Stormwater Management Program (SWMP)

Town of Boylston

221 Main Street  MA  01505

EPA NPDES Permit Number MAR041095
This Stormwater Management Plan is based on the EPA’s Template and is designed to be updated annually based on the progress of the Town’s Stormwater Management Program. Tighe & Bond has added language and information and made minor adjustments to the template based on our best professional judgement. Page numbers have not been noted in the Table of Contents below because they will change annually.

FY 2019-2023 Small MS4 Permit 5-Year Workplan

Certification

Background

Stormwater Regulation
Permit Program Background
Stormwater Management Program (SWMP)
Town Specific MS4 Background

Small MS4 Authorization

Stormwater Management Program Team

Receiving Waters

Eligibility: Endangered Species and Historic Properties

Minimum Control Measures

MCM 1: Public Education and Outreach
MCM 2: Public Involvement and Participation
MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program
MCM 4: Construction Site Stormwater Runoff Control
MCM 5: Post Construction Stormwater Management in New Development and Redevelopment
MCM 6: Good Housekeeping and Pollution Prevention for Permittee Owned Operations

TMDLs and Water Quality Limited Waters

Phosphorus - Assabet River TMDL
Lake and Pond Phosphorus TMDL - Northern Blackstone Lakes (Newton Pond)
### Appendices

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<td>Appendix I</td>
<td>Lake Phosphorus Control Plan Record Keeping</td>
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## Town of Boylston

**FY2019-2024 Small MS4 Permit 5-Year Workplan**

A hardcopy version of this Workplan may be retained by the Town and contain the most up-to-date documentation of completed requirements.

<table>
<thead>
<tr>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Reporting</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notice of Intent</td>
<td>Oct. 1, 2018</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Report</td>
<td>Annually on Sept 30</td>
<td>☑</td>
<td>☑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare Stormwater Management Plan</td>
<td>June 30, 2019 - update annually</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MCM 1: Public Education</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCM 1 Requirement: Message to residents on stormwater topics of significance.</td>
<td>Distribute two messages at least one year apart by June 30, 2023. Target to distribute in PY1 and PY3 per NOI.</td>
<td></td>
<td></td>
<td>☑</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impaired Waters/TMDL Requirement: Assabet River and Northern Blackstone Lakes Phosphorus TMDLs. Seasonal Message on stormwater topics of significance. Annual spring messages will encourage proper disposal of grass clippings and the use of slow release and phosphorus-free fertilizers. Annual summer messages will encourage proper pet waste management, noting applicable Town Bylaws where appropriate. Annual fall messages will encourage proper disposal of leaf litter.</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribute three messages per year each year, one in the spring, summer and fall</td>
<td></td>
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<td>☑</td>
<td>☑</td>
<td>☐</td>
</tr>
</tbody>
</table>
## Town of Boylston
### FY2019-2024 Small MS4 Permit 5-Year Workplan

<table>
<thead>
<tr>
<th>MCM 1: Public Education (cont.)</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MCM 1 Requirement:</strong> Message to businesses, institutions and commercial facilities on stormwater topics of significance.</td>
<td>Distribute two messages at least one year apart by June 30, 2023. Target to distribute in PY2 and PY4 per NOI.</td>
<td>☑️</td>
<td></td>
<td>☐️</td>
<td></td>
<td>☐️</td>
</tr>
<tr>
<td><strong>MCM 1 Requirement:</strong> Message to developers and construction companies on stormwater topics of significance, including proper sediment and erosion control management practices.</td>
<td>Distribute two messages at least one year apart by June 30, 2023. Target to distribute in PY1 and PY3 per NOI.</td>
<td>☑️</td>
<td></td>
<td>☐️</td>
<td></td>
<td>☐️</td>
</tr>
<tr>
<td><strong>MCM 1 Requirement:</strong> Message to industrial facilities on stormwater topics of significance, including proper maintenance of parking lot surfaces.</td>
<td>Distribute two messages at least one year apart by June 30, 2023. Target to distribute in PY2 and PY4 per NOI.</td>
<td>☐️</td>
<td></td>
<td>☐️</td>
<td></td>
<td>☐️</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MCM 2: Public Participation</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comply with State Public Notice Requirement (MGL Ch 30A, Sections 18-25) for all public involvement and participation</td>
<td>Ongoing</td>
<td>☑️</td>
<td>☑️</td>
<td>☐️</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>Provide an opportunity to participate in SWMP review and implementation</td>
<td>Annually by June 30</td>
<td>☑️</td>
<td>☑️</td>
<td>☐️</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>Make Annual reports and SWMP available to the public in person and online</td>
<td>Ongoing</td>
<td>☑️</td>
<td>☑️</td>
<td>☐️</td>
<td>☐️</td>
<td>☐️</td>
</tr>
<tr>
<td>Annual Stormwater Committee Meetings</td>
<td>As Needed</td>
<td>☑️</td>
<td>☑️</td>
<td>☐️</td>
<td>☐️</td>
<td>☐️</td>
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</tbody>
</table>
## Town of Boylston
### FY2019-2024 Small MS4 Permit 5-Year Workplan

<table>
<thead>
<tr>
<th>MCM 3: Illicit Discharge Detection and Elimination</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adopt bylaw prohibiting illicit discharges and authorizing investigation, repair, and enforcement</td>
<td>Due on May 1, 2008 as part of 2003 Permit</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify all known SSOs that occurred during last five years</td>
<td>June 30, 2019 and update annually thereafter</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Notify EPA / DEP of SSO orally in 24hrs and in writing in 5 days</td>
<td>Ongoing</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Notify responsible party immediately upon identification of illicit discharge or illegal connection</td>
<td>Ongoing</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eliminate known illicits or set expeditious schedule in 60 days</td>
<td>Ongoing</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outfall/interconnection inventory and ranking</td>
<td>June 30, 2019 and update annually thereafter</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written IDDE Program document, including statement of responsibilities and written outfall screening and sampling procedure</td>
<td>June 30, 2019</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written catchment investigation procedure</td>
<td>Dec. 30, 2019</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annually train IDDE staff</td>
<td>Annually by June 30</td>
<td>✓</td>
<td></td>
<td>Completed in PY3 due to COVID-19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry weather outfall and interconnection screening</td>
<td>June 30, 2021</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investigation of problem catchments must begin, including wet weather screening</td>
<td>June 30, 2020</td>
<td></td>
<td></td>
<td>N/A - no problem catchments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Updated October 2020
### MCM 3: Illicit Discharge Detection and Elimination (cont.)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish &quot;Phase I&quot; system mapping requirements, including the following elements:</td>
<td></td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
</tr>
<tr>
<td>- Outfalls and receiving waters</td>
<td>June 30, 2020</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Open channel conveyances</td>
<td></td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
</tr>
<tr>
<td>- Interconnections with other MS4s and other storm sewer systems</td>
<td></td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
</tr>
<tr>
<td>- Municipally owned stormwater treatment structures</td>
<td></td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
</tr>
<tr>
<td>- Waterbodies identified by name and indication of all use impairments as identified in the most recent EPA Approved Massachusetts Integrated List</td>
<td></td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
</tr>
<tr>
<td>- Initial catchment delineation</td>
<td></td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
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**Update system map with available "Phase II" information (see permit for detailed list)**

- Annually after Phase I mapping is completed

### MCM 4: Construction Site Erosion & Sedimentation

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<thead>
<tr>
<th>Requirement</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bylaw for sediment, erosion, debris, litter and sanitary waste</td>
<td>Due on May 1, 2008 as part of 2003 Permit</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written procedure for site plan review/inspection/enforcement</td>
<td>June 30, 2019</td>
<td>✔</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### MCM 5: New Development and Redevelopment

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bylaw meeting 2003 post-construction requirements</td>
<td>Due on May 1, 2008 as part of 2003 Permit</td>
<td>✔</td>
<td></td>
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</tbody>
</table>
### MCM 5: New Development and Redevelopment (cont.)

**MCM 5 Requirement:** Update post-construction stormwater bylaw (see permit for detailed list)

**Impaired Waters/TMDL Requirement:** Include a requirement that new development and redevelopment BMPs be optimized for phosphorus removal.

<table>
<thead>
<tr>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 30, 2020</td>
<td>Proposed Permit modifications extend schedule</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- Report evaluating street design, parking guidelines and related rules: June 30, 2022 and update annually thereafter
  - FY19 Permit Year 1
  - FY20 Permit Year 2
  - FY21 Permit Year 3
  - FY22 Permit Year 4
  - FY23 Permit Year 5

- Report evaluating allowing green roofs, infiltration, rain harvesting: June 30, 2022
  - FY19 Permit Year 1
  - FY20 Permit Year 2
  - FY21 Permit Year 3
  - FY22 Permit Year 4
  - FY23 Permit Year 5

- Identify/rank five or more existing permittee-owned sites that could be retrofitted with structural BMPs: June 30, 2022 and update annually thereafter
  - FY19 Permit Year 1
  - FY20 Permit Year 2
  - FY21 Permit Year 3
  - FY22 Permit Year 4
  - FY23 Permit Year 5

### MCM 6: Good Housekeeping

<table>
<thead>
<tr>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
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<tbody>
<tr>
<td>June 30, 2020 and update annually thereafter</td>
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</tbody>
</table>

- Inventory permittee-owned parks/open space, buildings/facilities and vehicles/equipment: June 30, 2020 and update annually thereafter
  - FY19 Permit Year 1
  - FY20 Permit Year 2
  - FY21 Permit Year 3
  - FY22 Permit Year 4
  - FY23 Permit Year 5

- Initial catch basin optimization plan: June 30, 2019
  - FY19 Permit Year 1
  - FY20 Permit Year 2
  - FY21 Permit Year 3
  - FY22 Permit Year 4
  - FY23 Permit Year 5
<table>
<thead>
<tr>
<th>MCM 6: Good Housekeeping (cont.)</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written O&amp;M procedures for parks, buildings, facilities, vehicles and equipment, and infrastructure operations and maintenance (i.e., street sweeping, catch basin cleaning, winter road maintenance and stormwater treatment structure inspections) including requirements for the proper management of grass cuttings and leaf litter</td>
<td>June 30, 2020 and update annually thereafter</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean catch basins per plan</td>
<td>Annually by June 30</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Impaired Waters/TMDL Requirement: Sweep streets two times per year, once in the spring and once in the fall. For rural streets with no curbs or catch basins, the Town must sweep at least once per year or develop a targeted inspection and sweeping plan for those streets, per Section 2.3.7.a.iii.3 of the permit.</td>
<td>Annually by June 30</td>
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</tr>
<tr>
<td>Inspect all municipally owned mapped stormwater treatment structures (excluding catch basins)</td>
<td>Annually by June 30</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Implement winter road maintenance program including road salt use optimization.</td>
<td>Develop by June 30, 2019 and implement every winter thereafter</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
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</tr>
<tr>
<td>Develop and implement a written SWPPP for permittee-owned or operated facilities</td>
<td>June 30, 2020 and implement continuously thereafter</td>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cover or enclose salt piles</td>
<td>June 30, 2020 and implement continuously thereafter</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Assabet River Phosphorus TMDL</td>
<td>Deadline</td>
<td>FY19 Permit Year 1</td>
<td>FY20 Permit Year 2</td>
<td>FY21 Permit Year 3</td>
<td>FY22 Permit Year 4</td>
<td>FY23 Permit Year 5</td>
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</tr>
<tr>
<td>Complete a Phosphorus Source Identification Report</td>
<td>June 30, 2022</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Evaluate all properties identified in the Retrofit Feasibility Assessment and the Phosphorus Source</td>
<td>June 30, 2023</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Track existing or installed structural BMPs in the urbanized area and document the BMP type, total area treated, design storage volume and estimated phosphorus removed by mass.</td>
<td>September 28, 2019 and annually thereafter</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the Assabet River or its tributaries. The demonstration project shall target a catchment with high phosphorus load potential.</td>
<td>June 30, 2024</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Northern Blackstone Lakes Phosphorus TMDL</th>
<th>Deadline</th>
<th>FY19 Permit Year 1</th>
<th>FY20 Permit Year 2</th>
<th>FY21 Permit Year 3</th>
<th>FY22 Permit Year 4</th>
<th>FY23 Permit Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Lake Phosphorus Control Plan (LPCP) Legal Analysis</td>
<td>June 30, 2020</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete LPCP funding source assessment</td>
<td>June 30, 2021</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Define LPCP area and scope</td>
<td>June 30, 2022</td>
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</tr>
</tbody>
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</thead>
<tbody>
<tr>
<td>Calculate baseline phosphorus, allowable phosphorus load, and phosphorus reduction requirements</td>
<td>June 30, 2022</td>
<td></td>
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<tr>
<td>Complete all remaining elements of the written LPCP plan (see permit for detailed list)</td>
<td>June 30, 2023</td>
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</tbody>
</table>

This Workplan was prepared by Tighe & Bond to facilitate completion of EPA Phase II Small MS4 General Permit requirements. This document is not intended to replace the MS4 General Permit, and requirements of the General Permit shall prevail.

Updated October 2020
Certification

**Authorized Representative (Optional):** All reports, including SWPPPs, inspection reports, annual reports, monitoring reports, reports on training and other information required by this permit must be signed by a person described in Appendix B, Subsection 11.A or by a duly authorized representative of that person in accordance with Appendix B, Subsection 11.B. If there is an authorized representative to sign MS4 reports, there must be a signed and dated written authorization.

The authorization letter is:

- [ ] Attached to this document (document name listed below)
- [ ] Delegating an "Authorized Representative" Attached in Appendix A.
- [ ] Publicly available at the website below

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Printed Name  April Steward, Town Administrator

Signature  [Signature]

Date  9/30/19

[Click Here for Revisions]
Background

Stormwater Regulation
The Stormwater Phase II Final Rule was promulgated in 1999 and was the next step after the 1987 Phase I Rule in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II program expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted stormwater runoff. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation. Under the Phase II rule all MS4s with stormwater discharges from Census designated Urbanized Area are required to seek NPDES permit coverage for those stormwater discharges.

Permit Program Background
On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2003 small MS4 permit) consistent with the Phase II rule. The 2003 small MS4 permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the states of Massachusetts and New Hampshire. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the 2016 MS4 general permit, which became effective on July 1, 2018.

Stormwater Management Program (SWMP)
The SWMP describes and details the activities and measures that will be implemented to meet the terms and conditions of the permit. The SWMP accurately describes the permittee's plans and activities. The document should be updated and/or modified during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term. The main elements of the stormwater management program are (1) a public education program in order to affect public behavior causing stormwater pollution, (2) an opportunity for the public to participate and provide comments on the stormwater program (3) a program to effectively find and eliminate illicit discharges within the MS4 (4) a program to effectively control construction site stormwater discharges to the MS4 (5) a program to ensure that stormwater from development projects entering the MS4 is adequately controlled by the construction of stormwater controls, and (6) a good housekeeping program to ensure that stormwater pollution sources on municipal properties and from municipal operations are minimized.

Town Specific MS4 Background (optional)
Attached in Appendix B.
Small MS4 Authorization

The NOI was submitted on September 28, 2018

The NOI can be found at the following (document name or web address):
Also attached in Appendix C.

Authorization to Discharge was granted on April 5, 2019

The Authorization Letter can be found (document name or web address):
Also attached in Appendix C.
# Stormwater Management Program Team

## SWMP Team Coordinator

<table>
<thead>
<tr>
<th>Name</th>
<th>April Steward</th>
<th>Title</th>
<th>Town Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Town of Boylston</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>(508) 869-0143 ext. 221</td>
<td>Email</td>
<td><a href="mailto:asteward@boylston-ma.gov">asteward@boylston-ma.gov</a></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Oversees the Town of Boylston’s Stormwater Management Program and compliance with the Small MS4 General Permit. Manages the public education and outreach of Boylston’s stormwater program, and provides opportunities for public participation and involvement.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## SWMP Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Chip Burkhardt</th>
<th>Title</th>
<th>Conservation Commission Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Conservation Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>(508) 869-6127</td>
<td>Email</td>
<td><a href="mailto:chipburkhardt@yahoo.com">chipburkhardt@yahoo.com</a></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Implements construction and post-construction bylaws, policies, and procedures. Oversees IDDE Program.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Joe McGrath</th>
<th>Title</th>
<th>Conservation Commission Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Conservation Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>(508) 869-6127</td>
<td>Email</td>
<td><a href="mailto:jmcgrath@boylston-ma.gov">jmcgrath@boylston-ma.gov</a></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Implements construction and post-construction bylaws, policies, and procedures. Oversees IDDE Program.</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Steve Mero</th>
<th>Title</th>
<th>Superintendent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Highway Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>(508) 869-2261</td>
<td>Email</td>
<td><a href="mailto:smero@boylston-ma.gov">smero@boylston-ma.gov</a></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Oversees the Highway Department stormwater operations, including IDDE employee training and the good housekeeping program.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Dennis Costello</td>
<td>Title</td>
<td>Health Agent</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>Department</td>
<td>Board of Health</td>
<td></td>
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<tr>
<td>Phone Number</td>
<td>(508) 869-6828</td>
<td>Email</td>
<td><a href="mailto:dcostello@boylston-ma.gov">dcostello@boylston-ma.gov</a></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Implements and enforces IDDE Bylaw.</td>
<td></td>
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</tr>
</tbody>
</table>

Add SWMP Member
Receiving Waters

The following table lists all receiving waters, impairments and number of outfalls discharging to each waterbody segment.

OR
The information can be found in the following document or at the following web address:

The table of Receiving Waters included in NOI is attached in Appendix C.

<table>
<thead>
<tr>
<th>Waterbody segment that receives flow from the MS4</th>
<th>Number of outfalls into receiving water segment</th>
<th>Chloride</th>
<th>Chlorophyll-a</th>
<th>Dissolved Oxygen/DO Saturation</th>
<th>Nitrogen</th>
<th>Oil &amp; Grease/PAH</th>
<th>Phosphorus</th>
<th>Solids/TSS/Turbidity</th>
<th>E. coli</th>
<th>Enterococcus</th>
<th>Other pollutant(s) causing impairments</th>
</tr>
</thead>
<tbody>
<tr>
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Click here to lengthen table
Eligibility: Endangered Species and Historic Properties

*Reminder: The proper consultations and updates to the SWMP must be conducted for construction projects related to your permit compliance where Construction General Permit (CGP) coverage, which requires its own endangered species and history preservation determination, is NOT being obtained.

Attachments:
- The results of Appendix C U.S. Fish and Wildlife Service endangered species screening determination
- The results of the Appendix D historic property screening investigations
- If applicable, any documents from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other Tribal representative to mitigate effects

These attachments are required within one year of the permit effective date and are:
- Attached to this document (document names listed below)
- Endangered Species Act Eligibility Certification is attached in Appendix D. National Historic Preservation Act Certification is attached in Appendix E.
- Publicly available at the website listed below

Under what criterion did permittee determine eligibility for ESA?
- Criterion A
- Criterion B
- Criterion C

Under what criterion did permittee determine eligibility for Historic Properties?
- Criterion A
- Criterion B
- Criterion C

Below add any additional measures for structural controls that you're required to do through consultation with U.S. Fish and Wildlife Service (if applicable):
- Not applicable

Below add any additional measures taken to avoid or minimize adverse impacts on places listed, or eligible for listing, on the NRHP, including any conditions imposed by the SHPO or THPO (if applicable):
- Not applicable
MCM 1
Public Education and Outreach
Permit Part 2.3.2

Objective: The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that the pollutants in stormwater are reduced.

Examples and Templates:
EPA's Stormwater Education Toolbox
MassDEP's Stormwater Outreach Materials

Other templates relevant to MCM 1 can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#peo
**BMP: Multi-media Public Education and Outreach**

**BMP Number (Optional)** 1A

**Document Name and/or Web Address:** To be included in Appendix H when complete.

**Description:**
Education and outreach on stormwater management using multi-media methods including web and print materials. Distribute seasonal messages to residents related to impaired waterbodies in the spring, summer and fall. Annual spring messages will encourage proper disposal of grass clippings and the use of slow release and phosphorus-free fertilizers. Annual summer messages will encourage proper pet waste management, noting applicable Town Bylaws where appropriate. Annual fall messages will encourage proper disposal of leaf litter.

**Targeted Audience:** Residents

**Responsible Department/Parties:** Town Administrator with support from DCR

**Measurable Goal(s):**
Distribute a minimum of two (2) educational messages to residents spaced at least one year apart and supplement this message with an annual message on proper pet waste management. The Town may also wish to measure results in more specific ways, like the percent of residents reached or changes in behaviors impacting stormwater management.

**Message Date(s):** 2018 (PY1) & 2020 (PY3)

---

**BMP: Multi-media Public Education and Outreach**

**BMP Number (Optional)** 1B

**Document Name and/or Web Address:** To be included in Appendix H when complete.

**Description:**
Education and outreach on stormwater management using multi-media methods including web and print materials. Distribute seasonal messages to businesses, institutions and commercial facilities related to impaired waterbodies in the spring, summer and fall. Annual spring messages will encourage proper disposal of grass clippings and the use of slow release and phosphorus-free fertilizers. Annual summer messages will encourage proper pet waste management, noting applicable Town Bylaws where appropriate. Annual fall messages will encourage proper disposal of leaf litter.

**Targeted Audience:** Businesses, institutions and commercial facilities

**Responsible Department/Parties:** Town Administrator with support from DCR

**Measurable Goal(s):**
Distribute a minimum of two (2) educational messages to businesses, institutions and commercial facilities spaced at least one year apart. The Town may also wish to measure results in more specific ways, like the percent of businesses, institutions and commercial facilities reached or changes in behaviors impacting stormwater management.
BMP: Multi-media Public Education and Outreach

BMP Number (Optional) 1C

Document Name and/or Web Address: To be included in Appendix H when complete.

Description:
Education and outreach on stormwater management using multi-media methods including web and print materials. The Town shall consider the following topics when developing educational messages and focus on topics most relevant to the Town of Boylston: proper sediment and erosion control management practices, information about Low Impact Development (LID) principles and technologies, and information about EPA's construction general permit (CGP).

Targeted Audience: Developers (construction)

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):
Distribute a minimum of two (2) educational messages to developers spaced at least one year apart. The Town may also wish to measure results in more specific ways, like the percent of developers reached or changes in behaviors impacting stormwater management.

Message Date(s): 2019 (PY2) & 2021 (PY4)

BMP: Multi-media Public Education and Outreach

BMP Number (Optional) 1D

Document Name and/or Web Address: To be included in Appendix H when complete.

Description:
Education and outreach on stormwater management using multi-media methods including web and print materials. The Town shall consider the following topics when developing educational messages and focus on topics most relevant to the Town of Boylston: equipment inspection and maintenance, proper storage of industrial materials, proper management and disposal of wastes, proper management of dumpsters, minimization of use of salt or other de-icing/anti-icing materials, proper storage of salt or other de-icing/antiicing materials, benefits of on-site infiltration of stormwater runoff from areas with low exposure to industrial materials, proper maintenance of parking lot surfaces, and requirements for coverage under EPA's Multi-Sector General Permit.

Targeted Audience: Industrial facilities

Responsible Department/Parties: Town Administrator with support from DCR

Message Date(s): 2018 (PY1) & 2020 (PY3)
Measurable Goal(s):
Distribute a minimum of two (2) educational messages to industrial facilities spaced at least one year apart. The Town may also wish to measure results in more specific ways, like the percent of industrial facilities reached or changes in behaviors impacting stormwater management.

Message Date(s): 2019 (PY2) & 2021 (PY4)

BMP: N/A

BMP Number (Optional) 

Document Name and/or Web Address: 

Description: 
N/A

Targeted Audience: 

Responsible Department/Parties: 

Measurable Goal(s): 

Message Date(s): 

BMP: N/A

BMP Number (Optional) 

Document Name and/or Web Address: 

Description: 
N/A

Targeted Audience: 

Responsible Department/Parties: 

Measurable Goal(s): 

MCM 2
Public Involvement and Participation
Permit Part 2.3.3

Objective: The permittee shall provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP.
**BMP: Public Review of Stormwater Management Program**

**BMP Number (Optional) 2A**

**Location of Plan and/or Web Address:** Available at Town Hall and online at: https://www.boylston-ma.gov/conservation-commission

**Responsible Department/Parties:** Town Administrator, Stormwater Committee

**Measurable Goal(s):**

Annually provide the public with an opportunity to participate in the review and implementation of the SWMP.

---

**BMP: Public Participation in Stormwater Management Program Development**

**BMP Number (Optional) 2B**

**Description:**

Provide opportunities for public involvement and participation in Boylston stormwater program (including clean up events).

**Responsible Department/Parties:** Town Administrator, Stormwater Committee

**Measurable Goal(s):**

Ongoing compliance and reporting of events and activities organized for public participation in Annual Reports.

---

**BMP: Public Review of Stormwater Management Program**

**BMP Number (Optional) 2C**

**Document Name and/or Web Address:** N/A

**Description:**

Organize meetings of Interdepartmental Stormwater Committee, consisting of representatives from departments including Conservation Commission, Highway Department, Board of Health and Town Administrator's Office.

**Responsible Department/Parties:** Town Administrator

**Measurable Goal(s):**

At a minimum, stormwater working group will meet annually.
Objective: The permittee shall implement an IDDE program to systematically find and eliminate illicit sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.

Examples and Templates:
IDDE Program Template and SOPs

Other templates relevant to IDDE can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#idde
BMP: IDDE Legal Authority

BMP Number (Optional) 3A  
Completed (by May 1, 2008) ☑


Department Responsible for Enforcement: Board of Health

BMP: Sanitary Sewer Overflow (SSO) Inventory

BMP Number (Optional) N/A  
Completed (by year 1) ☑

Document Name and/or Web Address: N/A

Description: N/A - The Town of Boylston does not have a sanitary sewer system and therefore has no sanitary sewer overflows.

