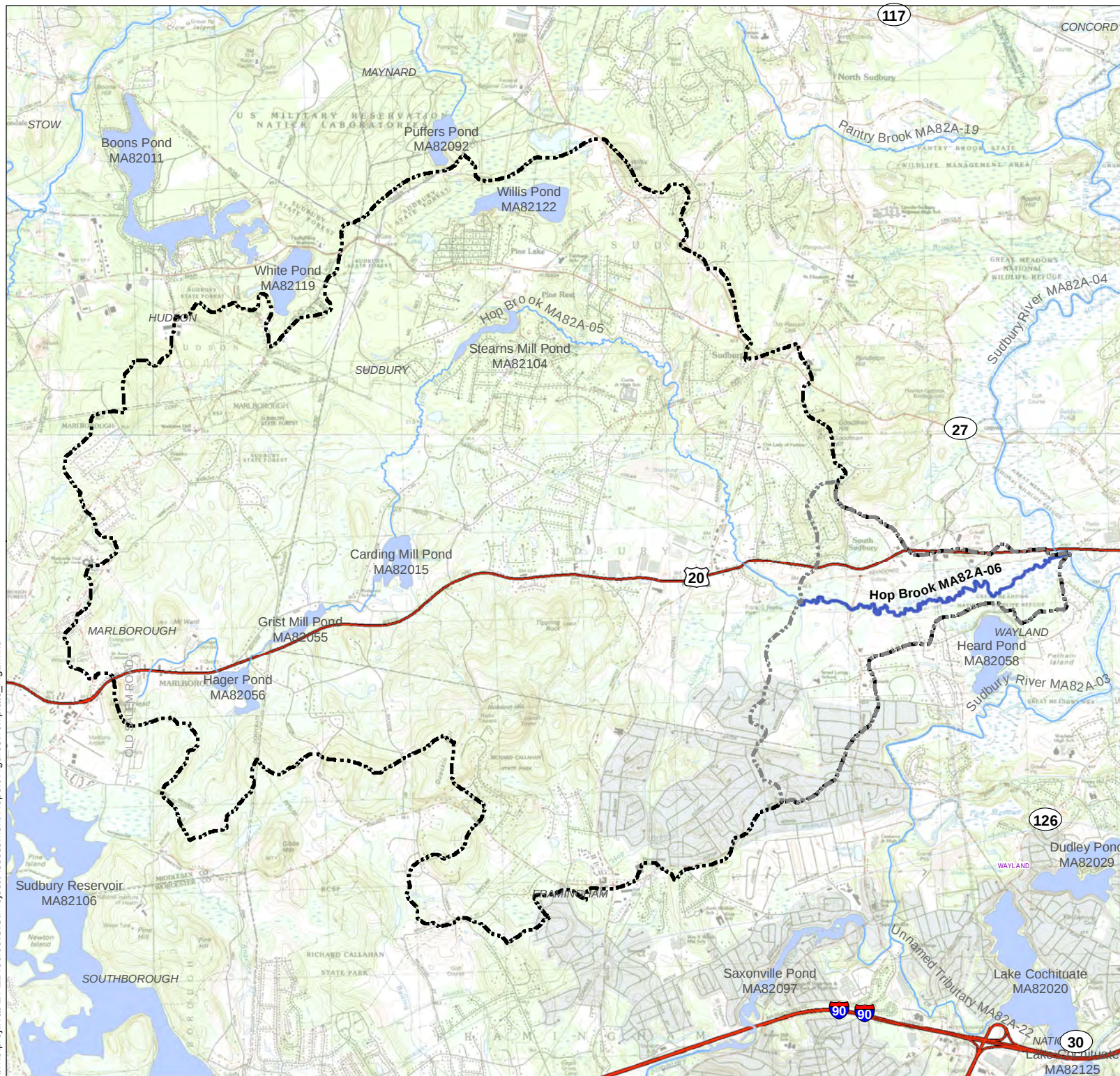
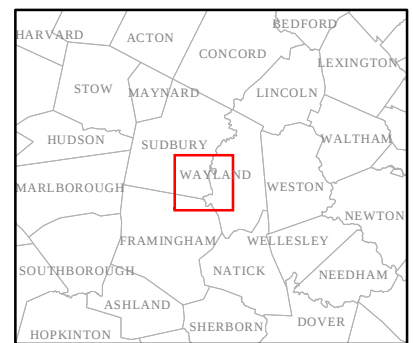