Responsible Department/Parties: N/A

Measurable Goal(s): N/A

SSO Reporting:
In the event of an overflow or bypass, a notification must be reported within 24 hours by phone to MassDEP, EPA, and other relevant parties. Follow up the verbal notification with a written report following MassDEP's Sanitary Sewer Overflow (SSO)/Bypass notification form within 5 calendar days of the time you become aware of the overflow, bypass, or backup.

N/A

BMP: Map of Storm Sewer System

BMP Number (Optional) 3B  
Phase I Completed (by year 2) ☑  
Phase II Completed (by year 10) ☐

Document Location and/or Web Address: Appendix C: Notice of Intent

Description: Update the storm sewer system map during IDDE program implementation.
Responsible Department/Parties: Stormwater Committee

Measurable Goal(s):
By June 30, 2020, complete Phase I mapping: map 100% of known outfalls and receiving waters, open channel conveyances, interconnections with other MS4s and other storm sewer systems, municipally-owned stormwater treatment structures, waterbodies identified by name and indication of all use impairments, and initial catchment delineations. By June 30, 2028, complete Phase II mapping: map 100% of outfall spatial locations, pipes, manholes, catch basins, refined catchment delineations, municipal sanitary sewer system (if applicable), and municipal combined sewer system (if applicable).

BMP: IDDE Program

BMP Number (Optional) 3C/3D1-3
Written Document Completed (by year 1) [ ]

Document Name and/or Web Address: IDDE Program Update, 2019

Description:
Update written IDDE Plan. Complete outfall/interconnection inventory and initial ranking, dry weather outfall screening and sampling, and catchment investigations.

Responsible Department/Parties: Stormwater Committee

Measurable Goal(s):
By June 30, 2019, update written IDDE program and complete outfall/interconnection and initial ranking. Boylston completed the initial outfall/interconnection inventory and dry weather screening in 2009 and 2010. The "Drainage System Mapping and Dry-Weather Stormwater Outfall Investigations Summer 2009 Summary Report" and "Fall 2010 Addendum" detail program procedures and results. By June 30, 2021, conduct 100% of outfall screening on High and Low Priority Outfalls. By June 30, 2025, complete catchment investigations for 100% of the Problem Outfalls. By June 30, 2028, complete 100% of all catchment investigations. Track number of illicit discharges identified and volume removed. This BMP will be coordinated with requirements for TMDLs and Water Quality Limited Waters.

The outfall/interconnection inventory and initial ranking and the dry weather outfall and interconnection screening and sampling results can be found:
At the Town Hall, Conservation Department.

BMP: Employee Training

BMP Number (Optional) 3E

Description:
Train employees on IDDE implementation.
Responsible Department/Parties: Stormwater Committee

Measurable Goal(s):
The Town's Highway Department staff annually attend training with the DCR. Track employees trained, training topics, date/time, and materials presented.

BMP: N/A

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>Completed</th>
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</thead>
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<table>
<thead>
<tr>
<th>Document Name and/or Web Address:</th>
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<table>
<thead>
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<th>Description:</th>
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<tbody>
<tr>
<td>N/A</td>
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<thead>
<tr>
<th>Responsible Department/Parties:</th>
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<table>
<thead>
<tr>
<th>Measurable Goal(s):</th>
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</thead>
</table>

Add BMP
MCM 4
Construction Site Stormwater Runoff Control
Permit Part 2.3.5

Objective: The objective of an effective construction stormwater runoff control program is to minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S. through the permittee's MS4.

Examples and Templates:
Examples and templates relevant to MCM 4, including model ordinances and site inspection templates, can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#csrc
### BMP: Sediment and Erosion Control Ordinance

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>4A</th>
<th>Completed (by May 1, 2008)</th>
</tr>
</thead>
</table>


**Department Responsible for Enforcement:** Conservation Commission

---

### BMP: Site Plan Review Procedures

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>4B</th>
<th>Written procedures completed (by year 1)</th>
</tr>
</thead>
</table>

**Document Name and/or Web Address:**

**Description:** Modify local regulations, if necessary, to contain new MS4 provisions per Part 2.3.5 of the General Permit.

**Responsible Department/Parties:** Conservation Commission

**Measurable Goal(s):**

Review regulations and modify if necessary by June 30, 2019.

---

### BMP: Site Inspections and Enforcement of Sediment and Erosion Control Measures Procedures

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>4B</th>
<th>Completed (by year 1)</th>
</tr>
</thead>
</table>

**Document Name and/or Web Address:**

**Description:** Develop and implement written procedures for site inspections and enforcement procedures per Part 2.3.5 of the General Permit.

**Responsible Department/Parties:** Conservation Commission

**Measurable Goal(s):**

Review current procedures and modify if necessary by June 30, 2019.
<table>
<thead>
<tr>
<th><strong>BMP Number (Optional)</strong></th>
<th><strong>Completed</strong></th>
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<table>
<thead>
<tr>
<th><strong>Description:</strong></th>
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<tbody>
<tr>
<td>N/A</td>
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<tr>
<th><strong>Responsible Department/Parties:</strong></th>
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<tr>
<th><strong>Measurable Goal(s):</strong></th>
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<tr>
<th><strong>BMP Number (Optional)</strong></th>
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<th><strong>Document Name and/or Web Address:</strong></th>
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<th><strong>Description:</strong></th>
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<tr>
<th><strong>Responsible Department/Parties:</strong></th>
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<tr>
<th><strong>Measurable Goal(s):</strong></th>
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</table>

---

Add BMP
MCM 5
Post Construction Stormwater Management in New Development and Redevelopment
Permit Part 2.3.6

Objective: The objective of an effective post construction stormwater management program is to reduce the discharge of pollutants found in stormwater to the MS4 through the retention or treatment of stormwater after construction on new or redeveloped sites and to ensure proper maintenance of installed stormwater controls.

Examples and Templates: Examples and templates relevant to MCM 5, including model ordinances and bylaw review templates and guidance can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm
### BMP: Post-Construction Ordinance

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>5A</th>
<th>Completed (by year 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department Responsible for Enforcement:</strong></td>
<td>Conservation Commission</td>
<td></td>
</tr>
</tbody>
</table>

### BMP: Street Design and Parking Lot Guidelines Report

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>5B</th>
<th>Completed (by year 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Document Name and/or Web Address:</strong></td>
<td>To be updated when report is complete.</td>
<td></td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Department/Parties:</strong></td>
<td>Conservation Commission</td>
<td></td>
</tr>
<tr>
<td><strong>Measurable Goal(s):</strong></td>
<td>Complete report no later than four (4) years of permit effective date.</td>
<td></td>
</tr>
</tbody>
</table>

### BMP: Green Infrastructure Report

<table>
<thead>
<tr>
<th>BMP Number (Optional)</th>
<th>5C</th>
<th>Completed (by year 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Document Name and/or Web Address:</strong></td>
<td>To be updated when report is complete.</td>
<td></td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Department/Parties:</strong></td>
<td>Conservation Commission</td>
<td></td>
</tr>
<tr>
<td><strong>Measurable Goal(s):</strong></td>
<td>Complete report no later than four (4) years of permit effective date.</td>
<td></td>
</tr>
</tbody>
</table>
**BMP: List of Municipal Retrofit Opportunities**

**BMP Number** (Optional) 5D

**Completed (by year 4)**

**Document Name and/or Web Address:** To be updated when list is complete.

**Description:**
By June 30, 2022, conduct detailed inventory of Town-owned properties and rank for retrofit potential. At a minimum, the Town shall consider municipal properties with significant impervious cover that could be modified or retrofitted to reduce the frequency, volume or pollutant loads of stormwater discharges.

**Responsible Department/Parties:** Conservation Commission

**Measurable Goal(s):**
Complete report no later than four (4) years of permit effective date, beginning in year 5 keep a running list of at least five (5) retrofit sites.

---

**BMP: N/A**

**BMP Number** (Optional)

**Completed**

**Document Name and/or Web Address:**

**Description:**
N/A

**Responsible Department/Parties:**

**Measurable Goal(s):**
Objective: The permittee shall implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.

Examples and Templates:
Examples and templates relevant to MCM 6, including SOP templates for catch basin cleaning, street sweeping, vehicle maintenance, parks and open space management, winter deicing, and Stormwater Pollution Prevention Plans can be found here: https://www.epa.gov/npdes-permits/stormwater-tools-new-england#gh
PERMITTEE OWNED FACILITIES

BMP: Parks and Open Spaces Operations and Maintenance Procedures

BMP Number (Optional) 6A  Written Document Completed (by year 2) ✗

Document Name and/or Web Address: To be updated when complete.

Description:
By June 30, 2020, inventory and create O&M procedures for all permittee-owned parks and open spaces.

Responsible Department/Parties: Highway Department

Measurable Goal(s):
Complete two (2) years after permit effective date, implement in following years.

Properties List (Optional):

BMP: Buildings and Facilities Operations and Maintenance Procedures

BMP Number (Optional) 6A  Written Document Completed (by year 2) ✗

Document Name and/or Web Address: To be updated when complete.

Description:
Inventory and create O&M procedures for all permittee-owned buildings and facilities (including their storm drains).

Responsible Department/Parties: Highway Department

Measurable Goal(s):
Develop the SOP listed above for 100% of buildings and facilities two (2) years after permit effective date, implement in following years.

Properties List (Optional):

BMP: Vehicles and Equipment Operations and Maintenance Procedures

BMP Number (Optional) 6A  Written Document Completed (by year 2) ✗
<table>
<thead>
<tr>
<th><strong>Document Name and/or Web Address:</strong></th>
<th>To be updated when complete.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> Inventory and create O&amp;M procedures for all permittee-owned vehicles and equipment</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Department/Parties:</strong></td>
<td>Highway Department</td>
</tr>
<tr>
<td><strong>Measurable Goal(s):</strong> Develop the SOP listed above for 100% of vehicles and equipment within two (2) years after permit effective date, implement in following years.</td>
<td></td>
</tr>
<tr>
<td><strong>Properties List (Optional):</strong></td>
<td></td>
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</table>

### INFRASTRUCTURE

**BMP: Infrastructure Operations and Maintenance Procedures**

<table>
<thead>
<tr>
<th><strong>BMP Number (Optional)</strong></th>
<th>6B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Written Procedure Completed</strong> (by year 2)</td>
<td>☑</td>
</tr>
<tr>
<td><strong>Document Name and/or Web Address:</strong></td>
<td>To be updated when complete.</td>
</tr>
<tr>
<td><strong>Description:</strong> Establish and implement program for repair and rehabilitation of MS4 infrastructure.</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Department/Parties:</strong></td>
<td>Highway Department</td>
</tr>
<tr>
<td><strong>Measurable Goal(s):</strong> Develop the SOP listed above for 100% of infrastructure within two (2) years after permit effective date, implement in following years.</td>
<td></td>
</tr>
</tbody>
</table>

**BMP: Catch Basin Cleaning Program**

<table>
<thead>
<tr>
<th><strong>BMP Number (Optional)</strong></th>
<th>6D-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Written Procedure Completed</strong> (by year 1)</td>
<td>☑</td>
</tr>
<tr>
<td><strong>Document Name and/or Web Address:</strong></td>
<td>To be updated when complete.</td>
</tr>
<tr>
<td><strong>Description:</strong> By June 30, 2019, begin to improve procedures to optimize catch basin cleaning developed under BMP 6B. Formalize procedures in Town-wide Operations and Maintenance Plan described in BMP 6A by June 30, 2020.</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Department/Parties:</strong></td>
<td>Highway Department</td>
</tr>
</tbody>
</table>
Measurable Goal(s):
In first Annual Report and in SWMP, document plan for optimizing catch basin cleaning. Track frequency and material quantity of catch basin cleaning in town.

BMP: Street Sweeping Program

BMP Number (Optional) 6D-2  Written Procedure Completed (by year 1) X

Document Name and/or Web Address: To be updated when complete.

Description:
Implement procedures for street and parking lot sweeping developed under BMP 6B.

Responsible Department/Parties: Highway Department

Measurable Goal(s):
Annually track number of miles cleaned or the volume or mass of material removed.

BMP: Winter Road Maintenance Program

BMP Number (Optional) 6D-3  Written Procedure Completed (by year 1) X

Document Name and/or Web Address: To be updated when complete.

Description:
Implement procedures for use and storage of deicing materials developed under BMP 6B.

Responsible Department/Parties: Highway Department

Measurable Goal(s):
Implement program for winter road maintenance throughout permit term.

BMP: Stormwater Treatment Structures Inspection and Maintenance Procedures

BMP Number (Optional) 6D-4  Completed (by year 1) X

Document Name and/or Web Address: To be updated when complete.
Description:
Implement procedures to inspect and maintain Town-owned structural stormwater BMPs

Responsible Department/Parties: Highway Department

Measurable Goal(s):
Develop an inventory of Town-owned BMPs within two (2) years of permit effective date. Report on inspection and maintenance conducted annually.

BMP: SWPPP

BMP Number (Optional) 6C

Completed (by year 2) □

Document Name and/or Web Address: To be updated when complete.

Description:
By June 30, 2020, develop and implement a SWPPP and SWPPP BMPs at maintenance garages, transfer stations and other waste-handling facilities.

Responsible Department/Parties: Highway Department

Measurable Goal(s):
Update or develop SWPPPs within two years of permit effective date, implement in following years.

BMP: N/A

BMP Number (Optional) □

Completed □

Document Name and/or Web Address:

Description:
N/A

Responsible Department/Parties:

Measurable Goal(s):
Annual Evaluation

Year 1 Annual Report

Document Name and/or Web Address:

Insert link to EPA website or include copy in Appendix H when complete.

Year 2 Annual Report

Document Name and/or Web Address:

Insert link to EPA website or include copy in Appendix H when complete.

Year 3 Annual Report

Document Name and/or Web Address:

Insert link to EPA website or include copy in Appendix H when complete.

Year 4 Annual Report

Document Name and/or Web Address:

Insert link to EPA website or include copy in Appendix H when complete.

Year 5 Annual Report

Document Name and/or Web Address:

Insert link to EPA website or include copy in Appendix H when complete.

Document Name and/or Web Address:

Add a Year
# TMDLs and Water Quality Limited Waters

Select the applicable Impairment(s) and/or TMDL(s).

## Impairment(s)
- Bacteria/Pathogens
- Chloride
- Nitrogen
- Phosphorus
- Solids/oil/grease (hydrocarbons)/metals

## TMDL(s)

### In State:
- Assabet River Phosphorus
- Bacteria and Pathogen
- Cape Cod Nitrogen
- Charles River Watershed Phosphorus
- Lake and Pond Phosphorus

### Out of State:
- Bacteria and Pathogen
- Metals
- Nitrogen
- Phosphorus

**Clear Impairments and TMDLs**
Phosphorus
Combination of Impaired Waters Requirements and TMDL Requirements as Applicable

<table>
<thead>
<tr>
<th>Applicable Receiving Waterbody(ies)</th>
<th>TMDL Name (if applicable)</th>
<th>Add/Delete Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Harbor Brook, MA82B-18</td>
<td>Assabet River Total Maximum Daily Load for Total Phosphorus</td>
<td>-</td>
</tr>
<tr>
<td>Rocky Pond, MA82095 (no known MS4 outfalls discharge to Rocky Pond)</td>
<td>Assabet River Total Maximum Daily Load for Total Phosphorus</td>
<td>-</td>
</tr>
</tbody>
</table>

Annual Requirements Beginning Year 1
Public Education and Outreach
(Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information))

Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorus-free fertilizers.

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

The Town of Boylston will supplement its residential and business/commercial/institution public education programs described in BMPs 1A and 1B with an annual spring message encouraging the proper disposal of grass clippings and the use of slow-release and phosphorus-free fertilizers.

Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate.

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

The Town of Boylston will supplement its residential and business/commercial/institution public education programs described in BMPs 1A and 1B with an annual summer message encouraging the proper management of pet waste.

Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter.

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

The Town of Boylston will supplement its residential and business/commercial/institution public education programs described in BMPs 1A and 1B with an annual fall message encouraging the proper disposal of leaf litter.
Good Housekeeping and Pollution Prevention for Permittee Owned Operations

Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

As part of the Town's Operation & Maintenance procedures for street and parking lot sweeping established as part of BMP 6D-2, Boylston will increase street and parking lot sweeping in the urbanized portion of the SuAsCo watershed to a minimum of two occurrences per year, once in the spring and once in the fall. For rural streets with no curbs or catch basins, the Town must sweep at least once per year or develop a targeted inspection and sweeping plan for those streets, per Section 2.3.7.a.iii.3 of the permit.

Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BEGIN IN PERMIT YEAR 2 (Note: EPA template provides incorrect deadline).

As part of the Town's Operations & Maintenance procedures for Town-owned properties established as part of BMP 6A, the Town of Boylston will establish a program to properly manage grass cuttings and leaf litter on Town-owned properties. This program will prohibit blowing organic waste onto impervious surfaces.

Stormwater Management in New Development and Redevelopment

Retrofit inventory and priority ranking under 2.3.6.1.b. shall include consideration of BMPs to reduce phosphorus discharges

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

DUE IN PERMIT YEAR 4 (Note: EPA template provides incorrect deadline, this requirement is included under the Requirements for Permit Year 4). The Retrofit Feasibility Assessment described in BMP 5D will include consideration of BMPs to reduce phosphorus discharges.

Requirements Due by Year 2

Stormwater Management in New Development and Redevelopment

The requirement for adoption/amendment of the permittee's ordinance or other regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal
As described in BMP 5A, the Post-Construction Regulations shall be modified to require that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal.

Retrofit inventory and priority ranking under 2.3.6.1.b. shall include consideration of BMPs that infiltrate stormwater where feasible.

The retrofit inventory and priority ranking described in BMP 5D will include consideration of BMPs that infiltrate stormwater where feasible.
Lake and Pond Phosphorus TMDL

Begin Phase 1 of the Lake Phosphorus Control Plan during year 1 and complete by year 5.

<table>
<thead>
<tr>
<th>Applicable Receiving Waterbody(ies)</th>
<th>PCP Complete</th>
<th>Document Location</th>
<th>Add/Delete Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newton Pond (MA51110)</td>
<td></td>
<td>Appendix I (when complete)</td>
<td>+/−</td>
</tr>
</tbody>
</table>
Appendix A

Delegation of Authority Letter
September 10, 2018

Ms. Thelma Murphy
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

Re: NPDES MA Small MS4 General Permit
    Delegating an “Authorized Representative”

Dear Ms. Murphy:

This letter serves to designate the Town of Boylston Town Administrator as an authorized person for signing the Stormwater Management Plan (SWMP), stormwater pollution prevention plans (SWPPP), inspection reports, annual reports, monitoring reports, reports on training and other information required under the General Permit. This authorization cannot be used for signing a NPDES permit application (e.g., Notice of Intent (NOI)) in accordance with 40 CFR 122.22.

By signing this authorization, I confirm that the Board of Selectmen meets the following requirements to make such a designation as set forth in Appendix B, Subparagraph 11 of the Small MS4 General Permit:

   For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Sincerely,
Boylston Board of Selectmen

[Signatures]

508/869-2093 • FAX: 508/869-6210
EMAIL — ASTEWARD@BOYLSTON-MA.GOV
Appendix B

Town Specific MS4 Background
Boylston is located in Worcester County, approximately 11 miles northeast of Worcester. There are approximately 3.6 square miles of open water within its 19.7 square mile footprint. According to the 2010 United States Census, Boylston is home to approximately 4,350 residents in more than 1,600 households. The southwestern portion of the Town is within the urbanized area and therefore regulated by EPA under the MS4 program, as shown in Figure 2.

The Town of Boylston is located within the Nashua River Watershed, the Sudbury-Assabet-Concord Rivers Watershed and the Blackstone River Watershed. Protecting the quality of Boylston’s water resources, including lakes, ponds, rivers and groundwater supplies, is a priority for the Town of Boylston. Pollutants from stormwater runoff are a contributing factor to the impairment of Boylston’s waterbodies, including high phosphorus levels.

The Town of Boylston has achieved all of the measurable goals for the BMPs selected in the 2003 Notice of Intent and those added in subsequent years to reflect unplanned stormwater activities by the Town. A list of BMPs completed under the 2003 Small MS4 Permit is included on the next page.

The Town of Boylston has taken advantage of low-cost approaches to provide stormwater education and outreach, primarily to residential audiences, businesses and developers. The Massachusetts Department of Conservation and Recreation (DCR) supports the Town in their public education efforts as the Wachusett Reservoir and its watershed is partially located in the Town of Boylston. The Town distributed brochures related to stormwater topics and featured information on stormwater on the local cable station.

The Town has made progress in mapping the stormwater system. The total number of MS4 outfalls within Boylston's urbanized area has changed due to the 2010 U.S. Census. The preliminary outfall locations in the new urbanized area are from DCR's drainage mapping and will be field verified over the permit term. The outfalls and associated receiving waters in the Town’s NOI are based on mapping as of September 2018 and are subject to change during implementation of the Stormwater Management Program as newly constructed outfalls are added to the map and inventory; locations are adjusted; or
outfalls are removed if they are determined to be non-municipally owned/operated or reclassified as a BMP inlet, culvert, or other structure. Changes to the outfall inventory and mapping will be formalized in Annual Reports to EPA.

The Town has adopted the Storm Drain Bylaw prohibiting illicit discharges and the Stormwater Control Bylaw regulating Construction and Post-Construction stormwater management.

Lastly, the Town has established an active Good Housekeeping Program for stormwater pollution prevention including active street sweeping, catch basin cleaning, and regular employee training.

**Summary of 2003 and 2016 MS4 General Permit BMPs**

BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the following proposed 2016 General Permit BMPs (BMPS current as of 2018 Annual Report):

- **PE-1**: Partner with Local Organization – now under BMPs 1A-D
- **PE-2**: Stormwater Brochure – now under BMPs 1A-D
- **PE-3**: Provide Stormwater Information at Town buildings – now under BMPs 1A-1D
- **PE-4**: Pet Waste – now under BMPs 1A and 1B
- **PE-5**: Feature SW info on town public access cable station – now under BMPs 1A-1D
- **PE-6**: Stormwater presentations at school – now under BMP 1A
- **PP-1**: Partner with Local Organization – now under BMPs 1A-D
- **PP-2**: Place Traveling Display at various locations – now under BMPs 1A-1D
- **PP-3**: Incorporate SW into public meetings – now under BMPs 2A and 2B
- **PP-4**: Stormwater Events with School-aged Residents – now under BMP 1A and 2B
- **PP-5**: Stormwater Committee – now under BMP 2C
- **PP-6**: DCR Sponsored Events – now under BMPs 1A-1D and 2B
- **ID-1**: Drainage mapping – now under BMP 3B
- **ID-2**: Eliminate illicit discharges – now under BMPs 3C and 3D
- **ID-3**: Develop and implement an illicit discharge bylaw – now under BMP 3A
- **ID-4**: Educate citizens – now under BMPs 1A-1D
- **CS-1**: Develop and implement Construction Site Runoff Control Program – now under BMPs 4A and 4B
- **CS-2**: Develop and implement Erosion and Sediment Control Bylaw – now under BMP 4A
- **PS-1**: Develop and implement Post-Construction Runoff Control Program – now under BMP 5A
- **PS-2**: Develop and implement Post-Construction Regulations – now under BMP 5A
- **GH-1**: Employee Training Program – now under BMP 3E and BMPs 6C and 6D1-4
- **GH-2**: Catch basin Cleaning – now under BMP 6D-1
- **GH-3**: Street sweeping – now under BMP 6D-2
- **GH-4**: Recycling program – now under MCM 2B
- **GH-5**: Municipal Operations and Maintenance Plan – now under BMPs 6A and 6B
- **GH-6**: Reporting – now under BMP 2C
Appendix C

Notice of Intent, System Map and Authorization to Discharge Letter from EPA
Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part I: General Conditions

General Information

Name of Municipality or Organization: Town of Boylston
State: MA

EPA NPDES Permit Number (if applicable): MAR041095

Primary MS4 Program Manager Contact Information

Name: April Steward
Title: Town Administrator

Street Address Line 1: Town Hall
Street Address Line 2: 221 Main Street
City: Boylston
State: MA
Zip Code: 01505
Email: asteward@boylston-ma.gov
Phone Number: (508) 869-0143
Fax Number: (508) 869-6210

Other Information

Stormwater Management Program (SWMP) Location
 SWMP will be at Town Hall and online once complete: https://www.boylston-ma.gov/conservation-commission

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes
Eligibility Criteria (check all that apply): □ A □ B □ C

National Historic Preservation Act (NHPA) Determination Complete? Yes
Eligibility Criteria (check all that apply): □ A □ B □ C

☑ Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? 100%
Estimated Percent of Outfall Map Complete? If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published: See attached map

If outfall map is unavailable on the internet an electronic or paper copy of the outfall map must be included with NOI submission (see section V for submission options)

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? Yes
Effective Date or Estimated Date of Adoption (MM/DD/YY): 05/04/09

Construction/Erosion and Sediment Control (ESC) Authority Adopted? Yes
Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/16/06

Post-Construction Stormwater Management Adopted? Yes
Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/16/06
## Notice of Intent (NOI) for coverage under Small MS4 General Permit

### Part II: Summary of Receiving Waters

Please list the waterbodies to which your MS4 discharges. For each waterbody, please report the number of outfalls discharging into it and, if applicable, the segment ID and any impairments.

*Massachusetts list of impaired waters: [Massachusetts 2014 List of Impaired Waters](http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf)*

<table>
<thead>
<tr>
<th>Waterbody that receives flow from the MS4 and segment ID if applicable</th>
<th>Number of outfalls into receiving water segment</th>
<th>Chloride</th>
<th>Chlorophyll-a</th>
<th>Dissolved Oxygen/DO Saturation</th>
<th>Nitrogen</th>
<th>Oil &amp; Grease/PAH</th>
<th>Phosphorus</th>
<th>Solids/TSS/Turbidity</th>
<th>E. coli</th>
<th>Enterococcus</th>
<th>Other pollutant(s) causing impairments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewall Brook</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>Unnamed Tributary (Boylston Brook) MA81-34</td>
<td>1</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
| Wetland/Tributary to French Brook MA81-48 | 10 | | | | | | | | | | | Aquatic Macroinvertebrate Bioassess., Nutrient/Eutrophication Biological Indicators
| Wetland/Tributary to Malagasco Brook MA81-29 | 2 | | | | | | | | | | | |
| Wetland/Tributary to Newton Pond MA51110 | 2 | | | | | | | | | | | Non-Native Aquatic Plants, Aquatic Plants (Macrophytes)
| Wetland/Tributary to Cold Harbor Brook MA82B-18 | 2 | | | | | | | | | | | |
| Outside Receiving | 26 | | | | | | | | | | | |

Click to lengthen table
Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMs). For municipalities/organizations whose MS4 discharges into a receiving water with an approved Total Maximum Daily Load (TMDL) and applicable waste load allocation (WLA), identify any additional BMPs employed to specifically support the achievement of the WLA in the TMDL section at the end of Part III.