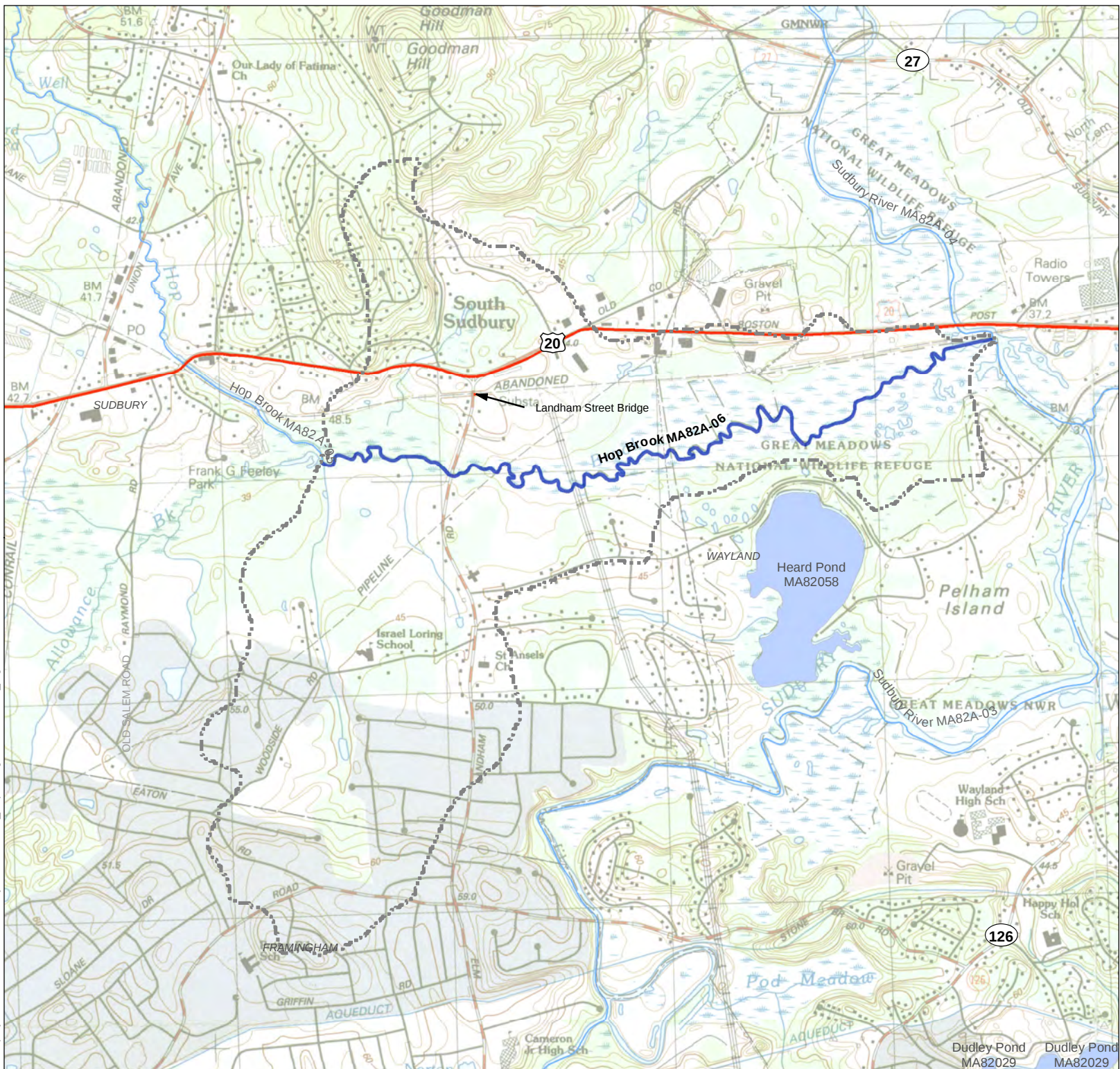


Figure 1

**Hop Brook (MA82A-06)
Watersheds**

December 2013

\\hbjproj\Wat-EV12441_05\GIS\Project\MA82A-06_Report\Figure\MA82A-06_Fig2.mxd



- MassDOT Roadways in Urban Area
- Assessed Segment
- Impaired Lakes
- Impaired Streams
- Sub Watershed

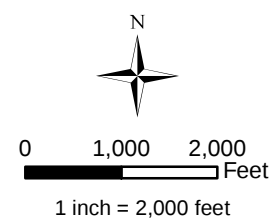


Figure 1
Hop Brook (MA82A-06)
Watershed

December 2013



Impaired Waters Assessment for Rowley River (MA91-05)

Impaired Water Body

Name: Rowley River

Location: Rowley and Ipswich, Massachusetts

Water Body ID: MA91-05

Impairments

Rowley River (MA91-05) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Rowley River is impaired due to the following:

- Fecal coliform

According to MassDEP's Draft Pathogen TMDL for the Parker River Watershed (MassDEP, no date), a marina on Warehouse Lane in Rowley operates a vessel sewage pump-out facility. Dry weather samples were collected from one station on the Rowley River between January 1997 and February 2001; the average fecal coliform result was 46 cfu/1000 ml.

Relevant Water Quality Standards

Water Body Classification: Class SA

Applicable State Regulations:

- 314 CMR 4.05 (3)(b) 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

Rowley River (MA91-05) is a 0.27 square mile estuary extending from the confluence of the Egypt River and Muddy Run to Plum Island Sound along the border of the Rowley/Ipswich town line. The total watershed is shown in Figure 1 and the subwatershed is shown in Figure 2. The only MassDOT-owned urban roadway within the subwatershed of Rowley River is Route 1A (Main Street), located approximately 2,200 feet west of the Rowley River.

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 Rowley River (MA91-05). Runoff from Route 1A flows off the roadway into adjacent developed areas where it infiltrates into forested woodlands between the roadway and the Rowley River. Runoff that drains to the woodlands or residential areas is considered indirect drainage to the Rowley River. Runoff from Route 1A does not reach the Rowley River.