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also require a target audience).

MCM 1: Public Education and Outreach

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Media/Category</th>
<th>BMP Description</th>
<th>Targeted Audience</th>
<th>Responsible Department/ Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Multi-media methods (including web content and print materials)</td>
<td>Education and outreach on stormwater management topics of significance in Boylston (including proper pet waste management, proper use of pesticides and fertilizers). Educational topics will include but are not limited to those in Part 2.3.2.d.i</td>
<td>Residents</td>
<td>Town Administrator with support from DCR</td>
<td>Distribute a minimum of two (2) educational messages spaced at least a year apart</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>1B</td>
<td>Multi-media methods (including web content and print materials)</td>
<td>Education and outreach on stormwater management topics of significance in Boylston (including proper lawn maintenance, parking lot sweeping). Educational topics will include but are not limited to those in Part 2.3.2.d.ii</td>
<td>Businesses, Institutions, and Commercial Facilities</td>
<td>Town Administrator with support from DCR</td>
<td>Distribute a minimum of two (2) educational messages spaced at least a year apart</td>
<td>2019 (PY2)</td>
</tr>
</tbody>
</table>
## Notice of Intent (NOI) for coverage under Small MS4 General Permit

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Media/Category</th>
<th>BMP Description</th>
<th>Targeted Audience</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C</td>
<td>Multi-media methods (including web content and print materials)</td>
<td>Education and outreach on stormwater management topics of significance in Boylston (including proper erosion and sedimentation control, permit requirements, and design standards). Educational topics will include but are not limited to those in Part 2.3.2.d.iii</td>
<td>Developers (Construction)</td>
<td>Town Administrator with support from DCR</td>
<td>Distribute a minimum of two (2) educational messages spaced at least a year apart</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>1D</td>
<td>Multi-media methods (including web content and print materials)</td>
<td>Education and outreach on stormwater management topics of significance in Boylston (including pollution prevention, Multi-Sector General Permit). Educational topics will include but are not limited to those in Part 2.3.2.d.iv</td>
<td>Industrial Facilities</td>
<td>Town Administrator with support from DCR</td>
<td>Distribute a minimum of two (2) educational messages spaced at least a year apart</td>
<td>2019 (PY2)</td>
</tr>
</tbody>
</table>
## Part III: Stormwater Management Program Summary

### MCM 2: Public Involvement and Participation

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Category</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>Public Review</td>
<td>SWMP review (Plan and reports available on web and at public meetings)</td>
<td>Town Administrator, Stormwater Committee</td>
<td>Annually provide the public with an opportunity to participate in the review and implementation of the SWMP</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>2B</td>
<td>Public Participation</td>
<td>Provide opportunities for public involvement and participation in Boylston’ stormwater program (including clean up events). Specific activities, schedule, and lead departments are included in the SWMP.</td>
<td>Town Administrator, Stormwater Committee</td>
<td>Ongoing compliance</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>2C</td>
<td>Public Review</td>
<td>Continue Stormwater Committee (Conservation Commission, Highway, Town Administrator, Board of Health)</td>
<td>Town Administrator</td>
<td>At a minimum, stormwater working group will meet annually.</td>
<td>2018 (PY1)</td>
</tr>
</tbody>
</table>
Notice of Intent (NOI) for coverage under Small MS4 General Permit

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### Notice of Intent (NOI) for coverage under Small MS4 General Permit

#### Part III: Stormwater Management Program Summary

**MCM 3: Illicit Discharge Detection and Elimination (IDDE)**

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Category</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>IDDE Bylaw</td>
<td>Complete. Continue to enforce and update if necessary.</td>
<td>Board of Health</td>
<td>Track illicit discharges identified and removed.</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>3B</td>
<td>Storm sewer system map</td>
<td>Outfall Inventory Complete. Improve map during IDDE Program implementation</td>
<td>Stormwater Committee</td>
<td>Update map within two (2) years of effective date of permit and complete full system map 10 years after effective date of permit</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>3C</td>
<td>Written IDDE program</td>
<td>Update written IDDE Plan.</td>
<td>Stormwater Committee</td>
<td>Complete within one (1) year of the effective date of permit and update as required</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>3D-1</td>
<td>Assessment and Priority Ranking of Outfalls &amp; Interconnections</td>
<td>Outfall/ Interconnection Inventory and Initial Ranking as part of BMP 3D</td>
<td>Stormwater Committee</td>
<td>Complete within one (1) year of the effective date of permit and update as necessary</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>3D-2</td>
<td>Assessment and Priority Ranking of Outfalls &amp; Interconnections</td>
<td>Dry Weather Outfall Screening &amp; Sampling in accordance with IDDE Plan and permit conditions</td>
<td>Stormwater Committee</td>
<td>Complete three (3) years after effective date of permit. Track # of illicit discharges identified &amp; volume removed. Summarize screening/sampling results.</td>
<td>2018 (PY1)</td>
</tr>
</tbody>
</table>
### Notice of Intent (NOI) for coverage under Small MS4 General Permit

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Category</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D-3</td>
<td>Assessment and Priority Ranking of Outfalls &amp; Interconnections</td>
<td>Catchment Investigations according to IDDE Program and permit conditions</td>
<td>Stormwater Committee</td>
<td>Complete 10 years after effective date of permit. Track # and percentage of MS4 catchments evaluated. Track # of illicit discharges identified &amp; volume removed. Summarize screening/sampling results.</td>
<td>2019 (PY2)</td>
</tr>
<tr>
<td>3E</td>
<td>Employee Training</td>
<td>Train employees on IDDE implementation</td>
<td>Stormwater Committee</td>
<td>Train annually. Track employees trained, training topic, date/time, and materials presented.</td>
<td>2018 (PY1)</td>
</tr>
</tbody>
</table>
**Notice of Intent (NOI) for coverage under Small MS4 General Permit**

**Part III: Stormwater Management Program Summary**

**MCM 4: Construction Site Stormwater Runoff Control**

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Category</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A</td>
<td>Construction Regulations</td>
<td>Modify local regulations, if necessary, to contain new MS4 provisions per section 2.3.5.</td>
<td>Conservation Commission</td>
<td>Review current procedures and modify if necessary within one (1) year of permit effective date</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>4B</td>
<td>Construction Policy and Procedures</td>
<td>Develop and implement written procedures for site inspections and enforcement procedures per section 2.3.5.</td>
<td>Conservation Commission</td>
<td>Review current procedures and modify if necessary within one (1) year of permit effective date</td>
<td>2018 (PY1)</td>
</tr>
</tbody>
</table>
**Notice of Intent (NOI) for coverage under Small MS4 General Permit**

**Part III: Stormwater Management Program Summary**

**MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment**

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Category</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A</td>
<td>Post-Construction Regulations</td>
<td>Modify local regulations to contain new MS4 provisions per section 2.3.6.a.</td>
<td>Conservation Commission</td>
<td>Modify existing regulations if necessary within two (2) years of permit effective date</td>
<td>2019 (PY2)</td>
</tr>
<tr>
<td>5B</td>
<td>Assess street and parking lot guidelines</td>
<td>Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.</td>
<td>Conservation Commission</td>
<td>Complete report no later than four (4) years of permit effective date</td>
<td>2020 (PY3)</td>
</tr>
<tr>
<td>5C</td>
<td>Assess allowing green infrastructure</td>
<td>Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.</td>
<td>Conservation Commission</td>
<td>Complete report no later than four (4) years of permit effective date</td>
<td>2020 (PY3)</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Category</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
<td>Beginning Year of BMP Implementation</td>
</tr>
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</tr>
<tr>
<td>5D</td>
<td>Retrofit Feasibility Assessment</td>
<td>Conduct detailed inventory of Town-owned properties and rank for retrofit potential</td>
<td>Conservation Commission</td>
<td>Complete report no later than four (4) years of permit effective date. Beginning in year 5 keep running list of at least five (5) retrofit sites</td>
<td>2020 (PY3)</td>
</tr>
</tbody>
</table>
Part III: Stormwater Management Program Summary

MCM 6: Municipal Good Housekeeping and Pollution Prevention

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Category</th>
<th>BMP Description</th>
<th>Responsible Department/Parties</th>
<th>Measurable Goal</th>
<th>Beginning Year of BMP Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A</td>
<td>Operation &amp; Maintenance Program</td>
<td>Inventory and create O&amp;M procedures for all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment</td>
<td>Highway</td>
<td>Complete two (2) years after permit effective date, implement in following years</td>
<td>2019 (PY2)</td>
</tr>
<tr>
<td>6B</td>
<td>Operation &amp; Maintenance Program</td>
<td>Establish and implement program for repair and rehabilitation of MS4 infrastructure</td>
<td>Highway</td>
<td>Complete two (2) years after permit effective date, implement in following years</td>
<td>2019 (PY2)</td>
</tr>
<tr>
<td>6C</td>
<td>Stormwater Pollution Prevention Plans (SWPPP)</td>
<td>Develop and implement SWPPP for the Highway Garage</td>
<td>Highway</td>
<td>Complete SWPPPs within two (2) years of permit effective date, implement in following years</td>
<td>2019 (PY2)</td>
</tr>
<tr>
<td>6D-1</td>
<td>Operation &amp; Maintenance Program</td>
<td>Implement procedures to optimize catch basin cleaning developed under BMP 6B</td>
<td>Highway</td>
<td>Track frequency and material quantity of catch basin cleaning in town. In first Annual Report and in SWMP, document plan for optimizing catch basin cleaning.</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td>BMP ID</td>
<td>BMP Category</td>
<td>BMP Description</td>
<td>Responsible Department/Parties</td>
<td>Measurable Goal</td>
<td>Beginning Year of BMP Implementation</td>
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<tr>
<td>6D-2</td>
<td>Operation &amp; Maintenance Program</td>
<td>Implement procedures for street and parking lot sweeping</td>
<td>Highway</td>
<td>Annually track number of miles cleaned or the volume or mass of material removed.</td>
<td>2018 (PY1)</td>
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<tr>
<td></td>
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<td>developed under BMP 6B</td>
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<tr>
<td>6D-3</td>
<td>Operation &amp; Maintenance Program</td>
<td>Implement procedures for use and storage of deicing</td>
<td>Highway</td>
<td>Implement program for winter road maintenance throughout permit term.</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td></td>
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<td>materials developed under BMP 6B</td>
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<tr>
<td>6D-4</td>
<td>Operation &amp; Maintenance Program</td>
<td>Implement procedures to inspect and maintain Town-</td>
<td>Highway</td>
<td>Develop an inventory of Town-owned BMPs within two (2) years of permit effective</td>
<td>2018 (PY1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>owned structural stormwater BMPs</td>
<td></td>
<td>date. Report on inspection and maintenance conducted annually.</td>
<td></td>
</tr>
</tbody>
</table>
Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, enter your own text to override drop-down menus.

<table>
<thead>
<tr>
<th>Applicable TMDL</th>
<th>Action Description</th>
<th>Responsible Department/Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assabet River (Phosphorus)</td>
<td>Adhere to requirements in part A.V of Appendix F</td>
<td>Stormwater Committee</td>
</tr>
<tr>
<td>Northern Blackstone Lakes (Phosphorus)</td>
<td>Adhere to requirements in part A.V of Appendix F</td>
<td>Stormwater Committee</td>
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</tbody>
</table>
Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. In addition, if you are subject to additional requirements due to a downstream nutrient impairment (see Part 2.2.2 of the permit) select the pollutant of concern and indicate applicable waterbody IDs or write "all waterbodies" if applicable. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, enter your own text to override drop-down menus.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Waterbody ID(s)</th>
<th>Action Description</th>
<th>Responsible Department/Parties</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
Use the space below to indicate the part(s) of 2.2.1 and 2.2.2 that you have identified as not applicable to your MS4 because you do not discharge to the impaired water body or a tributary to an impaired water body due to nitrogen or phosphorus. Provide all supporting documentation below or attach additional documents if necessary. Also, provide any additional information about your MS4 program below.

1. BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the proposed 2016 General Permit BMPs included in the Stormwater Management Plan. The Plan will describe how the BMPs under the 2003 permit fit into the new program, particularly where BMPs and/or measurable goals that are outdated or no longer appropriate have been replaced or updated.

2. The National Endangered Species Eligibility Determination screening process has been completed and the Town of Boylston meets Criterion C. The Town’s stormwater discharges and discharge related activities will have no affect on listed species or critical habitat. The Town will consult with U.S. Fish and Wildlife as needed during the permit term.

3. The National Historic Preservation Act Eligibility Determination screening process has been completed and the Town of Boylston meets Criterion A. The Town’s stormwater discharges do not have the potential to cause effects on historic properties. The Town will consult with the State Historic Preservation Officer as needed during the permit term.

4. The total number of MS4 outfalls within Boylston’s urbanized area has changed due to the 2010 U.S. Census. This will be further explained in the SWMP. The preliminary outfall locations in the new urbanized area are from DCR’s drainage mapping and will be field verified over the permit term. The outfalls and associated receiving waters in Part II are based on mapping as of September 2018 and are subject to change during implementation of the Stormwater Management Program as newly constructed outfalls are added to the map and inventory; locations are adjusted; or outfalls are removed if they are determined to be non-municipally owned/operated or reclassified as a BMP inlet, culvert, or other structure. Changes to the outfall inventory and mapping will be formalized in Annual Reports to EPA.

Detailed explanations of the above notes will be included in the Town’s Stormwater Management Plan.
Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part V: Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: James N. Wood
Title: Chairman

Signature: [Signature]
Date: 9/10/18

Note: When prompted during signing, save the document under a new file name.
VIA EMAIL

April 5, 2019

James N. Wood
Chairman

And;

April Steward
Town Administrator
Town Hall
221 Main Street
Boylston, MA. 01505
asteward@boylston-ma.gov

Re: National Pollutant Discharge Elimination System Permit ID #: MAR041171, Town of Boylston

Dear April Steward:

The 2016 NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 General Permit) is a jointly issued EPA-MassDEP permit. Your Notice of Intent (NOI) for coverage under this MS4 General Permit has been reviewed by EPA and appears to be complete. You are hereby granted authorization by EPA and MassDEP to discharge stormwater from your MS4 in accordance with the applicable terms and conditions of the MS4 General Permit, including all relevant and applicable Appendices. This authorization to discharge expires at midnight on **June 30, 2022**.

For those permittees that certified Endangered Species Act eligibility under Criterion C in their NOI, this authorization letter also serves as EPA’s concurrence with your determination that your discharges will have no effect on the listed species present in your action area, based on the information provided in your NOI.

As a reminder, your first annual report is due by **September 30, 2019** for the reporting period from May 1, 2018 through June 30, 2019.
Information about the permit and available resources can be found on our website: https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit. Should you have any questions regarding this permit please contact Newton Tedder at tedder.newton@epa.gov or (617) 918-1038.

Sincerely,

Thelma Murphy, Chief
Stormwater and Construction Permits Section
Office of Ecosystem Protection
United States Environmental Protection Agency, Region 1

and;

Lealdon Langley, Director
Wetlands and Wastewater Program
Bureau of Water Resources
Massachusetts Department of Environmental Protection
Appendix D
Endangered Species Act Eligibility Criteria Documentation
Endangered Species Act Eligibility Certification

To: Town of Boylston Stormwater Management Program Files
From: Tighe & Bond
Copy: Boylston Stormwater Committee
Date: February 27, 2019

Tighe & Bond has completed the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of U.S. EPA’s National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A), effective July 1, 2018, and determined that the Town of Boylston meets Criterion C, where informal consultation with U.S. Fish and Wildlife Service (USFWS) resulted in a finding that the stormwater discharges and discharge related activities will have “no affect” on listed species or critical habitat.

Tighe & Bond followed EPA’s screening process required by the 2016 Small MS4 General Permit as follows:

Tighe & Bond went to the USFWS Information for Planning and Consultation (IPaC) website and requested an Official Species List from the USFWS New England Ecological Services Field Office, included in Attachment B. The Official Species List includes the following species that may occur or could potentially be affected by activities in the Town:

- Northern Long-eared Bat.

The Official Species List documents that there are no critical habitats in Boylston.

Tighe & Bond then went to the USFWS New England Field Office website for Endangered Species Reviews/Consultations and selected the Massachusetts state list to review which Towns have federally-listed species. A copy of the list of Federally Listed Endangered and Threatened Species in Massachusetts is included in Attachment C. Based on review of this list, the Northern Long-eared Bat is listed statewide.

Tighe & Bond then reviewed Step 1 Part B of the USFWS endangered species consultation, and visited the Massachusetts Natural Heritage and Endangered Species Program (NHESP) species information and conservation website about the Northern Long-eared Bat. The NHESP website included a map showing the known locations of the Northern Long-eared Bat within Massachusetts. Attachment D includes a map showing there are no roost trees or hibernating locations within Boylston.

Based on the results of the NHESP website review, Tighe & Bond determined there is no potential habitat for any USFWS listed endangered species within the action area and therefore no further coordination is required with the USFWS. Attachment E provides the results of Tighe & Bond’s informal consultation on behalf of the Town of Boylston with USFWS,

1 http://ecos.fws.gov/ipac/
2 https://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm
including a "no species present" letter that states "no species are known to occur in the project area".

**Step 1 – Determine if you can meet USFWS Criterion A**

"USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC."

*No, the Town of Boylston’s IPaC action area potentially contains the Northern Long-eared Bat.*

**Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B**

"USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer “Yes” to all of the following questions:

1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?"

*No, the Town of Boylston’s action area does not contain any of the above species based on the Official Species List provided by the USFWS New England Ecological Services Field Office.*

**Step 3 – Determine if You Can Meet Eligibility USFWS Criteria C**

"You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer “Yes” to both of the following questions:

1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and does not contain any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?

*Yes, the Town of Boylston’s action area potentially contains the Northern Long-eared Bat, but none of the other subsequent species.*

2) Did the assessment of your discharge and discharge related activities indicate that there would be “no affect” on listed species or critical habitat and EOA provided concurrence with your determination?

*Yes, Tighe & Bond performed an informal consultation with USFWS and determined that the Town’s discharges and discharge related activities will have “no affect” on listed species or critical habitat (see discussion above).*

3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity "may
affect” or is “not likely to adversely affect” listed species or critical habitat under the jurisdiction of the USFWS.”

**Yes, during the course of the permit term the Town of Boylston agrees to conduct an endangered species screening for the proposed site and contact USFWS if they plan to install a structural BMP not identified in the NOI.**

Tighe & Bond’s review of all questions under Step 3 resulted in “Yes” and thereby we determined the Town of Boylston’s action area meets the endangered species’ eligibility requirements included in Criterion C.
Attachment A

Appendix C of EPA’s Small MS4 General Permit
APPENDIX C
ENDANGERED SPECIES GUIDANCE

A. Background

In order to meet its obligations under the Clean Water Act and the Endangered Species Act (ESA), and to promote the goals of those Acts, the Environmental Protection Agency (EPA) is seeking to ensure the activities regulated by this general permit do not adversely affect endangered and threatened species or critical habitat. Applicants applying for permit coverage must assess the impacts of their stormwater discharges and discharge-related activities on federally listed endangered and threatened species ("listed species") and designated critical habitat ("critical habitat") to ensure that those goals are met. Prior to obtaining general permit coverage, applicants must meet the ESA eligibility provisions of this permit by following the steps in this Appendix.

Applicants also have an independent ESA obligation to ensure that their activities do not result in any prohibited “take” of listed species. The term “Take” is used in the ESA to include harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. “Harass” is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Many of the measures required in this general permit and in these instructions to protect species may also assist in ensuring that the applicant’s activities do not result in a prohibited take of species in violation of section 9 of the ESA. If the applicant has plans or activities in an area where endangered and threatened species are located, they may wish to ensure that they are protected from potential take liability under ESA section 9 by obtaining an ESA section 10 permit or by requesting formal consultation under ESA section 7. Applicants that are unsure whether to pursue a section 10 permit or a section 7 consultation for takings protection should confer with the appropriate United States Fish and Wildlife Service (USFWS) office or the National Marine Fisheries Service (NMFS), (jointly the Services).

Currently, there are 20 species of concern for applicants applying for permit coverage, namely the Dwarf wedgemussel (Alasmidonta heterodon), Northeastern bulrush (Scirpus ancistrochaetus), Sandplain gerardia (Agalinis acuta), Piping Plover (Charadrius melodus), Roseate Tern (Sternus dougallii), Northern Red-bellied cooter (Pseudemys rubriventis), Bog Turtle (Glyptemys muhlenbergii), Small whorled Pogonia (Isotria medeoloides), Puritan tiger beetle (Cicindela puritana), American burying beetle (Nicrophorus americanus), Northeastern beach tiger beetle (Cicindela dorsalis), Northern Long-eared Bat (Myotis septentrionalis), Atlantic Sturgeon (Acipenser oxyrinchus), Shortnose Sturgeon (Acipenser brevirostrum), North Atlantic Right Whale (Eubalaena glacialis), Humpback Whale (Megaptera novaengliae), Fin Whale (Balaenoptera physalus), Kemp’s Ridley Sea Turtle (Lepidochelys kempii), Loggerhead Sea Turtle (Caretta caretta), Leatherback Sea Turtle (Dermochelys coriacea), and the Green Turtle (Chelonia

1 EPA strongly encourages applicants to begin this process at the earliest possible stage to ensure the notification requirements for general permit coverage are complete upon Notice of Intent (NOI) submission.
2 Section 9 of the ESA prohibits any person from “taking” a listed species (e.g. harassing or harming it) unless: (1) the taking is authorized through an “incidental take statement” as part of completion of formal consultation according to ESA section 7; (2) where an incidental take permit is obtained under ESA section 10 (which requires the development of a habitat conversion plan); or (3) where otherwise authorized or exempted under the ESA. This prohibition applies to all entities including private individuals, businesses, and governments.
The Atlantic Sturgeon, Shortnose Sturgeon, North Atlantic Right Whale, Humpback Whale, Fin Whale, Loggerhead Sea Turtle, Kemp’s Ridley Sea Turtle, Leatherback Sea Turtle and Green Turtle are listed under the jurisdiction of NMFS. The Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle are listed under the jurisdiction of the U.S. Fish and Wildlife Service.

Any applicant seeking coverage under this general permit, must consult with the Services where appropriate. When listed species are present, permit coverage is only available if EPA determines, or the applicant determines and EPA concurs, that the discharge or discharge related activities will have “no affect” on the listed species or critical habitat, or the applicant or EPA determines that the discharge or discharge related activities are “not likely to adversely affect” listed species or critical habitat and formal or informal consultation with the Services has been concluded and results in written concurrence by the Services that the discharge is “not likely to adversely affect” an endangered or threatened species or critical habitat.

EPA may designate the applicants as non-Federal representatives for the general permit for the purpose of carrying out formal or informal consultation with the Services (See 50 CFR §402.08 and §402.13). By terms of this permit, EPA has automatically designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the U.S. Fish and Wildlife Service. EPA has not designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the National Marine Fisheries Service. EPA has determined that discharges from MS4s are not likely to adversely affect listed species or critical habitat under the jurisdiction of the National Marine Fisheries Service. EPA has initiated informal consultation with the National Marine Fisheries Service on behalf of all permittees and no further action is required by permittees in order to fulfill ESA requirements of this permit related to species under the jurisdiction of NMFS.

B. The U.S. Fish and Wildlife Service ESA Eligibility Process

Before submitting a notice of intent (NOI) for coverage by this permit, applicants must determine whether they meet the ESA eligibility criteria by following the steps in Section B of this Appendix. Applicants that cannot meet the eligibility criteria in Section B must apply for an individual permit.

The USFWS ESA eligibility requirements of this permit relating to the Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle may be satisfied by documenting that one of the following criteria has been met:

USFWS Criterion A: No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities.

USFWS Criterion B: In the course of formal or informal consultation with the Fish and Wildlife Service, under section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and
discharge related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation).

USFWS Criterion C: Using the best scientific and commercial data available, the effect of the stormwater discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have “no affect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

1. The Steps to Determine if the USFWS ESA Eligibility Criteria Can Be Met

To determine eligibility, you must assess the potential effects of your known stormwater discharges and discharge related activities on listed species or critical habitat, PRIOR to completing and submitting a Notice of Intent (NOI). You must follow the steps outlined below and document the results of your eligibility determination.

Step 1 – Determine if you can meet USFWS Criterion A

USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC.

If you have met USFWS Criterion A skip to Step # 4.

If you have not met USFWS Criterion A, go to Step # 2.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer “Yes” to all of the following questions:

1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?

AND

2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities “may affect” or are “not likely to adversely affect” listed species or critical habitat?

AND

3) Did you contact the USFWS and did the formal or informal consultation result in either a “no jeopardy” opinion by the USFWS (for formal consultation) or concurrence by the
USFWS that your activities would be “not likely to adversely affect” listed species or critical habitat (for informal consultation)?

AND

4) Do you agree to implement all measures upon which the consultation was conditioned?

5) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will re-initiate informal or formal consultation with USFWS as necessary?

Use the guidance below Step 3 to understand effects determination and to answer these questions.

If you answered “Yes” to all four questions above, you have met eligibility USFWS Criteria B. Skip to Step 4.

If you answered “No” to any of the four questions above, go to Step 3.

Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C

USFWS Criterion C: You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer “Yes” to both of the following question:

1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and does not contain one any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle? OR

2) Did the assessment of your discharge and discharge related activities and indicate that there would be “no affect” on listed species or critical habitat and EPA provided concurrence with your determination?

3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will to conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity “may affect” or is “not likely to adversely affect” listed species or critical habitat under the jurisdiction of the USFWS.

Use the guidance below to understand effects determination and to answer these questions.

If you answered “Yes” to both the question above, you have met eligibility USFWS Criterion C. Go to Step 4.

If you answered “No” to either of the questions above, you are not eligible for coverage by this permit. You must submit an application for an individual permit for your stormwater discharges. (See 40 CFR 122.21).

USFWS Effects Determination Guidance:
If you are unable to certify eligibility under USFWS Criterion A, you must assess whether your stormwater discharges and discharge-related activities “may affect”, will have “no affect” or are “not likely to adversely affect” listed species or critical habitat. “Discharge-related activities” include: activities which cause, contribute to, or result in point source stormwater pollutant discharges; and measures to provide treatment for stormwater discharges including the siting, construction and operational procedures to control, reduce or prevent water pollution. Please be aware that no protection from incidental take liability is provided under this criterion.

The scope of effects to consider will vary with each system. If you are having difficulty in determining whether your system is likely to cause adverse effects to a listed species or critical habitat, you should contact the USFWS for assistance. In order to complete the determination of effects it may be necessary to follow the formal or informal consultation procedures in section 7 of the ESA.

Upon completion of your assessment, document the results of your effects determination. If your results indicate that stormwater discharges or discharge related activities will have “no affect” on threatened or endangered species or critical habitat and EPA concurs with your determination, you are eligible under USFWS Criterion C of this Appendix. Your determination may be based on measures that you implement to avoid, eliminate, or minimized adverse effects.

If the determination is “May affect” or “not likely to adversely affect” you must contact the USFWS to discuss your findings and measures you could implement to avoid, eliminate, or minimize adverse effects. If you and the USFWS reach agreement on measures to avoid adverse effects, you are eligible under USFWS Criterion B. Any terms and/or conditions to protect listed species and critical habitat that you relied on in order to complete an adverse effects determination, must be incorporated into your Storm Water Management Program (required by this permit) and implemented in order to maintain permit eligibility.

If endangered species issues cannot be resolved: If you cannot reach agreement with the USFWS on measures to avoid or eliminate adverse effects then you are not eligible for coverage under this permit. You must seek coverage under an individual permit.

Effects from stormwater discharges and discharge-related activities which could pose an adverse effect include:

- **Hydrological**: Stormwater discharges may cause siltation, sedimentation, or induce other changes in receiving waters such as temperature, salinity or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.

- **Habitat**: Excavation, site development, grading and other surface disturbance activities, including the installation or placement of treatment equipment may adversely affect listed species or their habitat. Stormwater from the small MS4 may inundate a listed species habitat.
Toxicity: In some cases, pollutants in the stormwater may have toxic effects on listed species.

Step 4 - Document Results of the Eligibility Determination

Once the USFWS ESA eligibility requirements have been met, you shall include documentation of USFWS ESA eligibility in the Storm Water Management Program required by the permit. Documentation for the various eligibility criteria are as follows:

- USFWS Criterion A: A copy of the IPaC generated preliminary determination letter indicating that no listed species or critical habitat is present within your action area. You shall also include a statement on how you determined that no listed species or critical habitat are in proximity to your stormwater system or discharges.
- USFWS Criterion B: A dated copy of the USFWS letter of concurrence on a finding of “no jeopardy” (for formal consultation) or “not likely to adversely affect” (for informal consultation) regarding the ESA section 7 consultation.
- USFWS Criterion C: A dated copy of the EPA concurrence with the operator’s determination that the stormwater discharges and discharge-related activities will have “no affect” on listed species or critical habitat.

C. Submittal of Notice of Intent

Once the ESA eligibility requirements of Part C of this Appendix have been met you may submit the Notice of Intent indicating which Criterion you have met to be eligible for permit coverage. Signature and submittal of the NOI constitutes your certification, under penalty of law, of eligibility for permit coverage under 40 CFR 122.21.

D. Duty to Implement Terms and Conditions upon which Eligibility was Determined

You must comply with any terms and conditions imposed under the ESA eligibility requirements to ensure that your stormwater discharges and discharge related activities do not pose adverse effects or jeopardy to listed species and/or critical habitat. You must incorporate such terms and conditions into your Storm Water Management Program as required by this permit. If the ESA eligibility requirements of this permit cannot be met, then you may not receive coverage under this permit and must apply for an individual permit.

E. Services Information

United States Fish and Wildlife Service Office

National websites for Endangered Species Information:
Endangered Species home page: http://endangered.fws.gov
ESA Section 7 Consultations: http://endangered.fws.gov/consultation/index.html
Information, Planning, and Conservation System (IPAC): http://ecos.fws.gov/ipac/

U.S. FWS – Region 5
Supervisor
Natural Heritage Network

The Natural Heritage Network comprises 75 independent heritage program organizations located in all 50 states, 10 Canadian provinces, and 12 countries and territories located throughout Latin America and the Caribbean. These programs gather, manage, and distribute detailed information about the biological diversity found within their jurisdictions. Developers, businesses, and public agencies use natural heritage information to comply with environmental laws and to improve the environmental sensitivity of economic development projects. Local governments use the information to aid in land use planning.

The Natural Heritage Network is overseen by NatureServe, the Network’s parent organization, and is accessible on-line at: http://www.natureserve.org/nhp/us_programs.htm, which provides websites and other access to a large number of specific biodiversity centers.
U.S. Fish and Wildlife IPaC system instructions

Use the following protocol to determine if any federally listed species or designated critical habitats under USFWS jurisdiction exist in your action area:

Enter your project specific information into the “Initial Project Scoping” feature of the Information, Planning, and Conservation (IPaC) system mapping tool, which can be found at the following location:

[http://ecos.fws.gov/ipac/](http://ecos.fws.gov/ipac/)

a. Indicate the action area\(^1\) for the MS4 by either:
   a. Drawing the boundary on the map or by uploading a shapefile.
   Select “Continue”

b. Click on the “SEE RESOURCE LIST” button and on the next screen you can export a trust resources list. This will provide a list of natural resources of concern, which will include an Endangered Species Act Species list. You may also request an official species list under “REGULATORY DOCUMENTS” Save copies and retain for your records.

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\(^1\) The action area is defined by regulation as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action (50 CFR §402.02). This analysis is not limited to the "footprint" of the action nor is it limited by the Federal agency's authority. Rather, it is a biological determination of the reach of the proposed action on listed species. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

The documentation used by a Federal action agency to initiate consultation should contain a description of the action area as defined in the Services' regulations and explained in the Services' consultation handbook. If the Services determine that the action area as defined by the action agency is incorrect, the Services should discuss their rationale with the agency or applicant, as appropriate. Reaching agreement on the description of the action area is desirable but ultimately the Services can only consult when an action area is defined properly under the regulations.

For storm water discharges or discharge related activities, the action area should encompass the following:

- The immediate vicinity of, or nearby, the point of discharge into receiving waters.
- The path or immediate area through which or over which storm water flows from the municipality to the point of discharge into the receiving water. This includes areas in the receiving water downstream from the point of discharge.
- Areas that may be impacted by construction or repair activities. This extends as far as effects related to noise (from construction equipment, power tools, etc.) and light (if work is performed at night) may reach.

The action area will vary with the size and location of the outfall pipe, the nature and quantity of the storm water discharges, and the type of receiving waters, among other factors.
Attachment B

Boylston IPaC Official Species List
In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-2946
Event Code: 05E1NE00-2019-E-01296
Project Name: Boylston NOI

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.
A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541
Project Summary

Consultation Code: 05E1NE00-2018-SLI-2946

Event Code: 05E1NE00-2019-E-01296

Project Name: Boylston NOI

Project Type: Regulation Promulgation

Project Description: This project is applying for coverage under the 2016 small municipal separate storm sewer systems (MS4) General Permit. The project consists of the entire area of the Town of Boylston's MS4 that falls within the urbanized area of the town. Based on EPA's 2016 MS4 General Permit, Boylston must assess the impacts of the stormwater discharges and discharge-related activities on endangered and threatened species and designated critical habitats that fall within the MS4.

Project Location:
Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.35225180398102N71.72120639300658W

Counties: Worcester, MA
Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
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</thead>
<tbody>
<tr>
<td>Northern Long-eared Bat <em>Myotis septentrionalis</em></td>
<td>Threatened</td>
</tr>
</tbody>
</table>

No critical habitat has been designated for this species. Species profile: [https://ecos.fws.gov/ecp/species/9045](https://ecos.fws.gov/ecp/species/9045)

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE’S JURISDICTION.
Attachment C

Federally Listed Endangered and Threatened Species in Massachusetts
## FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>SPECIES</th>
<th>FEDERAL STATUS</th>
<th>GENERAL LOCATION/HABITAT</th>
<th>TOWNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnstable</td>
<td>Piping Plover</td>
<td>Threatened</td>
<td>Coastal Beaches</td>
<td>All Towns</td>
</tr>
<tr>
<td></td>
<td>Roseate Tern</td>
<td>Endangered</td>
<td>Coastal beaches and the Atlantic Ocean</td>
<td>All Towns</td>
</tr>
<tr>
<td></td>
<td>Northeastern beach</td>
<td>Threatened</td>
<td>Coastal Beaches</td>
<td>Chatham</td>
</tr>
<tr>
<td></td>
<td>tiger beetle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sandplain gerardia</td>
<td>Endangered</td>
<td>Open areas with sandy soils.</td>
<td>Sandwich and Falmouth.</td>
</tr>
<tr>
<td></td>
<td>Northern Red-bellied</td>
<td>Endangered</td>
<td>Inland Ponds and Rivers</td>
<td>Bourne (north of the Cape Cod Canal)</td>
</tr>
<tr>
<td></td>
<td>Cooter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red Knot¹</td>
<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared</td>
<td>Threatened</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td></td>
<td>Bat</td>
<td>Final 4(d) Rule</td>
<td></td>
<td></td>
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<tr>
<td>Berkshire</td>
<td>Bog Turtle</td>
<td>Threatened</td>
<td>Wetlands</td>
<td>Egremont and Sheffield</td>
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<td>Northern Long-eared</td>
<td>Threatened</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td></td>
<td>Bat</td>
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<td></td>
<td></td>
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<tr>
<td>Bristol</td>
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<td>Coastal Beaches</td>
<td>Fairhaven, Dartmouth, Westport</td>
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<tr>
<td></td>
<td>Roseate Tern</td>
<td>Endangered</td>
<td>Coastal beaches and the Atlantic Ocean</td>
<td>Fairhaven, New Bedford, Dartmouth, Westport</td>
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<td>Inland Ponds and Rivers</td>
<td>Taunton</td>
</tr>
<tr>
<td></td>
<td>Cooter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red Knot¹</td>
<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared</td>
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<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
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<td>Bat</td>
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<td>Dukes</td>
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<td>All Towns</td>
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<td>Coastal Beaches</td>
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<td>tiger beetle</td>
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<td>Sandplain gerardia</td>
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<td>Open areas with sandy soils.</td>
<td>West Tisbury</td>
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<td>Red Knot¹</td>
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<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td></td>
<td>Bat</td>
<td>Final 4(d) Rule</td>
<td></td>
<td></td>
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<td>FEDERAL STATUS</td>
<td>GENERAL LOCATION/HABITAT</td>
<td>TOWNS</td>
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<td>Small whorled Pogonia</td>
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<td>Forests with somewhat poorly drained soils and/or a seasonally high water table</td>
<td>Gloucester, Essex and Manchester</td>
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<td>Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury</td>
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<td>Red Knot</td>
<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
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<td>Franklin</td>
<td>Northeastern bulrush</td>
<td>Endangered</td>
<td>Wetlands</td>
<td>Montague, Warwick</td>
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<td></td>
<td>Dwarf wedgemussel</td>
<td>Endangered</td>
<td>Mill River</td>
<td>Whately</td>
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<td>Hadley</td>
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<td></td>
<td>Puritan tiger beetle</td>
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<td>Sandy beaches along the Connecticut River</td>
<td>Northampton and Hadley</td>
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<td>Dwarf wedgemussel</td>
<td>Endangered</td>
<td>Rivers and Streams.</td>
<td>Hatfield, Amherst and Northampton</td>
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<td>Statewide</td>
</tr>
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<td>Groton</td>
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<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td>Nantucket</td>
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<td>Nantucket</td>
</tr>
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<td></td>
<td>Roseate Tern</td>
<td>Endangered</td>
<td>Coastal beaches and the Atlantic Ocean</td>
<td>Nantucket</td>
</tr>
<tr>
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<td>American burying beetle</td>
<td>Endangered</td>
<td>Upland grassy meadows</td>
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<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared Bat</td>
<td>Threatened, Final 4(d) Rule</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
</tbody>
</table>

Updated 02/05/2016
### Federally Listed Endangered and Threatened Species in Massachusetts

<table>
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<tr>
<th>COUNTY</th>
<th>SPECIES</th>
<th>FEDERAL STATUS</th>
<th>GENERAL LOCATION/HABITAT</th>
<th>TOWNS</th>
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</thead>
<tbody>
<tr>
<td>Plymouth</td>
<td>Piping Plover</td>
<td>Threatened</td>
<td>Coastal Beaches</td>
<td>Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett</td>
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<tr>
<td></td>
<td>Northern Redbellied Cooter</td>
<td>Endangered</td>
<td>Inland Ponds and Rivers</td>
<td>Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke</td>
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<tr>
<td></td>
<td>Roseate Tern</td>
<td>Endangered</td>
<td>Coastal beaches and the Atlantic Ocean</td>
<td>Plymouth, Marion, Wareham, and Mattapoisett.</td>
</tr>
<tr>
<td></td>
<td>Red Knot(^1)</td>
<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared Bat</td>
<td>Threatened</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td></td>
<td>Piping Plover</td>
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<td>Coastal Beaches</td>
<td>Revere, Winthrop</td>
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<td>Red Knot(^1)</td>
<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared Bat</td>
<td>Threatened</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td>Suffolk</td>
<td>Piping Plover</td>
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<td>Red Knot(^1)</td>
<td>Threatened</td>
<td>Coastal Beaches and Rocky Shores, sand and mud flats</td>
<td>Coastal Towns</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared Bat</td>
<td>Threatened</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
<tr>
<td>Worcester</td>
<td>Small whorled Pogonia</td>
<td>Threatened</td>
<td>Forests with somewhat poorly drained soils and/or a seasonally high water table</td>
<td>Leominster</td>
</tr>
<tr>
<td></td>
<td>Northern Long-eared Bat</td>
<td>Threatened</td>
<td>Winter- mines and caves, Summer – wide variety of forested habitats</td>
<td>Statewide</td>
</tr>
</tbody>
</table>

\(^1\) Migratory only, scattered along the coast in small numbers

- Eastern cougar and gray wolf are considered extirpated in Massachusetts.
- Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
- Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Updated 02/05/2016
Attachment D
Northern Long-eared Bat Location Map
Northern Long-eared Bat Locations

Statewide NLEB Symbology

- Hibernaculum

- MA Northern Long-eared Bat Winter Hibernacula (with ¼ mile buffer)

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri
Attachment E

U.S. Fish and Wildlife Review Letter
January 31, 2019

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service’s New England Field Office website:


Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

[Signature]

Thomas R. Chapman
Supervisor
New England Field Office
Appendix E

Historic Properties Eligibility Criteria Documentation
National Historic Preservation Act Eligibility Certification

TO: Town of Boylston Stormwater Management Program Files
FROM: Tighe & Bond
COPY: Boylston Stormwater Committee
DATE: February 27, 2019

Tighe & Bond has completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of U.S. EPA’s National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A), effective July 1, 2018, and determined that the Town of Boylston meets Criterion A, where the discharges do not have the potential to cause effects on historic properties.

Tighe & Bond followed the screening process included in Appendix D and has determined Boylston is an existing facility authorized by the previous permit and therefore meets Criterion A (see Question 1 in Appendix D of the Permit) and is not, as part of developing and submitting the Notice of Intent for permit coverage, undertaking any activity involving subsurface land disturbance less than an acre.

Based on this screening process, the Town of Boylston’s stormwater discharges, allowable non-stormwater discharges, and stormwater discharge-related activities will not have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP) and no further action is necessary at this time.

Attachment B includes a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures downloaded from the Massachusetts Cultural Resource Information System (MACRIS) that is current as of August 31, 2018. If the Town undertakes construction on or around a property that is listed or eligible for listing, the Town will coordinate with the Tribal Historic Preservation Officer (THPO) or State Historic Preservation Officer (SHPO) (i.e. the Massachusetts Historical Commission) by submitting a Project Notification Form and associated documentation for the project. As applicable for each project, the Town will implement measures to avoid or minimize adverse impacts on places listed, or eligible for listing, on the NRHP, including any conditions imposed by the SHPO or THPO. If the Town fails to document and implement such measures, those discharges are ineligible for coverage under EPA’s Small MS4 General Permit.
Attachment A

Appendix D of EPA’s Small MS4 General Permit
Appendix D
National Historic Preservation Act Guidance

Background
Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of Federal “undertakings” on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term federal “undertaking” is defined in the NHPA regulations to include a project, activity, or program of a federal agency including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license or approval. See 36 CFR 800.16(y). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. See 36 CFR 800.16(1).

EPA’s issuance of a National Pollutant Discharge Elimination System (NPDES) General Permit is a federal undertaking within the meaning of the NHPA regulations and EPA has determined that the activities to be carried out under the general permit require review and consideration, in order to be in compliance with the federal historic preservation laws and regulations. Although individual submissions for authorization under the general permit do not constitute separate federal undertakings, the screening processes provides an appropriate site-specific means of addressing historic property issues in connection with EPA’s issuance of the permit. To address any issues relating to historic properties in connection with the issuance of this permit, EPA has included a screening process for applicants to identify whether properties listed or eligible for listing on the National Register of Historic Places are within the path of their discharges or discharge-related activities (including treatment systems or any BMPs relating to the discharge or treatment process) covered by this permit.

Applicants seeking authorization under this general permit must comply with applicable, State, Tribal, and local laws concerning the protection of historic properties and places and may be required to coordinate with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) and others regarding effects of their discharges on historic properties.

Activities with No Potential to Have an Effect on Historic Properties

A determination that a federal undertaking has no potential to have an effect on historic properties fulfills an agency’s obligations under NHPA. EPA has reason to believe that the vast majority of activities authorized under this general permit will have no potential effects on historic properties. This permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility. EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA’s issuance of this general permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties.

In addition, the overwhelming majority of sources covered under this permit will be facilities that are seeking renewal of previous permit authorization. These existing dischargers should have already addressed NHPA issues in the previous general permit as they were required to certify that they were either not affecting historic properties or they had obtained written agreement from
the applicable SHPO or THPO regarding methods of mitigating potential impacts. To the extent this permit authorizes renewal of prior coverage without relevant changes in operations the discharge has no potential to have an effect on historic properties.

**Activities with Potential to Have an Effect on Historic Properties**

EPA believes this permit may have some potential to have an effect on historic properties the applicant undertakes the construction and/or installation of control measures that involve subsurface disturbance that involves less than 1 acre of land. (Ground disturbances of 1 acre or more require coverage under the Construction General Permit.) Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. Therefore, if the applicant is establishing new or altering existing control measures to manage their discharge that will involve subsurface ground disturbance of less than 1 acre, they will need to ensure (1) that historic properties will not be impacted by their activities or (2) that they are in compliance with a written agreement with the SHPO, THPO, or other tribal representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

**Examples of Control Measures Which Involve Subsurface Disturbance**

The type of control measures that are presumptively expected to cause subsurface ground disturbance include:

- Dikes
- Berms
- Catch basins, drainage inlets
- Ponds, bioretention areas
- Ditches, trenches, channels, swales
- Culverts, pipes
- Land manipulation; contouring, sloping, and grading
- Perimeter Drains
- Installation of manufactured treatment devices

EPA cautions applicants that this list is non-inclusive. Other control measures that involve earth disturbing activities that are not on this list must also be examined for the potential to affect historic properties.

**Certification**

Upon completion of this screening process the applicant shall certify eligibility for this permit using one of the following criteria on their Notice of Intent for permit coverage:

**Criterion A:** The discharges do not have the potential to cause effects on historic properties.
**Criterion B:** A historic survey was conducted. The survey concluded that no historic properties are present. Discharges do not have the potential to cause effects on historic properties.

**Criterion C:** The discharges and discharge related activities have the potential to have an effect on historic properties, and the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Authorization under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above. Small MS4s that cannot meet any of the eligibility criteria in above must apply for an individual permit.

**Screening Process**

Applicants or their consultant need to answer the questions and follow the appropriate procedures below to assist EPA in compliance with 36 CFR 800.

**Question 1:** Is the facility an existing facility authorized by the previous permit or a new facility and the applicant is not undertaking any activity involving subsurface land disturbance less than an acre?

- **YES** - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

  **The applicant should certify eligibility for this permit using Criterion A on their Notice of Intent for permit coverage.** The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has “no potential to cause effects” (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

- **NO** - Go to Question 2.

**Question 2:** Is the property listed in the National Register of Historic Places or have prior surveys or disturbances revealed the existence of a historic property or artifacts?

- **NO** - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

  **The applicant should certify eligibility for this permit using Criterion B on their Notice of Intent for permit coverage.** The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has “no potential to cause effects” (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

- **YES** - The applicant or their consultant should prepare a complete information submittal to the SHPO. The submittal consists of:
  - Completed Project Notification Form- forms available at http://www.sec.state.ma.us/mhc/mhcform/formidx.htm;
● USGS map section with the actual project boundaries clearly indicated; and
● Scaled project plans showing existing and proposed conditions.

(1) Please note that the SHPO does not accept email for review. Please mail a paper copy of your submittal (Certified Mail, Return Receipt Requested) or deliver a paper copy of your submittal (and obtain a receipt) to:

State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Blvd.
Boston MA 02125.

(2) Provide a copy of your submittal and the proof of MHC delivery showing the date MHC received your submittal to:

NPDES Permit Branch Chief
US EPA Region 1 (OEP06-1)
5 Post Office Square, Suite 100
Boston MA 02109-3912.