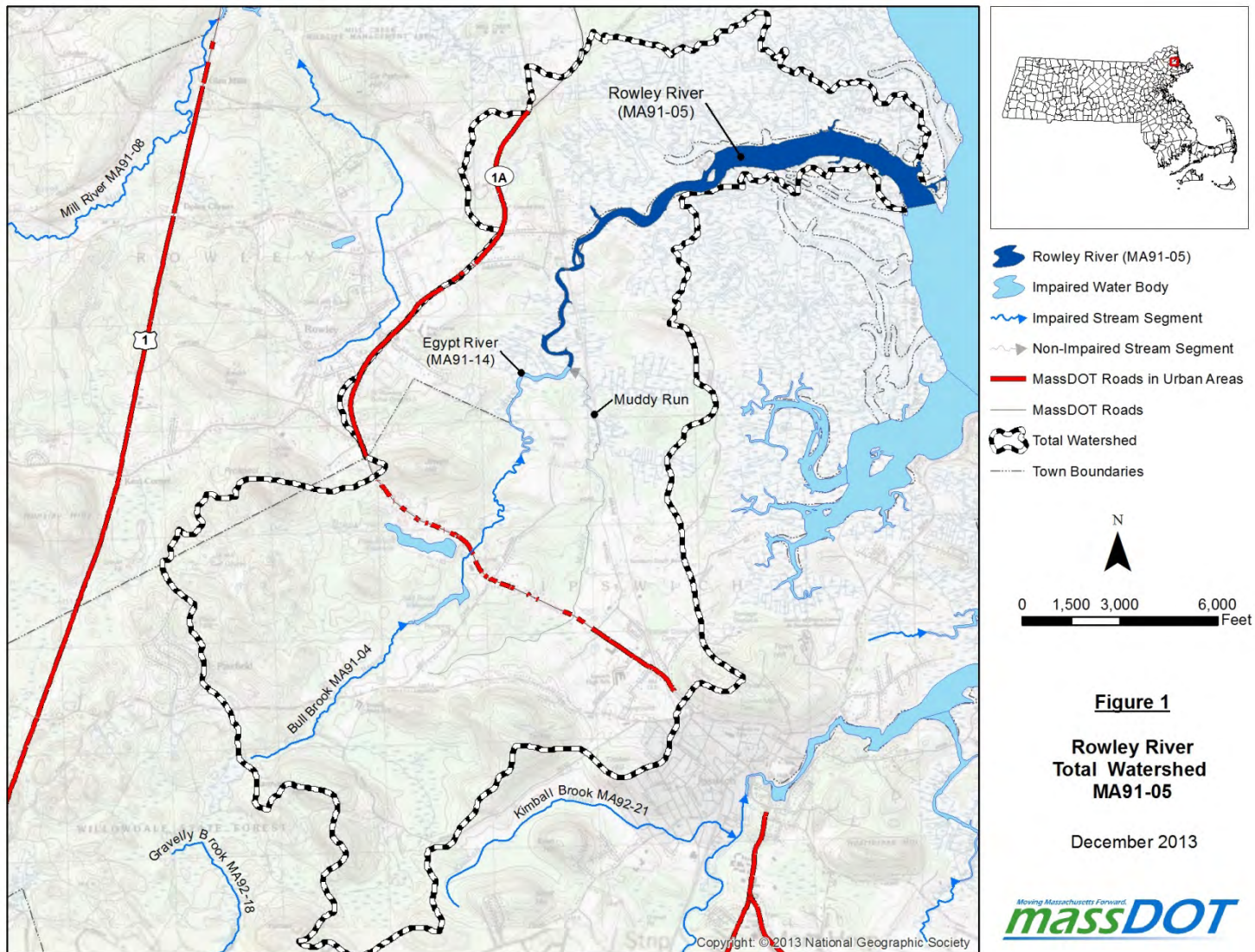
Conclusions

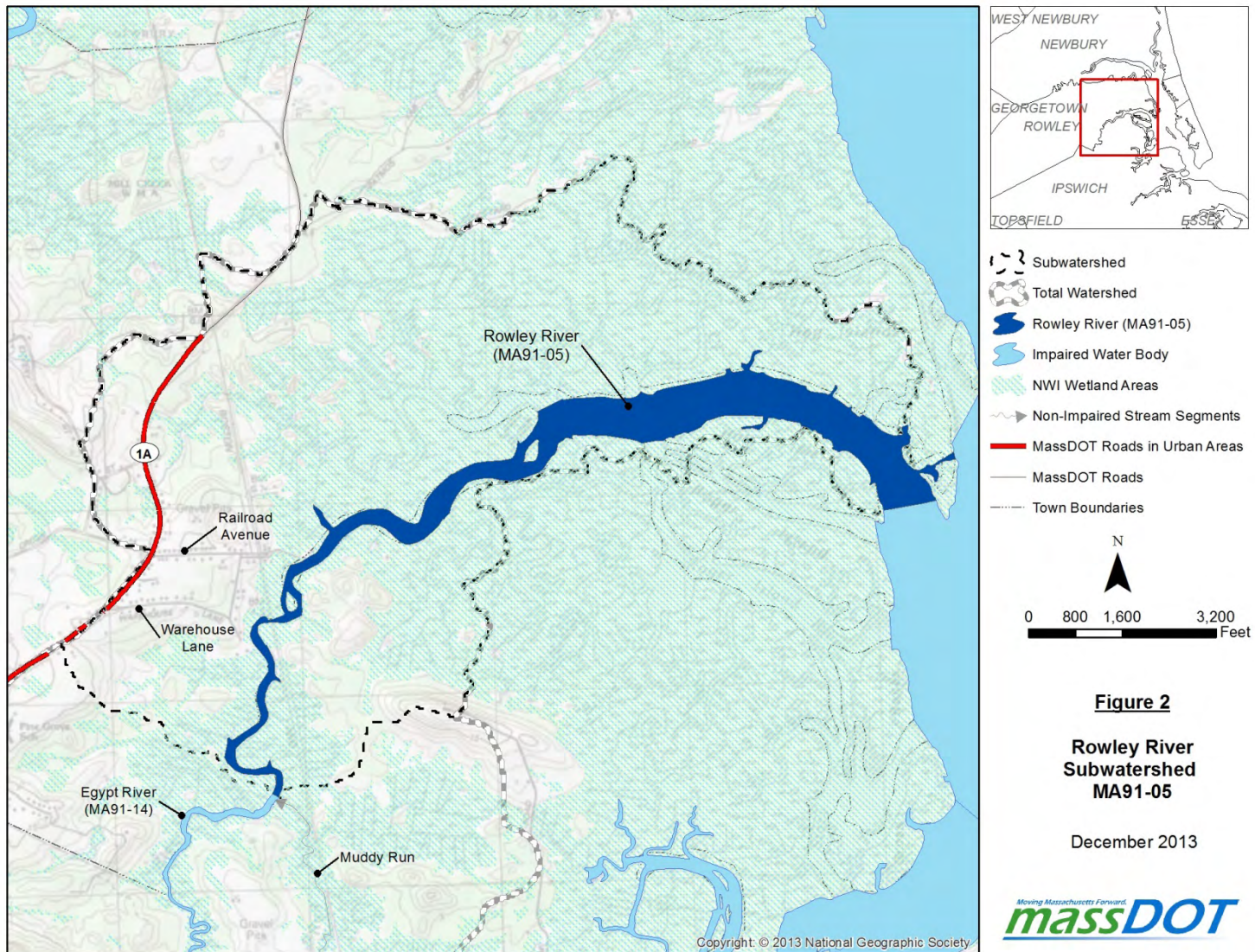
Because MassDOT urban property does not directly contribute stormwater runoff to Rowley River, further assessment of this water body is not warranted under the Impaired Waters program.