The SHPO will comment within thirty (30) days of receipt of complete submittals, and may ask for additional information. Consultation, as appropriate, will include EPA, the SHPO and other consulting parties (which includes the applicant). The steps in the federal regulations (36 CFR 800.2 to 800.6, etc.) will proceed as necessary to conclude the Section 106 review for the undertaking. **The applicant should certify eligibility for this permit using Criterion C on their Notice of Intent for permit coverage.**
Attachment B

MACRIS list of federal- and state-listed historic areas, buildings, burial grounds, objects, and structures
MACRIS Search Results
Search Criteria: Town(s): Boylston; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

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<th>Inv. No.</th>
<th>Property Name</th>
<th>Street</th>
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<th>Year</th>
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<td>Boylston Historic District</td>
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<td>BOY.B</td>
<td>Windsor Park and City Gardens</td>
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<td>Boylston</td>
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<td>Bay Path Road</td>
<td>Bay Path Rd</td>
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<td>BOY.55</td>
<td>Johnson, Claus Oscar House</td>
<td>11 Belair St</td>
<td>Boylston</td>
<td>c 1919</td>
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<tr>
<td>BOY.56</td>
<td>Lund, Caren House</td>
<td>15 Belair St</td>
<td>Boylston</td>
<td>1917</td>
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<tr>
<td>BOY.3</td>
<td>Boylston Town Hall and Museum</td>
<td>Central St</td>
<td>Boylston</td>
<td>1830</td>
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<tr>
<td>BOY.1</td>
<td>Bond Corner Store</td>
<td>1 Central St</td>
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<td>1929</td>
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<tr>
<td>BOY.24</td>
<td>Collier, Ezra - Crossman, Abishai Jr. House</td>
<td>11 Central St</td>
<td>Boylston</td>
<td>c 1819</td>
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<td>BOY.5</td>
<td>Winchester, H. House</td>
<td>15 Central St</td>
<td>Boylston</td>
<td>r 1805</td>
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<tr>
<td>BOY.25</td>
<td>White, Henry House</td>
<td>20 Central St</td>
<td>Boylston</td>
<td>c 1869</td>
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<td>BOY.26</td>
<td>Chinnery, Dr. Thaddeus - Andrews, Dr. John House</td>
<td>29-31 Central St</td>
<td>Boylston</td>
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<tr>
<td>BOY.33</td>
<td>Abbot, Capt. Jason - Boyden, George House</td>
<td>92 Central St</td>
<td>Boylston</td>
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<td>BOY.42</td>
<td>Whitney, Lt. Timothy - Babcock, Peter House</td>
<td>119 Central St</td>
<td>Boylston</td>
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<tr>
<td>BOY.43</td>
<td>Longley, Charles I. House</td>
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<td>Boylston</td>
<td>r 1865</td>
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<td>BOY.44</td>
<td>Hastings, James House</td>
<td>239 Central St</td>
<td>Boylston</td>
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<td>Hastings, Daniel House</td>
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<td>BOY.6</td>
<td>Boylston First Congregational Church</td>
<td>Church St</td>
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<td>BOY.29</td>
<td>First Congregational Church Parsonage</td>
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<td>BOY.14</td>
<td>Abbott Tavern</td>
<td>4 Church St</td>
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<td>BOY.16</td>
<td>Cotton, Rev. Ward House</td>
<td>Cottonwood Pl</td>
<td>Boylston</td>
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<td>BOY.38</td>
<td>Howe, Phineas - Howe, Capt. John House</td>
<td>30 Cross St</td>
<td>Boylston</td>
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<td>BOY.17</td>
<td>Kendall, Caleb House</td>
<td>18 Diamond Hill Ave</td>
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<tr>
<td>BOY.41</td>
<td>Keyes, Dea. Cyprian House - Barlin Acres</td>
<td>284 East Temple St</td>
<td>Boylston</td>
<td>c 1790</td>
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<tr>
<td>BOY.52</td>
<td>Flagg, Montraville - Hastings, Lt. John House</td>
<td>Elmwood Pl</td>
<td>Boylston</td>
<td>c 1800</td>
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<td>BOY.45</td>
<td>Brigham, Joel and John House</td>
<td>439 Green St</td>
<td>Boylston</td>
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<tr>
<td>BOY.35</td>
<td>Brigham, Dr. Samuel - Ball, Dr. Stephen House</td>
<td>Linden St</td>
<td>Boylston</td>
<td>r 1775</td>
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<td>Property Name</td>
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<td>BOY.904</td>
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<tr>
<td>BOY.37</td>
<td>Howe, Parker House and Blacksmith Shop</td>
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<td>BOY.36</td>
<td>Bennett, Samuel House</td>
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<td>BOY.30</td>
<td>Houghton, Solomon House</td>
<td>330 Linden St</td>
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<tr>
<td>BOY.903</td>
<td>Rocky Pond Ledges</td>
<td>330 Linden St</td>
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<td>BOY.34</td>
<td>Ball, William - Longley, Ira House</td>
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<td>Sawyer Memorial Library</td>
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<td>Morningdale School</td>
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<td>BOY.800</td>
<td>Boylston Old Burial Ground</td>
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<td>BOY.900</td>
<td>Boylston Powder House Marker</td>
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<td>BOY.50</td>
<td>Saint Mary of the Hills Roman Catholic Church</td>
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<td>BOY.64</td>
<td>Eldridge, Clifford T. House</td>
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<td>BOY.58</td>
<td>Bond, Dea. Jonathon Jr. House</td>
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<td>BOY.59</td>
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<td>181 Main St</td>
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<td>BOY.47</td>
<td>Gough, John Bartholomew House</td>
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<td>Brigham, Stephen House</td>
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<td>BOY.10</td>
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<td>599 Main St</td>
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<td>BOY.22</td>
<td>Bush, Jotham - Kendall, Caleb House</td>
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<td>Stratton, Phineas House</td>
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<td>BOY.32</td>
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<td>BOY.62</td>
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<td>BOY.63</td>
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<td>40 Poe Ave</td>
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<td>BOY.46</td>
<td>Fassett, Capt. Jonathan House</td>
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<td>1 Scar Hill Rd</td>
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<td>BOY.12</td>
<td>Boylston Telephone Exchange</td>
<td>5 Scar Hill Rd</td>
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<td>BOY.2</td>
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Friday, August 31, 2018

Page 2 of 3
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<td>BOY.18</td>
<td>Boylston Second Noon House</td>
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<td>111 School St</td>
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<td>BOY.54</td>
<td>Partridge, Simon House</td>
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<td>BOY.57</td>
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<td>32 Stockton St</td>
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<td>BOY.39</td>
<td>Maynard, Elisha House</td>
<td>30 Tower Hill Rd</td>
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<td>BOY.901</td>
<td>Wachusett Reservoir</td>
<td>Wachusett Reservoir</td>
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Appendix F

Plan Amendment Log
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<th>Amendment Prepared by (Name/Signature)</th>
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Appendix G

Reference Documents
### Pollutant Impacts on Water Quality

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<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Sediment</strong></td>
<td>Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.</td>
</tr>
<tr>
<td><strong>Nutrients</strong></td>
<td>Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. For example, nutrients have led to a loss of water clarity in Lake Tahoe. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.</td>
</tr>
<tr>
<td><strong>Bacteria and Viruses</strong></td>
<td>Bacteria and viruses are common contaminants of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.</td>
</tr>
<tr>
<td><strong>Oil and Grease</strong></td>
<td>Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal.</td>
</tr>
<tr>
<td><strong>Metals</strong></td>
<td>Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies.</td>
</tr>
<tr>
<td><strong>Organics</strong></td>
<td>Organics may be found in stormwater at low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.</td>
</tr>
<tr>
<td><strong>Pesticides</strong></td>
<td>Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for biomagnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds.</td>
</tr>
<tr>
<td><strong>Gross Pollutants</strong></td>
<td>Gross Pollutants (trash, debris and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic “eye sore” in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes and estuaries sometimes causing fish kills.</td>
</tr>
<tr>
<td><strong>Vector Production</strong></td>
<td>Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMP’s for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002).</td>
</tr>
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### Potential pollutants likely associated with specific municipal facilities

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<thead>
<tr>
<th>Municipality Facility Activity</th>
<th>Sediment</th>
<th>Nutrients</th>
<th>Trash</th>
<th>Metals</th>
<th>Bacteria</th>
<th>Oil &amp; Grease</th>
<th>Organics</th>
<th>Pesticides</th>
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Source: California Stormwater BMP Handbook (http://www.cabmphandbooks.com/) (slightly modified)

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Source: California Stormwater BMP Handbook (http://www.cabmphandbooks.com/)
**IDDE Implementation Timeline**

**Effective Date**

1 yr  | 2 yr  | 3 yr  | 4 yr  | 5 yr  | 6 yr  | 7 yr  | 8 yr  | 9 yr  | 10 yr

**Annual Report**

Update map w/ outfalls, receiving waters, certain other structures

Update mapping information, including catchment delineations, outfalls, and infrastructure locations (pipes, manholes, catch basins) based on information collected during catchment investigations

Initial Outfall Ranking due

Dry Weather outfall screening and sampling

Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations

Written catchment investigation procedure due

Written IDDE program, SSO inventory due

Ordinance must be in place for new permittees

Phase I map due

Phase II map due

100% problems and catchments with sewage evidence investigated

100% catchments investigated

Perform catchment investigations for Problem Outfalls and outfalls/interconnections where dry weather testing indicates sewer input

Perform catchment investigations for remaining outfalls

Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations
Step 1: Plan Your Clean-Up Event

A. Land and / or Shore? Determine the Location(s): Determine where, in proximity to the waterbody, your group wishes to concentrate its efforts on during a clean-up event. To find heavily-littered areas, and / or areas that are prone to illegal dumping, walk along the shore, in advance, to identify location(s) for the clean-up event. Identify accessible paths along the shoreline and / or on public trails that are easy for people to walk. The location(s) may be largely determined by public (or lake / homeowner association) access points such as a public beach, boat-launch, or park. If the location is large, consider identifying smaller locations within the larger location which can be managed by individual group leaders and groups. Determining the location(s) will provide you with an idea of the footwear that may be needed for the task based upon the terrain. If the clean-up event will be located at a beach or a dry area, sandals or sneakers may be adequate. If it will be located in a wetland or mucky area, knee-boots may be appropriate. If it will be located in water, hip-boots may be most appropriate. Determining the location(s) will also provide you with a sense of how many volunteers your group is seeking for the clean-up event.

The UPRP typically focuses clean-up efforts in the parks adjacent to the ponds by skirting around the ponds themselves. This involves differing terrain, and thus footwear. There have been occasions, however, where one or more volunteers have also used a small fishing boat to retrieve trash from the water that is too deep to obtain via hip-waders.

B. Obtain Landowner Permission: Whether the location(s) of your clean-up event is / are municipally-owned or privately-owned, determine who owns the property in advance in order to obtain permission. If you do not know who the property owner is, visit your municipality's on-line assessor's website to review the tax map(s) and property card(s) associated with the area. It is typically easy to obtain permission to organize a clean-up on municipally-owned / public land. If the location(s) are on privately-owned land, talk to the land owner(s) and explain why you are organizing a clean-up in that area, along with the benefits of doing so. Obtain permission from them in writing, if you can, by considering they sign a form. Verbal permission may be adequate, however.

The UPRP organizes clean-up events on land owned by Public Works and Parks, Recreation, and Cemetery Departments. We have not had to seek private landowner permission. We simply notify the Manchester Public Works Department and Parks, Recreation, and Cemetery Department of the dates of the clean-up events.

C. Determine the Task(s) at Hand: Determine what you will request of your volunteers. Will it be the removal of trash only? If so, will it be the removal of large items only or all items including the minutia? Will it be the removal of yard waste only? Graffiti removal or other vandalism? All of the above? Determining the task(s) at hand will provide you with an idea of the supplies (and hours) you will need to perform the task(s).

The UPRP typically removes trash only. We typically do not pick up the minutia (cigarette butts, bottle caps, etc.) due to the large volume of trash we collect and the limited amount of time and volunteers we have at each clean-up event.
D. Determine the Check-In Location: Based upon the chosen location(s) of the clean-up event, consider and determine the most appropriate location for volunteers to initially gather to check in and obtain supplies, as well as to reconvene at the end of the clean-up event. This may be a kiosk, boat-launch, or specific location on a beach or in a park. Try to stay away from busy roads or areas that are difficult to access.

The UPRP typically requests that volunteers meet in one central / well-known location such as a kiosk in a parking lot or boat-launch. We have kept the initial meeting location at each clean-up event consistent over the years.

E. Determine the Most Appropriate Age(s) of Your Volunteers: Based upon the task(s) at hand, determine the most appropriate age(s) of your volunteers. Are you seeking adults only? Children? Both? Do you have tasks that all can partake in, or are the tasks age-specific?

The UPRP generally seeks volunteers of all ages for clean-up events and encourage everyone, despite their age or ability, to participate in a manner of how they most feel comfortable.

F. Determine the Desired Number of Volunteers: Based upon the number and location(s) that are chosen for the clean-up event, determine the desired number of volunteers to partake in the event.

The UPRP typically splits the area adjacent to the ponds into several areas, or groups of volunteers.

G. Create Map(s) of the Location(s) OR Plan on Designating a “Group Leader” for Each Location: If the location(s) is / are large enough to break into more than one group during the clean-up event, consider making aerial photographic “maps” (or using topographic maps) of each group’s area, indicating on the map the original meeting location, and the group’s start and end point.

The UPRP has created aerial maps to use in the past. However, what we consider to be more helpful is having a “group leader” (returning volunteer or someone familiar with the area) lead a small group of other volunteers in each designated area.

Step 2: Schedule Your Clean-Up Event

A. Choose a Date: Choose a date for the clean-up event at a time of year that makes the most sense to your group. Keep in mind that while lakes and ponds have year-round residents, the majority of residents are likely seasonal and may not arrive for the season, or on or around Memorial Day weekend. Thus, a late-spring or late-fall cleanup may not be the most appropriate time as it may not garner the most volunteers. An early or mid-summer cleanup may be the most appropriate. Consider, perhaps, scheduling the event in conjunction with an annual lake association meeting or holiday barbeque. Also consider scheduling the date of the clean-up event at least a month in advance to allow time to prepare (gather supplies and recruit volunteers). Lastly, consider a rain date.

The UPRP typically schedules annual pond and park cleanups on Saturday mornings during the last two weeks in April and the first one or two weeks in May. This is because a) this time of year is typically after the snow has melted and b) this time of year is typically before “leaf-in” (and in the case of some of these areas, this is important, as the areas are overtaken with thick stands of invasive species). We do not offer rain dates.
B. Choose a Time: Determine the amount of time it may take to clean up the area(s) of your choosing. Will it take one hour? Two hours? More? This is also a factor of the number of volunteers that attend (typically the more volunteers that attend the least amount of time the clean-up will take). If you believe the area(s) may take more than two hours, it may be best to schedule a two-part clean-up event. Also consider the time of day most appropriate to your group, especially if it is scheduled in conjunction with (or before or after) another event such as an annual meeting or holiday barbeque.

The UPRP has realized that 1 ½ - 2 hours is a sufficient amount of time to allot to clean-up events. We also realize that volunteers typically do not have the time or patience to commit to any more time in one day than that. We have also typically scheduled the clean-up events from 9:00AM to 11:00AM, with a meeting time of no later than 8:50AM. Early-morning clean-up events afford volunteers to have the remainder of the day for other things.

Step 3: Determine and Obtain Necessary Supplies

A. Determine the Necessary Supplies: Determining the task(s) at hand will determine your necessary supplies. If your clean-up event is strictly a trash removal cleanup, you may only need to obtain latex gloves and trash bags. If your clean-up event also includes yard-waste removal, you may need to obtain paper yard-waste bags, rakes and / or other tools.

Since the UPRP clean-up events are strictly focused on trash-removal, the only supplies we must procure are latex gloves (medium sized) and trash bags. We also have a few hand-held trash-grabbers since some volunteers find them helpful in reaching difficult areas and / or to prevent excessive bending.

B. Obtain the Necessary Supplies: Determine how you will obtain the necessary supplies. Does your group have a budget? Will your group be purchasing your supplies? Will your group fundraise to purchase supplies? Will your group borrow supplies, from perhaps the town or city?

The UPRP typically obtains supplies from the Manchester Parks, Recreation, and Cemetery Department. These supplies typically only include latex gloves and trash bags, but have included, in the past, rakes, other tools and yard waste bags. We also typically have a large container of hand-sanitizer available.

C. Obtain a First-Aid Kit: Consider obtaining one or more First Aid kits (for one or more groups of volunteers) in case it is needed. It is better to be proactively safe!

The UPRP has one First-Aid kit for use.

D. Consider Providing Water and Snacks: If your group has the financial means, consider providing water and snacks to your volunteers for afterwards. If your group does not have the financial means, consider soliciting donations from local establishments or having your group bake some treats, and bring a large cooler of ice water (or iced-tea) and some paper (or reusable plastic) cups.

The UPRP does not regularly provide water and snacks to volunteers since we do not have a budget to do so. On occasion, we have been able to obtain donations for yogurt snacks from Stonyfield Farm. On occasion we have also brought or made a baked good.
**Step 4: Determine Your Waste Disposal Options**

**A. Determine Your Waste Disposal Options:** At the end of your clean-up event, determine how and where you will dispose of the trash that was collected. Is there a dumpster on site that your group has permission to use? Are there already trash and / or recycling carts on site that your group has permission to use? If not, consider contacting your municipality’s Highway Department, Parks & Recreation Department, or Road Agent, at least a month in advance, who may be able to coordinate trash and / or recycling pickup from your municipality’s vendor (i.e. Waste Management, Pinard, etc.). Determine when the trash and / or recycling will be picked up and what the requirements for pickup are (especially with items such as vehicular tires and batteries, etc.). In addition, consider recruiting volunteers with pick-up trucks, especially if your group is cleaning multiple areas, and trash must be stockpiled in one area at the end of the event. Similarly, if you cannot obtain trash pick-up services, volunteers with pick-up trucks, and a municipal sticker (or permission) may be able to haul the trash and / or recycling to your local landfill or transfer station for free.

The UPRP typically sends notification of the clean-up schedule to the Manchester Public Works Director as soon as the dates are calendared. The Public Works Director, or staff, has coordinated with Manchester’s solid waste collection staff to collect the trash on the Monday following the cleanup event (which have been held on Saturdays). While there have been a few times the Public Works Department has made one or more 95-gallon recycling carts available for the clean-up events, they are generally not available, and therefore, recycling is not typically sorted from other debris. All (tied / secure) bags of trash have been neatly placed in the same locations over the years; typically underneath or adjacent to the informational kiosks. Trash collected that does not fit into bags is also neatly placed adjacent to the bagged trash. We also recruit volunteers with pick-up trucks so that trash from different areas of the cleanup can be taken to one designated location at the end of the event. In addition, one of our volunteers separates steel and other scrap metal and takes it to a scrap metal recycling facility.

**Step 5: Advertise Your Clean-Up Event / Recruit Volunteers**

**A. Determine Any Project Partners:** In addition to volunteers who live around the waterbody, and any other residents of the town, determining any existing local groups or clubs that may be able to assist with the clean-up event is always helpful. Is there a local middle school, high school, or even college (if nearby) environmental club? A local chapter of the Student Conservation Association (SCA)? Any other organization, volunteer group, or club? A lot of these groups and / or clubs seek new community service projects and can help you garner additional / new volunteers.

The UPRP has partnered with the Student Conservation Association, local high school ecology clubs, local boy-scout troops, trout-fishing clubs, geo-cashing groups, and others in the past. This has helped garner additional / new volunteers.

**B. Determine the Best Way(s) to Advertise Your Clean-Up Event:** Determine the target audience of volunteers and consider the best way(s) to advertise your clean-up event. Is it by e-mail? Website? Post-card? Posting of a flyer on a community bulletin board and / or kiosk? An annual lake association newsletter? An advertisement in a local newspaper? TV? Radio? Facebook / social media? All of the above? Remember, printed materials and postage cost money, as typically do newspaper and radio advertisements. If your group has available funds for this, that is one thing. If not, instead of...
simply placing a paid advertisement in a newspaper, try reaching out to a local news reporter to see if s/he will write a story about your cleanup (or write and submit an op-ed piece). This is usually good, free, advertisement. Also determine the most appropriate time to advertise for the clean-up event. Will you be advertising only once, or multiple times before the event?

The UPRP has typically advertised clean-up events in the following manners: 1) The UPRP webpage, 2) The City of Manchester website “Calendar of Events”, 3) the UPRP facebook page, and 4) E-newsletter / e-mail. Local newspapers are also always gracious to cover the event(s) in a story beforehand. The UPRP typically sends posts the clean-up events on the website, and sends out an e-mail approximately three weeks in advance of the cleanup. The UPRP will then send weekly e-mails.

C. Create an E-Mail Distribution List: If you don’t already have an e-mail distribution list, consider creating one. This may include names and e-mail addresses of lake association members, conservation commissioners, selectmen, municipal employees / department heads and others you know who may be interested. You can add to this with each clean-up event your group coordinates. If you have access to Constant Contact, Mailer, Mail Chimp, or other similar e-mail platform, this may be easier and more appropriate to use. If not, e-mail is a good starting place.

The UPRP has an e-mail distribution list which consists of approximately 200 individuals consisting of city aldermen, city department heads, conservation commissioners, media contacts, active school groups and other environmental organizations, and former volunteers. With every e-mail sent, an option is sent to opt-out of receiving e-mails by having a name and e-mail address removed from the list. This list is updated at least twice a year.

D. Before You Mail, Post, (or Hit the Send Button): Before you mail or post your flyer, or hit the send button to your e-mail distribution list, be sure to include the Who, What, Where, When, Why, and How to ensure all information is readily available. Why are you seeking volunteers? Who are you seeking as volunteers? What tasks are you seeking of volunteers? Where (general location and specific meeting location) are you seeking volunteers? When (date / time) are you seeking volunteers? Is there a rain date? How will the tasks be conducted? What should the volunteers wear or bring? What will be provided? Are you requesting an RSVP? For more information, who should they contact? Prepare your volunteers by letting them know what time to arrive, what to wear (clothes that can get dirty or wet, long pants, work gloves, boots or sturdy shoes, etc.), what to bring (sunscreen, insect repellant, water) and what to do in case of bad weather (rain date or cancellation information / phone number).

For Example: Seeking volunteers of all ages to assist in an annual trash clean-up at Black Brook and Blodget Park in Manchester on Saturday, April 23, 2016 from 9:00AM – 11:00AM. Volunteers will partner to clean the park and skirt the edges of the brook and wetland complex to remove accumulated trash. Please dress appropriately for weather as no rain date is scheduled. Latex gloves and trash bags will be provided, but please wear knee-boots, or hip-waders if you have them. No RSVP necessary. For more information, please visit www.manchesternh.gov/urbanponds or contact Jen Drociak at email@gmail.com or (603) ### - ####. We look forward to seeing you there!

Step 6: Conduct Your Clean-Up Event

A. Arrive Early: Consider arriving 15 minutes to one hour earlier than your volunteers so that you can set up at your check in location. Consider setting up the following: “Clean-Up Attendance Sheet”, water and / or refreshments, first aid and safety, trash bags and clean-up supplies, organizational information (flyers, fact sheets, reports, etc.). Consider also walking around the location(s) to identify any new trash and / or safety concerns that may have accrued / arisen since your last visit.
The UPRP coordinator(s) typically meet on-site approximately 15-30 minutes in advance of volunteers to set up trash bags, latex gloves, and the “Clean-Up Attendance Sheet”. We also survey the site to identify any new trash or safety hazards to relay to volunteers.

B. Welcome Your Volunteers and Ask Them to Sign-In:
Welcome each volunteer upon arrival and ask that they sign a “Clean-Up Attendance Sheet” so that your group may account for number of volunteers and volunteer hours contributed to the clean-up event. Consider leaving the “Clean-Up Attendance Sheet” at the check-in location for those volunteers who may have to leave (and sign out) earlier than the full allotted time.

The UPRP “Clean-Up Attendance Sheet” typically notes the location and date of the event, and has room to tally the number of volunteers, number of volunteer hours, number of bags of trash and other debris. It also has fields for volunteers to print their name, address, and e-mail, and note the time they checked in, and the time they checked out.

C. Ask Volunteers to Sign a Liability Waiver and Photo-Release Form: Trash found in a waterbody will likely be dirty, rusty, slimy, and sharp. In addition, your group may find broken glass, hypodermic needles and hazardous wastes. Heavy items should not be lifted alone. Caution is needed when handling all trash in order to avoid cuts and other injuries. Consider asking volunteers to sign a liability waiver and photo-release form. These can be two documents, or combined into one. The form should explain any dangers associated with the clean-up event and reminds volunteers to act responsibly for their own safety. The form helps protect you and your organization from potential liability if a volunteer is injured. In addition, with their permission, it allows you to use photographs taken that day. Examples of these forms can be found on-line.

D. Introduce Yourself and Provide Opening Remarks: Introduce yourself, thank special guests, sponsors / project partners (who have helped by providing goods or services), and volunteers. If the media is there, they may want to interview you or for you to provide a brief quote. Consider preparing remarks ahead-of-time, and allowing any special guests to also provide opening remarks to the group.

The UPRP coordinators typically introduce themselves, and thank any special guests (city aldermen, city employees, etc.), sponsors (municipal and local), and volunteers themselves.

E. Provide Volunteers with a Brief Background / History of the Area(s): To acquaint new volunteers to your group / program and to the area, consider providing a brief background / history about the waterbody / area, distinguishing features, and its importance to the community. Consider showing volunteers a map of the waterbody and / or watershed. Also consider providing information such as points of interest, recent (or upcoming) restoration projects in the area, and / or information relative to water quality / monitoring, exotic species, other volunteer opportunities, etc.

Many of the UPRP volunteers are returning volunteers. However, with any new volunteers, we typically offer basic information on the program itself, as well as the watershed, inlet / outlet, history fun-facts, and any recent / upcoming restoration projects. We have fact sheets on each of our ponds on our website, which we can also direct them to for more information.
F. Provide Necessary Supplies to Your Volunteers: Ensure your volunteers have ample supplies for the duration of the clean-up event. If they did not bring their own work gloves, request that they take two pairs of Latex gloves (in case one pair rips), and more than one trash bag, depending on the designated location(s). If your group is also removing yard waste, provide your volunteers with rakes and lawn-waste bags. Request that they return any unused pair of gloves, trash bags, and any supplies to you at the end of the clean-up event. Consider also leaving supplies out in a designated location along with the “Clean-Up Attendance Sheet” for volunteers who may show up late.

Many of the UPRP bring their own work gloves. We then issue two pairs of Latex gloves to each volunteer as well as multiple trash bags, depending on the specific area they will be cleaning up. We request that all unused supplies be returned at the end of the clean-up.

G. Provide Your Volunteers with Instructions for the Clean-Up Event: Provide your volunteers with instructions for the clean-up event such as what they will be retrieving (large trash only, all trash, etc.) what not to pick up (hypodermic needles, cigarette butts, etc.), if they are to separate trash from recycling or not (in which case they may carry two bags at once – different colors may be helpful - one for trash and one for recycling), what is considered recyclable if they are separating recycling from trash (this differs in each community and some vendors may not accept unclean / dirty recyclables from clean-up events), etc. Also provide your volunteers with safety tips and a general schedule of the clean-up event including the location to reconvene at the end and where to place trash. Ensure everyone knows there to focus their efforts and then to stop.

The UPRP typically only picks up large items, and does not typically separate trash from recycling, due to limited means. However, we have done so in the past and have provided volunteers with two trash bags – one for recycling, and one for trash.

H. Make It Fun! Play One or More Games While You're at It! Why not make things fun while you’re out there picking up trash? Consider playing one or more games (especially if some of the volunteers are children) such as a scavenger hunt, who can find the most interesting or unusual piece of trash, who can find the largest piece of trash, who collects the most trash, etc. Consider offering a prize and / or certificate to the winner(s) of one or more of the games you play.

The UPRP has, for many years, asked volunteers to find the “Most Interesting or Unusual Piece of Trash” at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for “judging” by the coordinator(s) of the clean-up event. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken. We have found some really interesting and unusual pieces of trash over the years, and have kept a list!

I. Relinquish Groups of Volunteers / Group Leader(s) to Designated Area(s): If you are separating volunteers into more than one group for your clean-up event, relinquish the groups to their designated location(s). If you don’t have a group leader for each group, relinquish them with their maps in hand. If you have a group leader be sure to introduce the volunteers in each group to their group leader before relinquishing them to their designated location(s). Remember to consider that not all locations may need the same number of volunteers.

The UPRP typically asks one or more returning volunteers if they would agree to be group leaders. Not all locations require the same amount of volunteers, however. This is decided based upon the area of the designated location(s), as well as the amount of trash to be removed in the designated location(s). For example, one small area along the shoreline may only require two volunteers, but a larger area in another location with a lot of trash may require 4-6 or more volunteers.
J. Reconvene at Initial Check-In Area at Designated Time: After the allotted period of time has elapsed for the clean-up event, reconvene at your initial check-in area. Account for all volunteers that did not sign out early.

   The UPRP always meets at our initial check-in area. We then account for each group leader and group of volunteers (who did not sign out early) to ensure all have safely returned.

K. Count Full Bags of Trash (or Weigh All Trash): Count all full bags of trash that were collected and returned. If one or more bags are returned and are not considered full, consider consolidating them to make full bags of trash. That way, your measurements of “full bags” collected for this, and any other clean-up events, are consistently measured / counted. If your group has access to a scale, you consider weighing your bags of trash, and any other trash, to account for pounds of trash collected. Another option is to ask if the vendor who is charged with collecting the trash after the event can inform your group of the weight of the collection when the truck enters the scale at the weigh-station before drop-off at the refuse facility.

   Since trash collected at UPRP clean-up events has not been weighed by a scale, and trash has been weighed by vendor truck only occasionally, to be consistent, we always count full bags at the site, and consolidate bags of trash that are returned not full in order to make full bags.

L. Account for and Count Other Items: Account for and count the quantity of other items of trash collected that cannot fit into bags.

   The UPRP always accounts for and counts any trash that is collected that cannot be bagged. This typically includes vehicular tires, shopping carts, wood debris, construction debris, or any other items that have been illegally dumped.

M. Share the Data with Volunteers: Once you have tallied the final numbers of bags of trash and other items collected during the clean-up event, announce them to your volunteers so they know just how much trash and other debris they removed from the area, know how important their contribution of time and efforts were, and have immediate results of their work!

N. Tally Final Numbers on Clean-Up Attendance Sheet: Once you have tallied everything collected, write these numbers on your “Clean-Up Attendance Sheet”.

O. Take Photographs: To commemorate the success of your clean-up event, take a photo of the trash collected, and of the group of volunteers who helped collect it!

   The UPRP always photographs the trash collected (in and out of bags), as well as takes a group photograph in front of or aside the trash collected.
P. Award a Prize, or Two, or Three: If you played one or more games during the clean-up event, consider awarding a certificate or prize to your winner(s) and photographing them with their winning piece of trash!

The UPRP has, for many years, asked volunteers to find the “Most Interesting or Unusual Piece of Trash” at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for “judging” by the coordinator(s) of the clean-up. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken.

Q. Thank the Volunteers: Before parting ways, be sure to thank your volunteers for their assistance! Encourage them to volunteer again. Be sure to individually thank any special guests (aldermen / selectmen, city employees, media, etc.).

At the end of each clean-up event, the UPRP notes upcoming clean-up events in order to encourage volunteers to return for the next event.

R. Consider Having a Picnic / Cookout / or Lunch: If you have the financial means, consider having a picnic / cookout / lunch afterwards to celebrate your accomplishment. Or, consider soliciting local vendors for food donations in exchange for sponsor / partnership recognition at your clean-up event. If you’re not able to make or supply lunch, consider encouraging volunteers to bring a brown-bag lunch for afterwards.
**Step 7: Follow Up After the Clean-Up Event**

**A. Update Your Electronic Records:** Now is the time to transpose the information collected on the “Clean-Up Attendance Sheet” into an electronic record-retention system if you have access to one. Perhaps you have access to a database. If not, consider using a Microsoft Excel workbook / spreadsheet system to track measurements from your clean-up events. Now is also the time to update your existing e-mail distribution list with the names and e-mail addresses of those volunteers who participated in your clean-up event.

The UPRP has consistently used Microsoft Excel to track clean-up measurements. In the first worksheet of the workbook, we account for the number of our clean-up event, the location, date, hours spent at the event, numbers of bags of trash collected at the event, number of volunteers at the event, number of volunteer hours at the event, total value of volunteer time for the event, and other items retrieved at the event. For each year tracked, we created a “total” line with auto-calculations to account for the total of each year. To account for the value of volunteer time, we use figures taken from www.independentsector.org. In the second worksheet of the workbook, we account for pond cleanup attendees, where, for each clean-up event, we list the location, date, names (in alphabetical order), address, and hours at event. Similarly, for each year tracked, we created a “total” line. In the third worksheet of the workbook, we have created graphs based upon each year’s total metrics. We then transpose these graphs to a Microsoft Word document, then an Adobe PDF document, and post on our website, and at the kiosks.

**B. Follow Up With an E-mail or Thank-You Note:** It is always nice to follow up with your new (and / or returning) volunteers by sending them a formal personalized thank-you via e-mail or US Postal Service. Besides, who doesn’t like receiving a letter in the letter box, especially in this electronic day-in-age?

The UPRP, has, on occasion, sent personalized thank-you cards in the mail. Typically, however, we send a group thank-you via e-mail and attach photographs taken at the event(s), as well as re-cap tallies from the clean-up event(s).

**C. Consider Writing an Article for Your Newsletter or the Newspaper:** Consider writing an article for your newsletter, if you have one, or a local newsletter or newspaper, summarizing the event with photographs and tallies from the event. Volunteers who helped out at your clean-up event will feel proud of their accomplishment and the results. This is a good way to garner publicity about your group and its event as well as garner additional volunteers in the future.

The UPRP has often written newspaper articles and / or shared summary information about the clean-up events (at the end of the season) listing sponsors / project partners and volunteers, and including photographs of volunteers at the event, via an electronic newsletter.
From 2000 - 2005 **The Manchester Urban Ponds Restoration Program** (UPRP) was part of the Supplemental Environmental Projects Plan (SEPP) which was part of an agreement between the City of Manchester, NH Department of Environmental Services, and the US Environmental Protection Agency to address combined sewers in the City. Seven (7) waterbodies in Manchester have been evaluated and monitored for restoration potential. Specific restoration projects to meet the program's goals have also been identified, funded, and completed through this project. Since 2000, the Manchester Urban Ponds Restoration Program has organized 101 clean-up events. Over the past 15 years, 800 volunteers have spent 2,298.50 hours collecting 2,093 bags of trash! This does not include the items illegally "dumped" such as shopping carts (91), tires (388), car batteries, other car parts, construction debris, and other items. In addition, the value of volunteer time spent at these clean-ups has amounted to over $54,000 over the past 15 years! The Manchester Urban Ponds Restoration Program was awarded an EPA “Environmental Merit Award” in 2011. More information on the Manchester Urban Ponds Restoration Program can be found by visiting [www.manchesternh.gov/urbanponds](http://www.manchesternh.gov/urbanponds).

**Jen Drociak** lives in Manchester, NH and holds a Bachelor of Science degree in Environmental Conservation from the University of New Hampshire. She is employed with the New Hampshire Department of Environmental Services where she has worked as a program specialist for the Pollution Prevention Program, a restoration specialist for the NH Coastal Program where she established a monitoring program for pre- and post-restoration projects in NH’s salt marshes, and as the Volunteer River Assessment Program Coordinator where she provided technical assistance to approximately 200 volunteers who collected water quality samples for surface water quality assessments on NH’s rivers and streams. Jen has also worked for the Wastewater Engineering Bureau as a grants management specialist and is currently working for the Land Resources Management Bureau as a compliance specialist. Since 2000, Jen has also been involved with the Manchester Urban Ponds Restoration Program, and has served as acting coordinator since 2006 where she largely coordinates annual clean-up events and water quality monitoring.
Appendix H

Annual Reports and Reporting Requirements
Annual Reports Reporting Requirements

The Town will submit annual reports each year of the Small MS4 permit term, 90 days from the close of the reporting period (i.e., September 28). The reporting period will be a one-year period commencing on the permit effective date, and subsequent anniversaries thereof, except that the first annual report under the 2016 General Permit shall also cover the period from May 1, 2018 to the permit effective date, July 1, 2018. Under the 2016 General Permit, annual reports will consist of a simple update provided to EPA and more robust documentation included in this SWMP.

Per Section 4.4.b of the 2016 General Permit, the annual reports shall contain the following information:

i. A self-assessment review of compliance with the permit terms and conditions.

ii. An assessment of the appropriateness of the selected BMPs.

iii. The status of any plans or activities required by part 2.1 and/or part 2.2, including:
   - Identification of all discharges determined to be causing or contributing to an exceedance of water quality standards and description of response including all items required by part 2.1.1;
   - For discharges subject to TMDL related requirements, identification of specific BMPs used to address the pollutant identified as the cause of impairment and assessment of the BMPs effectiveness at controlling the pollutant (part 2.2.1. and Appendix F) and any deliverables required by Appendix F;
   - For discharges to water quality limited waters a description of each BMP required by Appendix H and any deliverables required by Appendix H.

iv. An assessment of the progress towards achieving the measurable goals and objectives of each control measure in part 2.3 including:
   - Evaluation of the public education program including a description of the targeted messages for each audience; method of distribution and dates of distribution; methods used to evaluate the program; and any changes to the program.
   - Description of the activities used to promote public participation including documentation of compliance with state public notice regulations.
   - Description of the activities related to implementation of the IDDE program including: status of the map; status and results of the illicit discharge potential ranking and assessment; identification of problem catchments; status of all protocols described in part 2.3.4.(program responsibilities and systematic procedure); number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located; number of illicit discharges removed; gallons of flow removed; identification of tracking indicators and measures of progress based on those indicators; and employee training.
   - Evaluation of the construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.
   - Evaluation of stormwater management for new development and redevelopment including status of ordinance development (2.3.6.a.ii.), review and status of the street design assessment (2.3.6.b.), assessments to barriers to green infrastructure (2.3.6.c), and retrofit inventory status (2.3.6.d.)
• Status of the O&M Programs required by part 2.3.7.a.
• Status of SWPPP required by part 2.3.7.b. including inspection results.
• Any additional reporting requirements in part 3.0.

v. All outfall screening and monitoring data collected by or on behalf of the permittee during the reporting period and cumulative for the permit term, including but not limited to all data collected pursuant to part 2.3.4. The permittee shall also provide a description of any additional monitoring data received by the permittee during the reporting period.

vi. Description of activities for the next reporting cycle.

vii. Description of any changes in identified BMPs or measurable goals.

viii. Description of activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.
Appendix H
Record Keeping – Checklist of Key Documentation

MCM 1: Public Education and Outreach
☐ All educational materials provided to target audiences;
☐ Distribution lists for target audiences;
☐ Dates of distribution of educational materials;
☐ Annually track changes in social media subscription and use; and
☐ Note educational goals and opinion on effectiveness based on results tracked; modify education and outreach program if necessary.

MCM 2: Public Involvement and Participation
☐ Public meeting dates and topics when stormwater management-related topic is discussed; and
☐ Dates of public participation activities and quantification of participation (such as number of volunteers/participants, number of bags collected, etc.).

MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program
☐ Log of phone calls and complaints received regarding suspected illicit connections and other storm drain issues, including dates and actions taken;
☐ SSO inventory (updated annually), including the number of illicit discharges/connections identified and/or removed and the volume of sewage removed;
☐ Drainage system map;
☐ Data collected during dry and wet weather outfall/interconnection investigations, including the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening results, and results of all analyses (summarize on an annual basis and for the entire permit term);
☐ Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure;
☐ Presence or absence of System Vulnerability Factors for each catchment;
☐ Data collected during key junction manhole investigations;
☐ Inspection and maintenance records; and
☐ Frequency and type of employee training, including employees trained, training topic, date/time, and materials presented.

MCM 4: Construction Site Stormwater Runoff Control
☐ Number of site reviews, inspections, and enforcement actions; and
☐ Modifications to Boylston’s bylaws, regulations, policies, and/or procedures as necessary.
Appendix H
Record Keeping – Checklist of Key Documentation

MCM 5: Post-Construction Stormwater Management

- Measures the Town has taken to ensure adequate long-term operation and maintenance of stormwater BMPs and to require submission of as-built plans;
- Modifications to Boylston’s bylaws, regulations, policies, and/or procedures as necessary;
- Status of BMP 5B and 5C assessments, including any planned or completed changes to local regulations and guidelines (BMP 5B) and findings and progress towards making the practices allowable (BMP 5C); and
- Retrofit inventory, including all sites that have been modified or retrofitted. Sites should include town-owned sites identified in the inventory as well as non-municipal property modified or retrofitted to mitigate impervious area.

MCM 6: Good Housekeeping and Pollution Prevention

- Inventory of municipal facilities and equipment;
- Plan for optimizing catch basin cleaning and metrics about the number of catch basins, quantity cleaned and inspected, and total volume of material removed from all catch basins;
- Miles of streets cleaned and the volume of material removed; and
- All records associated with SWPPP quarterly site inspections, maintenance activities, and training.

Impaired Waters and TMDLs

Phosphorus TMDL – Assabet River Watershed

- All educational materials provided to target audiences;
- Distribution lists for target audiences;
- Dates of distribution of educational materials;
- Modifications to Boylston’s bylaws, regulations, policies, and/or procedures as necessary;
- Plan for proper management of grass cuttings and leaf litter; and
- Miles of streets cleaned and the volume of material removed – increase sweeping to twice per year in Assabet River watershed.

Lake and Pond Phosphorus TMDL – Newton Pond

- Progress report in each annual report on planning and implementation of LPCP
- Beginning five (5) years after the permit effective date, there are additional reporting requirements in Appendix F, Section II Part 2 of the MS4 permit. Reference this section for further requirements.
Appendix H
Record Keeping – Checklist of Key Documentation

Additional Record Keeping

☐ Monitoring results;
☐ Copies of reports;
☐ Records of outfall/interconnection screening;
☐ Follow-up and elimination of illicit discharges;
☐ Maintenance records; and
☐ Inspection records.
MS4 Record Keeping Update
Boylston, MA
October 2020

The Town’s Stormwater Management Program has been appended through the Permit term, including development of the following standalone reports. These reports are available from the Boylston Conservation Commission.

The **IDDE Program** has been updated to include:

- Illicit Discharge Detection and Elimination Program Update, June 2019 (draft), March 2020 (final)
  - Includes Boylston MS4 Catchment Investigation Procedures, December 2019
- Phase I MS4 System Map, September 2020
- Outfall and Interconnection Inventory and Initial Ranking: Information submitted to EPA and MassDEP in the 2019 Annual Report indicated that there was one Problem outfall in Boylston (Outfall 07). However, upon further review of previous IDDE investigations completed by Woodard & Curran, Tighe & Bond determined that there was an instance of illegal dumping from a pipe adjacent to Outfall 07, and not from the actual outfall. The source of the adjacent pipe was investigated and found to be from a private residence. The adjacent pipe was plugged at the time of investigation and there have been no instances of illegal dumping to date from that source. Therefore, Outfall 07 should be ranked as a High Priority, not Problem. There are no known Problem outfalls at this time. The Outfall and Interconnection Inventory and Initial Ranking included in the Town’s IDDE Plan incorporates this change.

The **Construction and Post-Construction Programs** have been updated to include:

- Section 6.0 (I) of the Boylston Conservation Commission Rules and Regulations for Stormwater requires the submission of as-built drawings and Section 13.0 requires ongoing maintenance and inspections for all structural and non-structural stormwater BMPs. The Rules and Regulations are available online here: [https://www.boylston-ma.gov/stormwater-committee/pages/stormwater-control-bylaws-forms](https://www.boylston-ma.gov/stormwater-committee/pages/stormwater-control-bylaws-forms)

The **Municipal Good Housekeeping Program** has been updated to include:

- Good Housekeeping and Pollution Prevention Program for Municipal Operations and Maintenance, June 2020 (draft), October 2020 (final)

The **Lake Phosphorus Control Plan** has been updated to include:

- Small Municipal Separate Storm Sewer System (MS4) General Permit “Lake Phosphorus Control Plan (LPCP)“ for Newton Pond: Legal Analysis, September 2020
The SWMP is updated to include the following information to address Section 3.0 of the General Permit, Additional Requirements for Discharges to Surface Drinking Water Supplies and Their Tributaries:

- EPA’s SWMP template does not include provisions to address this requirement, but the requirement is applicable to the Town of Boylston. The Wachusett Reservoir, a surface drinking water supply that is part of the Massachusetts Water Resources Authority water system, is partially located in Boylston. While the Reservoir is not located within Boylston’s MS4 and the Town has no direct discharges to the Wachusett Reservoir or other Class A waters, the Town’s MS4 does discharge to tributaries of the Reservoir, including Malagasco Brook and Boylston Brook. Boylston meets the requirements of Section 3.0 by considering these tributaries a priority in the implementation of the SWMP. The Town partners with the Massachusetts Department of Conservation and Recreation to provide public education about water quality and stormwater management, as well as reduce direct discharges to the Reservoir where possible. There are additional provisions in Zoning Bylaws, such as the Rural Residential District and Wellhead Protection District, which also protection water resource areas in Town. Boylston should also provide pretreatment and spill control measures to stormwater discharges to the Reservoir’s tributaries to the extent feasible. Boylston will consider additional measures for development and redevelopment projects located within the watershed during the update to the Rules and Regulations for Stormwater planned for Permit Year 3.

Reporting includes:

- Year 1 Annual Report and attachments:
  - Permit Year 1 Outfall and Interconnection Inventory and Initial Ranking
- Year 2 Annual Report and attachments:
  - Summary of Boylston’s TMDLs and Impaired Waters
Permit Year 1

(May 1, 2018 – June 30, 2019)
Year 1 Annual Report
Massachusetts Small MS4 General Permit
Reporting Period: May 1, 2018-June 30, 2019

**Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form**

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed.

**Part I: Contact Information**

Name of Municipality or Organization: Town of Boylston

EPA NPDES Permit Number: MAR041095

**Primary MS4 Program Manager Contact Information**

Name: April Steward
Title: Town Administrator
Street Address Line 1: Town Hall
Street Address Line 2: 221 Main Street
City: Boylston
State: MA
Zip Code: 01505
Email: asteward@boylston-ma.gov
Phone Number: (508) 869-0143
Fax Number: (508) 869-6210

**Stormwater Management Program (SWMP) Information**

SWMP Location (web address): https://www.boylston-ma.gov/conservation-commission

Date SWMP was Last Updated: September 2019

If the SWMP is not available on the web please provide the physical address and an explanation of why it is not posted on the web:
Part II: Self Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4.

<table>
<thead>
<tr>
<th>Impairment(s)</th>
<th>TMDL(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Bacteria/Pathogens</td>
<td>□ Assabet River Phosphorus</td>
</tr>
<tr>
<td>□ Chloride</td>
<td>□ Bacteria and Pathogen</td>
</tr>
<tr>
<td>□ Nitrogen</td>
<td>□ Cape Cod Nitrogen</td>
</tr>
<tr>
<td>□ Phosphorus</td>
<td>□ Charles River Watershed Phosphorus</td>
</tr>
<tr>
<td>□ Solids/ Oil/ Grease (Hydrocarbons)/ Metals</td>
<td>□ Lake and Pond Phosphorus</td>
</tr>
</tbody>
</table>

Out of State: □ Bacteria/Pathogens □ Metals □ Nitrogen □ Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. By checking each box you are certifying that you have completed that permit requirement fully. If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.

Year 1 Requirements

☒ Develop and begin public education and outreach program

☒ Identify and develop inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years

☒ The SSO inventory is attached to the email submission

☒ The SSO inventory can be found at the following website:

N/A - The Town of Boylston does not have a sanitary sewer system, therefore completing an SSO inventory is not applicable.

☒ Develop written IDDE plan including a procedure for screening and sampling outfalls

☒ IDDE ordinance complete

☒ Identify each outfall and interconnection discharging from MS4, classify into the relevant category, and priority rank each catchment for investigation

☒ The priority ranking of outfalls/interconnections is attached to the email submission

☒ The priority ranking of outfalls/interconnections can be found at the following website:

☒ Construction/ Erosion and Sediment Control (ESC) ordinance complete

☒ Develop written procedures for site inspections and enforcement of sediment and erosion control measures

☒ Develop written procedures for site plan review

☒ Keep a log of catch basins cleaned or inspected

☒ Complete inspection of all stormwater treatment structures

Annual Requirements
Town of Boylston

- Annual opportunity for public participation in review and implementation of SWMP
- Comply with State Public Notice requirements
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- All curbed roadways have been swept a minimum of one time per year

**Phosphorus** (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

**Annual Requirements**

*Public Education and Outreach*
- Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorus-free fertilizers
- Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

*Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

**Good Housekeeping and Pollution Prevention for Permittee Owned Operations**

- Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

**Lake and Pond Phosphorus TMDL**

- Begin Phase 1 Lake Phosphorus Control Plan (LPCP)

Use the box below to input additional details on any unchecked boxes above or any additional information you would like to share as part of your self assessment:

SSO Inventory: The Town of Boylston is served by septic systems and has no public sanitary sewer system. Completing an SSO inventory is not applicable to Boylston, and was not included in the Town's NOI as a BMP.

Phosphorus Good Housekeeping: All streets are swept annually in the spring. The Town will estimate the budget needed to increase the street sweeping frequency in the Assabet River watershed in future Permit Years to meet TMDL requirements.

LPCP: The first requirement of Phase I, legal analysis, has not been started because it is due in Permit Year 2.

SWMP Certification: The Town's SWMP was drafted in Permit Year 1, but was finalized after the Permit Year ended. Therefore, the SWMP was certified during Permit Year 2.

IDDE Plan Update: Significant work was completed on the IDDE Plan under the 2003 General Permit, including developing illicit discharge procedures and conducting field inspections. A draft update to the IDDE Plan was completed in Permit Year 1 and will be finalized in Permit Year 2.
Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

Yes ☐  No ☒

If yes, describe below, including any relevant impairments or TMDLs:
Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed during the reporting period: 4

Below, report on the educational messages completed during the first year. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.

**BMP: 1A: Education and Outreach to Residents (Multi-media Methods)**

Message Description and Distribution Method:

The Town displayed brochures at Town Hall on the following stormwater-related topics: dog waste and surface water quality, Massachusetts Watershed Protection Act, phosphorus-free fertilizer use, stormwater basins and importance of routine maintenance, proper car washing procedures, swimming pools and surface water quality, and household stormwater pollution prevention.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):

All visitors to Town Hall are reached by this messaging.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒  Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

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**BMP: 1A: Education and Outreach to Residents (Multi-media Methods)**

Message Description and Distribution Method:

Multiple Town Departments and volunteer groups have active Facebook pages, including the Highway Department and Keep Boylston Beautiful volunteer group, where leaf litter collection, yard waste collection, and cleanup events are advertised.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):

Almost 700 people subscribe to the Highway Department and Keep Boylston Beautiful Facebook pages, and
BMP: 1B: Education and Outreach to Businesses (Multi-media Methods)

Message Description and Distribution Method:
DCR distributed an educational letter to the local golf course within Boylston's MS4 on stormwater pollution prevention. The letter included topics such as proper fertilizer use, pet and animal waste management, and vehicle washing and hazardous waste storage.

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):
One educational letter was distributed to a local golf course in the MS4 permitted area.

Message Date(s): June 11, 2019

BMP: 1C: Education and Outreach to Developers (Multi-media Methods)

Message Description and Distribution Method:
Information letters about wetlands permitting, water quality, and stormwater pollution prevention were developed in Permit Year 1, and the Town began distributing them with stormwater permits. The Town will continue to distribute the letters with permits in Permit Year 2.

Targeted Audience: Developers (construction)

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):
5 copies of these letters were distributed.
MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) during the reporting period:

The Stormwater Management Plan (SWMP) was discussed at a public Board of Selectmen meeting on September 10, 2018 where public comments and feedback were solicited. The Town complied with Massachusetts Public Notice requirements and posted the Board of Selectmen meeting on September 6, 2018.

Was this opportunity different than what was proposed in your NOI? Yes ☐ No ☒

Describe any other public involvement or participation opportunities conducted during the reporting period:

The Town of Boylston has created a Keep Boylston Beautiful volunteer organization to raise awareness on the issue of town littering and pollution. Keep Boylston Beautiful conducted two annual Town-wide clean ups in Permit Year 1 with the aid of local volunteers. A Fall clean up was completed on October 13 and 14, 2018 during which 125 bags of litter were collected, and a Spring clean up was conducted on April 27 and 28, 2019 during which 211 bags of litter and recyclables were collected.

Boylston is a member community of the Wachusett Watershed Regional Recycling Center. The Recycling Center holds special collection days, where residents can properly dispose of their household hazardous waste for a small fee.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Below, report on the number of SSOs identified in the MS4 system and removed during this reporting period.

Number of SSOs identified: N/A
Number of SSOs removed: N/A

Below, report on the total number of SSOs identified in the MS4 system and removed to date. At a minimum, report SSOs identified since 2013.

Total number of SSOs identified: N/A
Total number of SSOs removed: N/A

**MS4 System Mapping**

Describe the status of your MS4 map, including any progress made during the reporting period (phase I map due in year 2):

The Town of Boylston has completed mapping of all known outfalls and has mapped additional stormwater structures required under the Phase II mapping requirements. The Town will continue to improve the map as modifications are made and the IDDE Program is implemented.

**Screening of Outfalls/Interconnections**

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

- ☐ The outfall screening data is attached to the email submission
- ☐ The outfall screening data can be found at the following website:

  N/A

Below, report on the number of outfalls/interconnections screened during this reporting period.

Number of outfalls screened: 0

Below, report on the percent of total outfalls/interconnections screened to date.

Percent of total outfalls screened: 0

**Catchment Investigations**

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- ☐ The catchment investigation data is attached to the email submission
- ☐ The catchment investigation data can be found at the following website:

  N/A

Below, report on the number of catchment investigations completed during this reporting period.

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated to date.
Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:
No catchment investigations were completed in Permit Year 1 as investigations of problem catchments are not required to begin until Permit Year 2. Additionally, the Town has not identified any problem catchments.

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

☐ The illicit discharge removal report is attached to the email submission
☐ The illicit discharge removal report can be found at the following website:

N/A

Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed during this reporting period.

Number of illicit discharges identified: 0
Number of illicit discharges removed: N/A
Estimated volume of sewage removed: N/A [UNITS]

Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed since the effective date of the permit.

Total number of illicit discharges identified: 0
Total number of illicit discharges removed: N/A

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

Employee Training

Describe the frequency and type of employee training conducted during the reporting period:
The Town's Highway Department staff annually attend training with the DCR.

MCM4: Construction Site Stormwater Runoff Control
Below, report on the construction site plan reviews, inspections, and enforcement actions completed during this reporting period.

Number of site plan reviews completed: 8
Number of inspections completed: 9
Number of enforcement actions taken: 0

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

**Ordinance Development**

Describe the status of the post-construction ordinance required to be complete in year 2 of the permit term:

The Town's Stormwater Control By-law, Article VI, Section 9 of the General By-laws, was adopted in 2006 and the Boylston Conservation Commission Rules and Regulations for Stormwater was adopted in 2007. The Town will review existing regulations and determine where updates or additions are needed to meet the requirements of the General Permit in Permit Year 2.