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). (2011). Draft Pathogen TMDL for the Parker River Watershed. Retrieved from: [MADEP 2011 Draft Pathogen TMDL for the Parker River Watershed](#)
- 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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)
- Massachusetts Department of Transportation (MassDOT). (2011). Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).





Impaired Waters Assessment for Proctor Brook (MA93-40)

Impaired Water Body

Name: Proctor Brook

Location: Salem, Massachusetts

Water Body ID: MA93-40

Impairments

Proctor Brook (MA93-40) is listed under Category 5, "Waters Requiring a TMDL", on MassDEP's final *Massachusetts Year 2012 Integrated List of Waters* (MassDEP, 2013). Proctor Brook is impaired for the following:

- fecal coliform
- foam/flocs/scum/oil slicks
- taste and odor
- (debris/floatables/trash*).

According to MassDEP's *North Shore Coastal Watershed 2002 Water Quality Assessment Report* (MassDEP, 2007), a less than 0.01 square mile area of Proctor Brook extending from the Grove/Goodhue Street Bridge to the Route 114 culvert in Salem is impaired due to pathogens. Primary and Secondary Contact Recreational uses are assessed as impaired due to elevated fecal coliform bacteria counts. The Aesthetics Use is also assessed as impaired due to trash/debris, oil sheens and odor. Proctor Brook is also covered by a Final Total Maximum Daily Load (TMDL) for pathogens according to MassDEP's *Final Pathogen TMDL for the North Coastal Watershed* (MassDEP, 2012).

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;
- **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 (3)(b) 5 Solids.** These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
- **314 CMR 4.05 (3)(b) 7 Oil and Grease.** These waters shall be free from oil and grease, petrochemicals and other volatile or synthetic organic pollutants.
- **314 CMR 4.05 (3)(b) 8 Taste and Odor.** None in such concentrations or combinations that are aesthetically objectionable, that would impair any use assigned to this Class, or that would cause tainting or undesirable flavors in the edible portions of aquatic life.

Site Description

Proctor Brook begins west of Route 1 (the Newburyport Turnpike) and Interstate 95 flowing east toward downtown Peabody and Salem. A segment of Proctor Brook, approximately 2.9 miles in length from the outlet of a small pond in a wetland north of Downing Road extending into Peabody and ending at the Grove/Goodhue Street bridge in Salem is impaired and assessed as segment MA93-39 (Figure 1). The segment of Proctor Brook that is the subject of this impaired waters assessment, MA93-40, begins at the Grove/Goodhue Street Bridge in Salem and extends approximately 0.5 miles to the Route 114 culvert in Salem. This 0.5-mile reach of Proctor Brook is classified as impaired according to the *North Shore Coastal Watershed 2002 Water Quality Assessment Report*.

The closest MassDOT roadways to this segment of Proctor Brook include two bridges located on Route 114 (North Street) just downstream of the Brook (Figure 2). However, runoff from these bridges flow into catch basins and are piped to the culvert beneath Route 114. This discharge is considered direct to the North River (MA93-42) and is not considered direct drainage to Proctor Brook (MA93-40). Therefore, there is no direct drainage to Proctor Brook (MA93-40) from MassDOT urban roadways.

Assessment under BMP 7U for No Discharge Determination

Based on a site visit on June 12th, 2013, it was determined that MassDOT does not directly contribute runoff to Proctor Brook (MA93-40). The nearest MassDOT-owned urban roadways are two bridges on route 114 in Salem. Runoff from these bridges is collected in catch basins and piped

to the Route 114 culvert. This is considered direct discharge to the North River (MA93-42) and addressed in a separate assessment.

Conclusions

Because MassDOT urban property does not directly contribute stormwater runoff to Proctor Brook (MA93-40), 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). (2007). North Shore Coastal Watersheds 2002 Water Quality Assessment Report. Retrieved from: [MassDEP 2004 North Shore Coastal Watersheds 2002 Water Quality Assessment Report](#)
- Massachusetts Department of Environmental Protection (MassDEP). (2012). Final Pathogen TMDL for the North Coastal Watershed March 2012. Retrieved from: [MassDEP 2012 Final Pathogen TMDL for the North Coastal Watershed March 2012](#)
- 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: [MADEP 2013 MA Year 2012 Integrated List of Waters](#)
- Massachusetts Department of Transportation (MassDOT). (2011). Description of MassDOT's Application of Impervious Cover Method in BMP 7U (MassDOT Application of IC Method).