**As-built Drawings**

Describe the status of the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites required to be complete in year 2 of the permit term:

This requirement has been met through adoption of the Boylston Conservation Commission Rules and Regulations for Stormwater. Section 6.0 (I) requires the submission of as-built drawings and Section 13.0 requires ongoing maintenance and inspections for all structural and non-structural stormwater BMPs.

**Street Design and Parking Lots Report**

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

Preparation for the Street Design and Parking Lots Report has not yet begun as this requirement is due in Permit Year 4.

**Green Infrastructure Report**

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

Preparation for the Green Infrastructure Report has not yet begun as this requirement is due in Permit Year 4.
Retrofit Properties Inventory
Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:
Preparation for the Retrofit Properties Inventory has not yet begun as this requirement is due in Permit Year 4.

MCM6: Good Housekeeping

Catch Basin Cleaning
Describe the status of the catch basin cleaning optimization plan:
The plan will be formalized during development of a written operation and maintenance plan in Permit Year 2.

If complete, attach the catch basin cleaning optimization plan or the schedule to gather information to develop the optimization plan:
- The catch basin cleaning optimization plan or schedule is attached to the email submission
- The catch basin cleaning optimization plan or schedule can be found at the following website:
  N/A

Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins during this reporting period.
Number of catch basins inspected: 530
Number of catch basins cleaned: 530
Total volume or mass of material removed from all catch basins: 150 (est.) CY

Below, report on the total number of catch basins in the MS4 system, if known.
Total number of catch basins: 196

If applicable:
Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:
N/A, all catch basins are cleaned annually.
Street Sweeping

Describe the status of the written procedures for sweeping streets and municipal-owned lots:

Written procedures for street sweeping will be formalized during development of a written operation and maintenance plan in Permit Year 2. The Town sweeps all paved roads in spring annually.

Report on street sweeping completed during the reporting period using one of the three metrics below.

- Number of miles cleaned: 60
- Volume of material removed: [UNITS]
- Weight of material removed: [UNITS]

If applicable:

For rural uncurbed roadways with no catch basins, describe the progress of the inspection, documentation, and targeted sweeping plan:

Winter Road Maintenance

Describe the status of the written procedures for winter road maintenance including the storage of salt and sand:

Written procedures for winter road maintenance will be formalized during development of a written operation and maintenance plan in Permit Year 2.

Inventory of Permittee-Owned Properties

Describe the status of the inventory, due in year 2 of the permit term, of permittee-owned properties, including parks and open spaces, buildings and facilities, and vehicles and equipment, and include any updates:

The Town possesses institutional knowledge of Town-owned properties to be included in the inventory. The Town will develop a written inventory during Permit Year 2.

O&M Procedures for Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment

Describe the status of the operation and maintenance procedures, due in year 2 of the permit term, of permittee-owned properties (parks and open spaces, buildings and facilities, vehicles and equipment) and include maintenance activities associated with each:

The Town has an existing operations and maintenance plan for the Highway Department Facility, and regular inspections and maintenance is conducted at the Highway Department Facility. Operation and maintenance procedures associated with all properties included in the inventory will be formalized and/or updated as
Stormwater Pollution Prevention Plan (SWPPP)

Describe the status of any SWPPP, due in year 2 of the permit term, for permittee-owned or operated facilities including maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater:

The Town will identify if any properties and facilities are in need of a SWPPP and prepare these in accordance with the General Permit by the end of Permit Year 2.

Below, report on the number of site inspections for facilities that require a SWPPP completed during this reporting period.

Number of site inspections completed: N/A

Describe any corrective actions taken at a facility with a SWPPP:

N/A

O&M Procedures for Stormwater Treatment Structures

Describe the status of the written procedure for stormwater treatment structure maintenance:

Written procedures for operation and maintenance of stormwater treatment structures will be formalized during development of a written operation and maintenance plan in Permit Year 2.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- Not applicable
- The results from additional reports or studies are attached to the email submission
- The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:
**Additional Information**

*Optional:* Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

- **Catch Basin Cleaning:** There are 530 Town-owned catch basins, approximately 200 of which are located inside the MS4 permitted area. The Town cleans all 530 catch basins annually.

- **Site Inspections and Site Reviews:** The number of site plan reviews and site inspections listed in MCM 4 incorporates all construction sites in Town, including those outside of the MS4, because the Town's Stormwater Control By-Law and Boylston Conservation Commission Rules & Regulations for Stormwater are enforced throughout Boylston.

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**Activities Planned for Next Reporting Period**

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 2 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

- Yes, I agree ☑

  - Complete system mapping Phase I
  - Begin investigations of catchments associated with Problem Outfalls
  - Develop or modify an ordinance or other regulatory mechanism for post-construction stormwater runoff from new development and redevelopment
  - Establish and implement written procedures to require the submission of as-built drawings no later than two years after the completion of construction projects
  - Develop, if not already developed, written operations and maintenance procedures
  - Develop an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; review annually and update as necessary
  - Establish a written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner
  - Develop and implement a written SWPPP for maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater
  - Enclose or cover storage piles of salt or piles containing salt used for deicing or other purposes
  - Develop, if not already developed, written procedures for sweeping streets and municipal-owned lots
  - Develop, if not already developed, written procedures for winter road maintenance including storage of salt and sand
  - Develop, if not already developed, a schedule for catch basin cleaning
  - Develop, if not already developed, a written procedure for stormwater treatment structure maintenance
  - Develop a written catchment investigation procedure (18 months)

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**Annual Requirements**

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to...
receiving waters

- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually

Provide any additional details on activities planned for permit year 2 below:

The Town acknowledges the General Permit Year 2 requirements and intends to complete as many activities as possible based on funding and staff availability.
Part V: Certification of Small MS4 Annual Report 2019

40 CFR 144.32(d) Certification
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: April Steward

Title: Town Administrator

Signature: [Signature]  

Date: 9/17/2019
<table>
<thead>
<tr>
<th>Town</th>
<th>Structure ID</th>
<th>Outfall ID</th>
<th>Initial Rank</th>
<th>Receiving Waterbody</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Location</th>
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<td>DCR-16</td>
<td>High</td>
<td>Wetland to French Brook MA81-48</td>
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<td>-71.704835</td>
<td>18&quot; Circular Metal</td>
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<tr>
<td>DCR-17</td>
<td>High</td>
<td>Tributary to French Brook MA81-48</td>
<td>42.35346137</td>
<td>-71.704152</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>DCR-18</td>
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<td>Outside Receiving</td>
<td>42.35404093</td>
<td>-71.7009856</td>
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<td>DCR-19</td>
<td>High</td>
<td>Outside Receiving</td>
<td>42.3542442</td>
<td>-71.7015969</td>
<td>Circular Plastic</td>
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<td>DCR-20</td>
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<td>Outside Receiving</td>
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<td>24&quot; Circular Concrete</td>
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<td></td>
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<td>DCR-21</td>
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<td>Outside Receiving</td>
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<td>-71.7028894</td>
<td>12&quot;</td>
<td></td>
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<tr>
<td>DCR-22</td>
<td>High</td>
<td>Outside Receiving</td>
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<td>12&quot; Circular Plastic</td>
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<td>DCR-23</td>
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<td>Outside Receiving</td>
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<td></td>
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<td>DCR-24</td>
<td>High</td>
<td>Outside Receiving</td>
<td>42.35535211</td>
<td>-71.7018076</td>
<td>15&quot; Circular Concrete</td>
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<td></td>
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<td>DCR-25</td>
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<td>Outside Receiving</td>
<td>42.35548015</td>
<td>-71.700806</td>
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</tbody>
</table>
Permit Year 2
(July 1, 2019 – June 30, 2020)
Year 2 Annual Report
Massachusetts Small MS4 General Permit
Reporting Period: July 1, 2019-June 30, 2020

**Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form**

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2019 and June 30, 2020 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: Town of Boylston

EPA NPDES Permit Number: MAR041095

Primary MS4 Program Manager Contact Information

Name: April Steward  Title: Town Administrator

Street Address Line 1: Town Hall
Street Address Line 2: 221 Main Street
City: Boylston  State: MA  Zip Code: 01505
Email: asteward@boylston-ma.gov  Phone Number: (508) 869-0143

Stormwater Management Program (SWMP) Information

SWMP Location (web address): https://www.boylston-ma.gov/stormwater-committee
Date SWMP was Last Updated: September 2019

If the SWMP is not available on the web please provide the physical address:
## Part II: Self-Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: [https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state](https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state)

<table>
<thead>
<tr>
<th>Impairment(s)</th>
<th>TMDL(s)</th>
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<tbody>
<tr>
<td>□ Bacteria/Pathogens</td>
<td>□ Chloride</td>
</tr>
<tr>
<td>□ Nitrogen</td>
<td>□ Phosphorus</td>
</tr>
<tr>
<td>□ Solids/ Oil/ Grease (Hydrocarbons)/ Metals</td>
<td>□ Assabet River Phosphorus</td>
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<td></td>
<td>□ Bacteria and Pathogen</td>
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<td>□ Cape Cod Nitrogen</td>
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<tr>
<td></td>
<td>□ Charles River Watershed Phosphorus</td>
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<tr>
<td></td>
<td>□ Nitrogen</td>
</tr>
<tr>
<td></td>
<td>□ Phosphorus</td>
</tr>
</tbody>
</table>

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. **By checking each box you are certifying that you have completed that permit requirement fully.** If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.

### Year 2 Requirements

☑ Completed Phase I of system mapping

☑ Developed a written catchment investigation procedure and added the procedure to the SWMP

☑ Developed written procedures to require the submission of as-built drawings and ensure the long term operation and maintenance of completed construction sites and added these procedures to the SWMP

☑ Enclosed or covered storage piles of salt or piles containing salt used for deicing or other purposes

☑ Developed written operations and maintenance procedures for parks and open space, buildings and facilities, and vehicles and equipment and added these procedures to the SWMP

☑ Developed an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment and added this inventory to the SWMP

☑ Completed a written program for MS4 infrastructure maintenance to reduce the discharge of pollutants

☑ Developed written SWPPPs, included in the SWMP, for all of the following permittee owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

The Town has determined that no facilities located within the MS4 require a site-specific SWPPP. The Highway Garage, located adjacent to the urbanized area, maintains its drainage on site and does not connect to the MS4, and therefore does not require a SWPPP under the MS4 Program.
Annual Requirements

- Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- Kept records relating to the permit available for 5 years and made available to the public
- The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - This is not applicable because we do not have sanitary sewer
  - This is not applicable because we did not find any new SSOs
  - The updated SSO inventory is attached to the email submission
  - The updated SSO inventory can be found at the following website:
- Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- Provided training to employees involved in IDDE program within the reporting period
- All curbed roadways were swept at least once within the reporting period
- Updated outfall and interconnection inventory and priority ranking as needed

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

- Town staff completed a virtual IDDE training on September 10, 2020. This training was intended to be held in-person during Permit Year 2, but was delayed as the training had to be reformatted and recorded so staff could complete the training in accordance with COVID-19 social distancing guidelines.

Phosphorus (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

Public Education and Outreach*
- Distributed an annual message in the spring (April/May) encouraging the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers
- Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter
*Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)

Good Housekeeping and Pollution Prevention for Permittee Owned Operations
- Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)
**Optional:** If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Phosphorus Good Housekeeping: All streets are swept annually in the spring. The Highway Department also sweeps priority areas up to 4 times per year. There are fewer than ten municipal streets within the area of Boylston's MS4 and the Assabet River watershed, many of which are low travel residential streets. The Town did not sweep all streets within this area two times in Permit Year 2, but does plan to increase the sweeping budget in Permit Year 3 to meet this requirement.

**Lake and Pond Phosphorus TMDL**

- **Completed Legal Analysis**

**Optional:** If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

The Legal Analysis for the LPCP has been drafted as of the date of this annual report submittal. The Town is currently reviewing and compiling additional information to finalize. Because Newton Pond was removed from the 2016 303(d) list and is considered Category 4c for non-native aquatic plants, we will be working with EPA and MassDEP to determine applicability of the Lake and Pond Phosphorus TMDL requirements in Permit Year 3.

**Optional:** Use the box below to provide any additional information you would like to share as part of your self-assessment:
Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

☐ Yes
☐ No

If yes, describe below, including any relevant impairments or TMDLs:

The Town's NOI listed receiving waters and impairments based on the water quality limited waters in the 2014 303(d) Integrated List. The Town has evaluated changes to the impairments and/or receiving waters based on the final 2016 303(d) Integrated List and enclosed the analysis herein. The enclosed document will be included in the Town's SWMP.

In September 2020, the Town's stormwater consultant completed field investigations to refine the MS4 outfall mapping. Based on these investigations, the Town will be able to remove many outfall points from the inventory because the mapped infrastructure was a culvert, BMP inlet, or private. A summary of the mapping efforts completed and the impact, if any, on the Town's receiving waters and impairments, will be included in the Year 3 Annual Report.
Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed **during this reporting period**: 5

Below, report on the educational messages completed **during this reporting period**. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.

**BMP: Education and Outreach to Residents (Multi-media Methods)**

Message Description and Distribution Method:

For most of Permit Year 2, the Town displayed brochures and flyers at Town Hall on the following stormwater-related topics: dog waste and surface water quality, Massachusetts Watershed Protection Act, phosphorus-free fertilizer use, stormwater basins and importance of routine maintenance, proper car washing procedures, swimming pools and surface water quality, and household stormwater pollution prevention. Additionally, the Town posted flyers on leaf litter and ways to compost or properly dispose of leaves on the Town Hall bulletin board. During spring and summer of 2020, Town Hall was closed to the public and brochures were not on display due to COVID-19 safety concerns. The Town moved many of these educational materials to the Stormwater Committee webpage so they could be accessed safely, and also included additional materials that were not previously available at Town Hall.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):

All visitors to Town Hall are reached by this messaging. The educational materials on the Stormwater Committee webpage were available for all visitors of the Town's website.

Message Date(s): Ongoing

Message Completed for: **Appendix F Requirements** ☒ **Appendix H Requirements** ☐

Was this message different than what was proposed in your NOI?  Yes ☐  No ☒

If yes, describe why the change was made:

---

**BMP: Education and Outreach to Residents (Multi-media Methods)**

Message Description and Distribution Method:

Multiple Town Departments and volunteer groups have active Facebook pages, including the Highway Department and Keep Boylston Beautiful volunteer group, where leaf litter collection, yard waste collection, and cleanup events are advertised. The Boylston Highway Department announced on May 5, 2020 that the Town will be accepting Spring yard waste at the Highway Garage. The Keep Boylston Beautiful Facebook
page announced results of the Spring Clean Up on June 7, 2020.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):

475 people follow the Boylston Highway Department Facebook page and 368 people follow the Keep Boylston Beautiful Facebook page. Followers of these Facebook pages are reached by this messaging.

Yard waste post received 3 likes and 2 shares.
Clean up event post received 21 likes, 3 comments, and 7 shares.

Message Date(s): Various

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

BMP: Education and Outreach to Developers (Multi-media Methods)

Message Description and Distribution Method:

Informational letters about wetlands permitting, water quality, and stormwater pollution prevention were developed in Permit Year 1, and streamlined into one letter in Permit Year 2. This year, the Town continued to distribute the letter with stormwater permits and also provided the letter as an educational document to visitors of the Conservation Commission office.

Targeted Audience: Developers (construction)

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):

2 copies of the letter were issued with Stormwater permits in Year 2, and approximately 12 were distributed to visitors with questions about the permitting process.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

BMP: Education and Outreach to Residents (Multi-media Methods)
Town of Boylston

Message Description and Distribution Method:
The Town maintains a Stormwater Committee page on the Town's website that contains public education materials on stormwater pollution prevention, including seasonal messaging for phosphorus, the "Fowl Water" video, and a link to an EPA article about nutrient pollution. The page also includes information about the Town's MS4 program, including the SWMP, stormwater bylaws, and Year 1 annual report.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator with support from DCR

Measurable Goal(s):
The Stormwater Committee page and its resources are available to all visitors of the Town's website.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

---

**BMP: Education and Outreach to Residents (Multi-media Methods)**

Message Description and Distribution Method:
The DCR incorporated new methods of public outreach due to COVID-19 and promoted online resource sharing. The DCR created activity guides and kiosk posters that are available on watershed education web pages. Additionally, a Virtual Reservoir Tour and Watershed Wildlife videos were created and distributed upon request to replace in-person visits. These educational materials were available to all Boylston residents.

Targeted Audience: Residents

Responsible Department/Parties: DCR

Measurable Goal(s):
The online activity guides created by DCR are available to all visitors of the DCR's webpage.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:
MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) during this reporting period:

The Stormwater Management Plan (SWMP) was made publicly available for review and input on the Town's Stormwater Committee website.

The Conservation Commission held a meeting on February 24, 2020 to discuss updates needed to the Rules and Regulations to meet the revised post-construction stormwater management requirements in the General Permit. State Public Notice requirements were followed for this meeting.

Was this opportunity different than what was proposed in your NOI?  Yes ☐  No ☑

Describe any other public involvement or participation opportunities conducted during this reporting period:

• The Town of Boylston has created a Keep Boylston Beautiful volunteer organization to raise awareness on the issue of town littering and pollution. Keep Boylston Beautiful conducted two annual Town-wide clean ups in Permit Year 2 with the aid of local volunteers. A Fall clean up was completed on October 19 and 20, 2019 during which 1,000 lbs of litter was collected, and a Spring clean up was conducted on June 6 and 7, 2020 during which 1,349 lbs of litter and recyclables was collected.
• The Town offered Spring yard waste drop off for six days in May 2020.
• Boylston is a member community of the Wachusett Watershed Regional Recycling Center. The Recycling Center holds special collection days, where residents can properly dispose of their household hazardous waste for a small fee.
• The DCR conducted a guided hiking series in which the hike on January 18, 2020 was held in Boylston along Gate 8 of the Wachusett Reservoir and promoted water supply protection and responsible recreation.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

☑ This SSO section is NOT applicable because we DO NOT have sanitary sewer

Below, report on the number of SSOs identified in the MS4 system and removed during this reporting period.

Number of SSOs identified: 
Number of SSOs removed: 

MS4 System Mapping

Below, check all that apply.

The following elements of the Phase I map have been completed:

☑ Outfalls and receiving waters
Open channel conveyances
Interconnections
Municipally-owned stormwater treatment structures
Waterbodies identified by name and indication of all use impairments
Initial catchment delineations

Optional: Describe any additional progress you made on your map during this reporting period or provide additional status information regarding your map:

The Town of Boylston has completed mapping of all known outfalls and has mapped additional stormwater structures required under the Phase II mapping requirements. The Town has no known interconnections and will update system mapping if any interconnections are located in future fieldwork efforts. In September 2020, the Town refined the outfall mapping by identifying mapped outfall points that are culverts, BMP inlets, or private, which reduced the total number of MS4 outfalls. This information will be provided in the Permit Year 3 Annual Report and further refined during dry weather outfall investigations. The Town will continue to improve the mapping as modifications are made and the IDDE Program is implemented.

Screening of Outfalls/Interconnections
If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

- The outfall screening data is attached to the email submission
- The outfall screening data can be found at the following website:

N/A

Below, report on the number of outfalls/interconnections screened during this reporting period.

Number of outfalls screened: 0

Catchment Investigations
If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- The catchment investigation data is attached to the email submission
- The catchment investigation data can be found at the following website:

N/A

Below, report on the number of catchment investigations completed during this reporting period.

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated to date.

Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:

The Town has not identified any problem catchments.
**IDDE Progress**

*If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.*

- The illicit discharge removal report is attached to the email submission
- The illicit discharge removal report can be found at the following website: N/A

**Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed during this reporting period.**

- Number of illicit discharges identified: 0
- Number of illicit discharges removed: 0
- Estimated volume of sewage removed: 0 gallons/day

**Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed since the effective date of the permit (July 1, 2018).**

- Total number of illicit discharges identified: 0
- Total number of illicit discharges removed: 0

**Optional:** Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

---

**Employee Training**

Describe the frequency and type of employee training conducted during the reporting period:

5 Highway Department staff completed a virtual IDDE Refresher training on September 10, 2020. This training was intended to be held in-person during Permit Year 2, but was delayed as the training had to be reformatted and recorded so staff could complete the training in accordance with COVID-19 social distancing guidelines.

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**MCM4: Construction Site Stormwater Runoff Control**

*Below, report on the construction site plan reviews, inspections, and enforcement actions completed during this reporting period.*

- Number of site plan reviews completed: 2
- Number of inspections completed: 6
Number of enforcement actions taken: 0

Optional: Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

The number of site plan reviews and site inspections listed in MCM 4 incorporates all construction sites in Town, including those outside of the MS4, because the Town's Stormwater Control By-Law and Boylston Conservation Commission Rules & Regulations for Stormwater are enforced throughout Boylston and those completed by the DCR for projects within the Wachusett Watershed.

---

**MCM5: Post-Construction Stormwater Management in New Development and Redevelopment**

**Ordinance or Regulatory Mechanism**

*Below, select the option that describes your ordinance or regulatory mechanism progress.*

- ☐ Bylaw, ordinance, or regulations are updated and adopted consistent with permit requirements
- ☐ Bylaw, ordinance, or regulations are updated consistent with permit requirements but are not yet adopted
- ☐ Bylaw, ordinance, or regulations have not been updated or adopted

**As-built Drawings**

Describe the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites:

This requirement has been met through adoption of the Boylston Conservation Commission Rules and Regulations for Stormwater. Section 6.0 (I) requires the submission of as-built drawings and Section 13.0 requires ongoing maintenance and inspections for all structural and non-structural stormwater BMPs.

**Street Design and Parking Lots Report**

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

Preparation for the Street Design and Parking Lots Report has not yet begun as this requirement is due in Permit Year 4.

**Green Infrastructure Report**

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

Preparation for the Green Infrastructure Report has not yet begun as this requirement is due in Permit Year 4.
Retrofit Properties Inventory
Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

Preparation for the Retrofit Properties Inventory has not yet begun as this requirement is due in Permit Year 4.

MCM6: Good Housekeeping

Catch Basin Cleaning
Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins during this reporting period.

Number of catch basins inspected: 512
Number of catch basins cleaned: 512
Total volume or mass of material removed from all catch basins: 25 cubic yards

Below, report on the total number of catch basins in the MS4 system.
Total number of catch basins: 196

If applicable:
Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:
N/A, all catch basins are cleaned annually.

Street Sweeping
Report on street sweeping completed during this reporting period using one of the three metrics below.
- Number of miles cleaned: 40
- Volume of material removed: [Select Units]
- Weight of material removed: [Select Units]

O&M Procedures and Inventory of Permittee-Owned Properties
**Below, check all that apply.**
The following permittee-owned properties have been inventoried:
- [ ] Parks and open spaces
- [ ] Buildings and facilities
- [ ] Vehicles and equipment

The following O&M procedures for permittee-owned properties have been completed:
- [ ] Parks and open spaces
- [ ] Buildings and facilities
- [ ] Vehicles and equipment

**Stormwater Pollution Prevention Plan (SWPPP)**
*Below, report on the number of site inspections for facilities that require a SWPPP completed during this reporting period.*

Number of site inspections completed: __________

Describe any corrective actions taken at a facility with a SWPPP:

SWPPP inspections are N/A - see SWPPP description on Page 2

**Additional Information**

**Monitoring or Study Results**
*Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.*

- [ ] Not applicable
- [ ] The results from additional reports or studies are attached to the email submission
- [ ] The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

**Additional Information**
Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

The Town's Stormwater Control By-law, Article VI, Section 9 of the General By-laws, and the Boylston Conservation Commission Rules and Regulations for Stormwater fulfill part of the MCM 4 and MCM 5 Construction and Post-Construction Stormwater Management requirements. Due to the delay of the MassDEP Stormwater Handbook update and in accordance with the revised schedule in the proposed General Permit modifications, the Town's regulatory mechanism is currently undergoing review and will be updated as needed for consistency with the revised General Permit requirements in Permit Year 3.

Catch Basin Cleaning: There are 530 Town-owned catch basins, 196 of which are located inside the MS4 permitted area. The Town cleans all catch basins annually. Note that the volume of material removed reported is an estimate.

COVID-19 Impacts

Optional: If any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 3 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☑️

- Inspect all outfalls/interconnections (excluding Problem and Excluded outfalls) for the presence of dry weather flow
- Complete follow-up ranking as dry weather screening becomes available

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary

Provide any additional details on activities planned for permit year 3 below:

The Town acknowledges the General Permit Year 3 requirements and intends to complete as many activities as possible based on funding and staff availability.
Part V: Certification of Small MS4 Annual Report 2020

40 CFR 144.32(d) Certification
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:     April Steward

Title:    Town Administrator

Signature:     

Date:     9/26/2020

[Signatory may be a duly authorized representative]
## Summary of Boylston's TMDLs and Impaired Waters

1. TMDLs associated with major rivers may apply to additional waterbodies within the watershed.
2. Any TMDL or impairments related to nutrients (nitrogen and phosphorus) apply to all receiving waterbodies within the watershed.
3. Impairments and waterbodies in *blue* were added in the 2016 Integrated List of Waters.
4. Impairments applicable to Boylston that have been renamed between the 2014 and 2016 Integrated List of Waters include the following: Aquatic Macroinvertebrates Bioassessments -> Benthic Macroinvertebrates
5. Waterbody does not receive direct discharge from the MS4. MS4 discharges to a tributary/wetland of the waterbody. Included for reference only.

<table>
<thead>
<tr>
<th>Receiving Waterbody</th>
<th>2014 Category</th>
<th>2014 Water Quality Impairments</th>
<th>2016 Category</th>
<th>2016 Water Quality Impairments</th>
<th>Applicable General Permit Section</th>
<th>Change to Permit Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malagasco Brook&lt;sup&gt;1&lt;/sup&gt; (MA81-29)</td>
<td>5</td>
<td>Aquatic Macroinvertebrate Bioassessments</td>
<td>5</td>
<td>Benthic Macroinvertebrates</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Newton Pond&lt;sup&gt;1&lt;/sup&gt; (MA51110)</td>
<td>2</td>
<td>Nutrient/Eutrophication Biological Indicators</td>
<td>2</td>
<td>Nutrient/Eutrophication Biological Indicators</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>French Brook&lt;sup&gt;2&lt;/sup&gt; (MA81-48)</td>
<td>2</td>
<td>Non-Native Aquatic Plants</td>
<td>2</td>
<td>Non-Native Aquatic Plants</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Unnamed Tributary (Boylston Brook) (MA81-34)</td>
<td>2</td>
<td>None</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Cold Harbor Brook&lt;sup&gt;3&lt;/sup&gt; (MA82B-18)</td>
<td>2</td>
<td>None</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Sewall Brook (MA51-44)</td>
<td>4</td>
<td>None</td>
<td>4</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>TMDL of Phosphorus for Selected Northern Blackstone Lakes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Appendix F, Section A.II - Lake and Pond Phosphorus TMDL</td>
<td>None</td>
</tr>
<tr>
<td>Assabet River TMDL for Total Phosphorus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Appendix F, Section A.V - Assabet River Phosphorus TMDL</td>
<td>None</td>
</tr>
</tbody>
</table>
Phase I MS4 System Map
Permit Year 3
(July 1, 2020 – June 30, 2021)
Permit Year 4
(July 1, 2021 – June 30, 2022)
Permit Year 5
(July 1, 2022 – June 30, 2023)
Appendix I

Lake Phosphorus Control Plan Record Keeping
Small Municipal Separate Storm Sewer System (MS4) General Permit “Lake Phosphorus Control Plan (LPCP)” for Newton Pond

Legal Analysis

To: Town of Boylston

From: Jennie Moonan, PE, Project Manager and Cassandra LaRochelle, PE, Project Engineer

Date: September 28, 2020

Tighe & Bond is providing this memorandum to the Town of Boylston to document requirements of the U.S. Environmental Protection Agency’s (EPA’s) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4GP) related to discharges to Newton Pond and its tributaries (see Part 2.2 and Appendix F of the MS4GP).

Overview of Newton Pond’s Water Quality Concerns

As you are aware, a portion of the Town of Boylston’s MS4 discharges to Newton Pond. Newton Pond occupies approximately 54 acres in both Boylston and Shrewsbury. In Boylston, the pond is located south of Mill Street, east of Main Street, and west of Sewall Street. The pond is fed by Sewall Brook. The watershed of Newton Pond is approximately 4.29 square miles. Figure 1, below, shows the location of Newton Pond and the approximate watershed using the Massachusetts Watershed Based Plan toolkit, available online at: [http://prj.geosyntec.com/MassDEPWBP/PlanWizard/SelectWatershed](http://prj.geosyntec.com/MassDEPWBP/PlanWizard/SelectWatershed)

An export of the Watershed-Based Plan for Newton Pond is enclosed, which provides additional background information about the watershed and water quality concerns.
A Total Maximum Daily Load (TMDL) (a.k.a. “pollution budget”) for phosphorus was developed and approved in April 2002 for select waterbodies (lakes and ponds) in the Northern Blackstone River watershed, including Newton Pond\(^1\).

Phosphorus is a nutrient that, when present at high levels in natural waterbodies, can cause overgrowth of aquatic plants, increased harmful algal blooms, decreased light in a waterbody, and decreased levels of dissolved oxygen, thereby impairing designated uses (aquatic life, fish consumption, primary and secondary aquatic contact, and aesthetics) per the Commonwealth’s Surface Water Quality Standards (314 CMR 4.00). Phosphorus is a common pollutant in stormwater, with sources including leaf litter, pet waste, road salt, fertilizer, and atmospheric deposition. A variety of structural (infiltration and treatment structures) and non-structural (such as street sweeping and catch basin cleaning) Best Management Practices (BMPs) can be effective at reducing phosphorus loads from stormwater.

There was limited data collected by the Massachusetts Department of Environmental Protection (MassDEP) in July 1994 that informed the TMDL and there was no detailed study of the nutrient sources within the watersheds conducted to develop the TMDL. Thus, nutrient sources were estimated based on land use modeling within MassDEP’s NPSLAKE model.

Since approval of the TMDL in early 2002, iterations of the Integrated List of Waters has consistently listed Newton Pond as being impaired by aquatic plants (non-native) and by noxious aquatic plants (macrophytes). The latter impairment is covered by the TMDL. However, in the Massachusetts Final 2016 Integrated List of Waters, approved in January 2020, the aquatic plant (macrophytes) impairment was removed for Newton Pond because, as stated in the List, “applicable water quality standards [are] attained; according to new assessment method.” Excerpts from the 2014 and 2016 Integrated List of Waters are enclosed.

However, correspondence with permit writers at EPA indicates that an update to the Integrated List of Waters list does not supersede a TMDL and a state can only change a TMDL by updating or withdrawing it. Each community remains subject to that TMDL and the MS4GP permit conditions until the applicable TMDL is updated by the State. EPA recommended coordination with MassDEP.

**EPA’s Lake (and Pond) Phosphorus Reduction Requirements**

To address a required phosphorus reduction of 19\% in Newton Pond, the MS4GP requires Boylston to develop a written Lake Phosphorus Control Plan (LPCP) and fully implement all control measures as soon as possible but no later than June 30, 2033 (15 years from effective date of MS4GP). The LPCP includes the following elements:

- **By June 30, 2020:** Legal analysis
- **By June 30, 2021:** Funding source assessment
- **By June 30, 2022:** Define LPCP scope/area and calculate baseline phosphorus, allowable phosphorus load, and phosphorus reduction requirement
- **By June 30, 2023:** Describe planned nonstructural and structural controls, operation & maintenance (O&M) program, implementation schedule, costs, funding sources assessment (update), and prepare a fully written LPCP

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The MS4GP assumes phosphorus will first be addressed with non-structural controls (street sweeping, catch basin cleaning, and enhanced leaf litter pickup), assessing performance of those controls, and then adding structural controls and assessing performance over the remaining years through 2033.

Given the recent change in impaired waterbody status that de-lists the segment for the impairment covered by the TMDL, advice from EPA, and the hefty planning, capital, operational, and administrative costs associating with preparing and undertaking the LPCP, we recommend the Town of Boylston engage Town Counsel to prepare a persuasive letter to MassDEP to request an update to the TMDL. The Town may wish to coordinate this effort with Shrewsbury’s Town Manager and legal counsel.

**LPCP “Legal Analysis” Requirements**

Because, according to EPA, the permit requirements still apply to the Town of Boylston despite the delisting of the impairment covered by a TMDL, we are providing this memorandum to document compliance with Part 2.2 and Appendix F.

According to Appendix F, as part of developing and implementing a LPCP designed to reduce the amount of phosphorus in stormwater discharges from the MS4 to Newton Pond and its tributaries, Boylston must conduct an analysis of local legal authority that may be necessary to effectively implement the entire LPCP (termed by EPA as a “legal analysis”). A description of the Phase 1 PCP Legal Analysis, as stated in the MS4GP, reads as follows:

*The permittee shall develop and implement an analysis that identifies existing regulatory mechanisms available to the MS4 such as by-laws and ordinances and describes any changes to these regulatory mechanisms that may be necessary to effectively implement the LPCP. This may include the creation or amendment of financial and regulatory authorities. The permittee shall adopt necessary regulatory changes by the end of the permit term.*

Tighe & Bond has prepared the LPCP Legal Analysis to identify existing regulatory mechanisms available to the Town such as bylaws and regulations and any changes to regulatory mechanisms that may be necessary to effectively implement the entire LPCP. The following includes an analysis of available non-structural, structural, and semi-structural phosphorus reduction actions; current legal authority of the Town to implement those actions on both public and private property; and future changes that would be required to fully implement the LPCP. This analysis also considers the potential use of a Stormwater Utility or Enterprise Fund that could include a credit system for private properties, as well as the potential for EPA taking Residual Designation Authority (RDA) over private properties.

**Legal Authority to Implement the LPCP on Public Property**

**Current Authority**

The Town of Boylston has authority to undertake all structural and non-structural controls on public property. Public property consists of Town owned or operated parcels including parking lots, as well as municipal roadways and the right of way. Boylston can complete street sweeping, catch basin cleaning, and although perhaps not desired, an enhanced Organic Waste and Leaf Litter Collection program, both now and in the future. Boylston has authority to install structural or semi-structural BMPs on Town-owned lands.
Changes Needed
There are no legal changes necessary to implement the LPCP on public property. However, requiring all public new and redevelopment projects to implement structural BMPs, beyond those required by current local code, requires buy-in from municipal officials and planning for these efforts in capital and operational budgets.

Legal Authority to Implement the LPCP on Private Property

Current Authority
Considerations are organized by type of BMP.

- **Enhanced sweeping**: Boylston has no authority to physically sweep on private individual properties.

- **Catch Basin Cleaning**: Catch basin cleaning on private properties by a private entity can only be enforced under a local permit or Order of Conditions that requires catch basin cleaning through an O&M plan currently required for under jurisdiction of Wetlands, Stormwater, and/or Site Plan Review.

- **Organic Waste and Leaf Litter Collection program**: Boylston has no authority to require this work on private property; further, the Town has no control over the method of disposal on private individual properties. While Boylston does hold yard waste collection days each Fall, in order to meet the Organic Waste and Leaf Litter Collection program requirements in Appendix F, the Town must gather and remove all landscaping wastes, organic debris, and leaf litter from impervious roadways and parking lots at least once per week during the period of September 1 to December 1 of each year.

- **Structural BMPs**: Structural BMPs on private properties can only be required through issuance of a local permit or Order of Conditions that requires structural BMPs as part of permit conditions and/or O&M plan currently required for projects under jurisdiction of Wetlands, Stormwater, and/or Site Plan Review. **Currently, it is impossible under local code for the Town to require a completed project to retrofit the drainage system to add structural BMPs.**

- **Semi-Structural BMPs**: There is limited opportunity to require semi-structural BMPs through current code.

Changes Needed
To fully implement the LPCP on private property, there would need to be significant changes to local and/or state and federal permitting. Note that the Newton Pond watershed area covers only a portion of Boylston, as shown in Figure 1. Additionally, the Town’s MS4 covers only a portion of the Newton Pond watershed. The requirements of the LPCP are only applicable in the area covered by both the watershed and the MS4.

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2 Structural BMPs include infiltration trench, infiltration basin or other surface infiltration practice, biofiltration practice, gravel wetland system, porous pavement, wet pond or wet detention basin, dry pond or detention basin, dry water quality swale/grass swale

3 Semi-structural BMPs include impervious area disconnection through storage (e.g., rain barrels, cisterns, etc.), impervious area disconnection, conversion of impervious area to permeable pervious area, and soil amendments to enhance permeability of pervious areas
Some changes to consider include:

1. Potentially reducing the threshold by which a project would be reviewed locally and obtain a stormwater management permit. Currently the Town threshold is one acre.\(^4\) Reducing this threshold would require new and redevelopment projects to comply with phosphorus reduction requirements.

2. Changes to roadway width, parking, and other requirements in zoning and subdivision that result in creation of impervious cover.

3. Development of a rain barrel program.

4. Developing a Stormwater Utility or Enterprise Fund and incentivizing private sites to take their own actions through a credit system.

5. Politically, it will be very challenging if not impossible to require private properties to retrofit a site without some construction otherwise ongoing. EPA Region 1 has been petitioned to take Residual Designation Authority (RDA)\(^5\) of various watersheds. Boylston can consider supporting a RDA petition, if desired, however, elected officials and decision makers should carefully consider balancing Town needs with the economics of private landowners.

**Enclosures**

Initial Watershed-Based Plan - Newton Pond

Excerpts from Massachusetts Year 2014 Integrated List of Waters

Excerpts from Massachusetts Year 2016 Integrated List of Waters

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\(^4\) The Town's Stormwater Control By-law is Article VI, Section 9 of the General By-laws. The Boylston Conservation Commission Rules and Regulations for Stormwater include additional stormwater control requirements.

\(^5\) EPA and the authorized states regulate stormwater discharges from regulated MS4s, industrial activities, and construction sites under section 402(p) of the Clean Water Act. These stormwater discharges require NPDES permits. In addition, EPA can use its "residual designation" authority under 40 CFR 122.26(a)(9)(i)(C) and (D) to require NPDES permits for other stormwater discharges or category of discharges on a case-by-case basis when it determines that:

- the discharges contribute to a violation of water quality standards,
- the discharges are a significant contributor of pollutant to federally protected surface waters, or
- controls are needed for the discharge based on wasteload allocations that are part of TMDLs that address the pollutant(s) of concern.
WATERSHED-BASED PLAN

Newton Pond

Initial Draft - September 2020

Prepared By:

Tighe & Bond
120 Front Street, Suite 7
Worcester, MA

Prepared For:

MassDEP
Contents

Element A: Nonpoint Source Pollution Causes and Sources
Element B: Pollutant Load Reductions Needed / Water Quality Goals
Element C: Management Measures to Achieve Water Quality Goals
Element D: Technical and Financial Assistance Needed
Element E: Public Information and Education
Elements F & G: Implementation Schedule and Interim Measurable Milestones
Elements H & I: Progress Evaluation Criteria and Monitoring

References/Appendix
Element A: Identify Causes of Impairment & Pollution Sources

**Element A:** Identify the causes and sources or groups of similar sources that need to be controlled to achieve the necessary pollutant load reductions estimated in the watershed based plan (WBP).

1. General Watershed Information

**Table A-1: General Watershed Information**

<table>
<thead>
<tr>
<th>Watershed Name (Assessment Unit ID):</th>
<th>Newton Pond (MA51110)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Basin:</td>
<td>BLACKSTONE</td>
</tr>
<tr>
<td>Watershed Area (within MA):</td>
<td>2749.6 (ac)</td>
</tr>
<tr>
<td>Water Body Size:</td>
<td>54 (ac)</td>
</tr>
</tbody>
</table>
Figure A-1: Watershed Boundary Map (MassGIS, 1999; MassGIS, 2001; USGS, 2016)

Ctrl + Click on the map to view a full sized image in your web browser.

General watershed information:


The following reports are available:

- Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes


Aquatic Life Use
Biology
Two non-native aquatic macrophyte species (Myriophyllum heterophyllum and Cabomba caroliniana) were observed in Newton
Pond during the 1998 synoptic surveys (MassDEP 1998).

The Aquatic Life Use is assessed as impaired for Newton Pond because of the infestation with *M. heterophyllum* and *C. caroliniana*, non-native aquatic macrophytes.

### Report Recommendations:
Continue to monitor for the presence of invasive non-native aquatic vegetation and determine the extent of the infestation. Prevent spreading of invasive aquatic plants. Once the extent of the problem is determined and control practices are exercised, vigilant monitoring needs to be practiced to guard against infestations in unaffected areas, including downstream from the site, and to ensure that managed areas stay in check. A key portion of the prevention program should be posting of boat access points with signs to educate and alert lake-users to the problem and their responsibility to prevent spreading these species. The watershed/canoe/kayak groups should consider seeking volunteers to provide outreach on preventing the spread of exotic invasive plants at popular access points during the busiest weekends of the summer. The Final GEIR for Eutrophication and Aquatic Plant Management in Massachusetts (Mattson et al. 2004) should also be consulted prior to the development of any lake management plan to control non-native aquatic plant species. Plant control options can be selected from several techniques (e.g., bottom barriers, drawdown, herbicides, etc.) each of which has advantages and disadvantages that need to be addressed for the specific site. However, methods that result in fragmentation (such as cutting or raking) should not be used for many species because of the propensity for these invasive species to reproduce and spread vegetatively (from cuttings).

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### Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes (MA51110 - Newton Pond)

#### Waterbody Descriptions and Problem Assessment
Landuse information for each watershed is based on MassGIS digital maps derived from aerial photography taken in 1985. To account for changes in landuse, population growth rates are reported for towns closest to the lake. Population (census) data and estimated growth rates are from projections provided on the internet (www.umass.edu/miser/) by the Massachusetts Institute for Social and Economic Research (MISER) at the University of Massachusetts, Amherst.

#### Lake Description
Newton Pond Shrewsbury is approximately 48 acres in size. The watershed is 61 percent forested and about 22 percent is in rural landuse category. About 12 percent is in urban landuse and both water and wetlands accounting for the remaining 5 percent. A large gravel pit is located just to the southwest shore of the lake that may contribute sediments and nutrients to the lake. Population in the town has been described above. The pond was assessed by DEP in the summer of 1994 and the assessment comments reported: "A 22 July 1994 synoptic survey indicates that floating leaf plants of 75% to 100% density were found in patches around shores and in coves (approximately 25% of the north part of the lake). There were no floating leaf plants at the end of the lake off Sewall street at the outlet and there were moderate submerged. The possible non-native *Myriophyllum* (possibly *heterophyllum*) was present and threatens the secondary contact over 43 acres of the pond. No other data was available to make assessments."

#### Pollutant Sources and Background:
Unfortunately, no detailed study of the nutrient sources within the watersheds has been conducted to date. Thus, nutrient sources were estimated based on land use modeling within the DEP’s NPSLAKE model as discussed below. The NPSLAKE model was designed to estimate watershed loading rates of phosphorus to lakes. A brief description of the NPSLAKE model and data inputs is given here. MassGIS digital maps of land use within the watershed were used to calculate areas of landuse within three major types: Forest, rural and urban landuse. This model takes the area in hectares of land use within each of three categories and applies an export coefficient to each to predict the annual external loading of phosphorus to the lake from the watershed. Because much of the landuse data is based on old (1985) aerial photographs, the current landuses within the watershed may be different today. This can be important in the development of the TMDL because different landuses can result in different phosphorus loadings to the waterbody in question. For many rural areas, landuse changes often result in conversion of open or agricultural lands to low density housing, in which case, the export coefficients of the NPSLAKE model are the same and no change in loading is predicted to occur. However, in cases where development changes forests to residential areas or rural landuses to urban landuses, phosphorus loadings are predicted to increase. In some cases, loadings are predicted to decrease if additional agricultural land is abandoned and forest regrowth occurs. To account for this uncertainty in landuse changes, a conservative target is chosen (see below). In addition, the MassGIS landuse maps are scheduled to be updated with current aerial photos and the TMDL can be modified as additional information is obtained.
Other phosphorus sources, such as septic system inputs of phosphorus, are estimated from an export coefficient multiplied by the number of homes within 100 meters of the lake. Point sources are estimated manually based on discharge information and site specific information for uptake and storage. Other sources such as atmospheric deposition to lakes was determined to be small and not significant in the NPSLAKE model, perhaps because lakes tend to be sinks rather than sources of phosphorus (Mattson and Isaac, 1999). For similar reasons wetlands were also not considered to be significant sources of phosphorus following (see discussion and references in Mattson and Isaac, 1999). Other, non-landuse sources of phosphorus such as inputs from waterfowl were not included, but can be added as additional information becomes available. If large numbers of waterfowl are using the lake the total phosphorus budget may be an underestimate, and control measures should be considered. Internal sources (recycling) of phosphorus is not included because it is not considered as a net external load to the lake, but rather a seasonal recycling of phosphorus already present in the lake. In cases where this internal source is large it may result in surface concentrations higher than predicted from landuse loading models and may contribute to water quality violations during the critical summer period. As additional monitoring data become available, these lakes will be assessed for internal contributions and possibly control of these sources by alum or other means. The major sources according to the land use analysis are shown for the lake of interest in the following table (originally part of Table 2 of “Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes” report, 2002).
The NPSLAKE model assumes land uses are accurately represented by the MassGIS digital maps and that land use has not changed appreciably since the maps were compiled in 1985. The predicted loading is based on the equation:

\[ \text{P Loading (kg/yr)} = 0.5 \times \text{septics} + 0.13 \times \text{forest ha} + 0.3 \times \text{rural ha} + 14 \times (\text{urban ha})^{0.5} \]

The coefficients of the model are based on a combination of values estimated with the aid of multiple regression on a Massachusetts data set and of typical values reported in previous diagnostic/feasibility studies in Massachusetts. All coefficients fall within the range of values reported in other studies. The overall standard error of the model is approximately 172 kg/yr. If not data is available for internal loading a rough estimate of the magnitude of this sources can be estimated by substitution of the in-lake concentration for TP. The difference in predicted loadings from this approach and the landuse approach is the best estimate of internal loading.

### Table . Newton Pond MA51110

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area (%)</th>
<th>P Load (%)</th>
<th>N Load</th>
<th>TSS Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest category</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest:</td>
<td>675.3 (61.4%)</td>
<td>87.8 (25.7%)</td>
<td>1688.3</td>
<td>16208.0</td>
</tr>
<tr>
<td>Rural category</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture:</td>
<td>34.6 (3.1%)</td>
<td>10.4 (3.2%)</td>
<td>304.5</td>
<td>10450.1</td>
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<tr>
<td>Open land:</td>
<td>98.9 (9.0%)</td>
<td>29.7 (9.0%)</td>
<td>514.3</td>
<td>12227.8</td>
</tr>
<tr>
<td>Residential Low:</td>
<td>110.0 (10.0%)</td>
<td>33.0 (10.0%)</td>
<td>605.1</td>
<td>42688.1</td>
</tr>
<tr>
<td>Urban category</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential High:</td>
<td>104.7 (9.5%)</td>
<td>127.0 (38.9%)</td>
<td>811.6</td>
<td>57702.1</td>
</tr>
<tr>
<td>Comm - Ind.</td>
<td>26.9 (2.4%)</td>
<td>32.8 (10.0%)</td>
<td>268.0</td>
<td>10461.7</td>
</tr>
<tr>
<td>Other Landuses</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Water:</td>
<td>35.8 (3.3%)</td>
<td>0.0 (0.0%)</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Wetlands:</td>
<td>13.5 (1.2%)</td>
<td>0.0 (0.0%)</td>
<td>0.0</td>
<td>717.9</td>
</tr>
<tr>
<td>Subtotal:</td>
<td>1099.8</td>
<td>321.5</td>
<td>4228.0</td>
<td>150937.9</td>
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<tr>
<td>Other P inputs:</td>
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<td>0.0 (0.0%)</td>
<td>0.0</td>
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<tr>
<td>15.0 Septics:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1099.8 (100.0%)</td>
<td>329.0 (100)</td>
<td>4228.0</td>
<td>150937.9</td>
</tr>
</tbody>
</table>

### Summary of Lake Total Phosphorus Modeling Results

- Areal P loading \( L = 1.7 \text{ g/m}^2\text{yr} \).
- Reckhow (1979) model predicts lake TP \( = L/(11.6+1.2q) \times 1000 = 31.9 \text{ ppb} \).
- Predicted transparency = 1.5 meters.

If all land were forested, \( P \) export would be 136.6 kg/yr and the forested condition lake TP would be 13.3 ppb.

The NPSLAKE model assumes land uses are accurately represented by the MassGIS digital maps and that land use has not changed appreciably since the maps were compiled in 1985. The predicted loading is based on the equation:

\[ \text{P Loading (kg/yr)} = 0.5 \times \text{septics} + 0.13 \times \text{forest ha} + 0.3 \times \text{rural ha} + 14 \times (\text{urban ha})^{0.5} \]

The coefficients of the model are based on a combination of values estimated with the aid of multiple regression on a Massachusetts data set and of typical values reported in previous diagnostic/feasibility studies in Massachusetts. All coefficients fall within the range of values reported in other studies. The overall standard error of the model is approximately 172 kg/yr. If not data is available for internal loading a rough estimate of the magnitude of this sources can be estimated by substitution of the in-lake concentration for TP. The difference in predicted loadings from this approach and the landuse approach is the best estimate of internal loading.
The NP SLAKE model also generates predictions of estimated yearly average water runoff to the lake based on total watershed area and runoff maps of Massachusetts. Because of the general nature of the landuse loading approach, natural background is included in land use based export coefficients. Natural background can be estimated based on the forest export coefficient of 0.13 kg/ha/yr multiplied by the hectares of the watershed assuming the watershed to be entirely forested. Without site specific information regarding soil phosphorus and natural erosion rates the accuracy of this estimate would be uncertain and would add little value to the analysis. There were three NPDES point sources listed in the watersheds of some of the lakes, but further investigation revealed they are no longer official point sources, or in one case will no longer be a point source within two months. The one major industrial discharger (Worcester Spinning and Finishing) has since closed after the factory burned down and it is not expected to reopen. A small wastewater point source for Nazzareth Home for Boys is currently being tied into the sewer system of the Leicester Water District with work expected to be completed within two months. The remaining NPDES site was a general permit for Browning Ferris Industries Inc (BFI) which is now covered under an EPA Muti-Sector Permit and is not considered as a point source in this analysis but is included as industrial (urban) landuse in the model.


3. Water Quality Impairments

Known water quality impairments, as documented in the Massachusetts Department of Environmental Protection (MassDEP) 2012 Massachusetts Integrated List of Waters, are listed below. Impairment categories from the Integrated List are as follows:

<table>
<thead>
<tr>
<th>Integrated List Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unimpaired and not threatened for all designated uses.</td>
</tr>
<tr>
<td>2</td>
<td>Unimpaired for some uses and not assessed for others.</td>
</tr>
<tr>
<td>3</td>
<td>Insufficient information to make assessments for any uses.</td>
</tr>
<tr>
<td>4</td>
<td>Impaired or threatened for one or more uses, but not requiring calculation of a Total Maximum Daily Load (TMDL), including: 4a: TMDL is completed 4b: Impairment controlled by alternative pollution control requirements 4c: Impairment not caused by a pollutant - TMDL not required</td>
</tr>
</tbody>
</table>
5 Impaired or threatened for one or more uses and requiring preparation of a TMDL.

Table A-3: Water Quality Impairments

<table>
<thead>
<tr>
<th>Assessment Unit ID</th>
<th>Waterbody</th>
<th>Integrated List Category</th>
<th>Designated Use</th>
<th>Impairment Cause</th>
<th>Impairment Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA51110</td>
<td>Newton Pond</td>
<td>4A</td>
<td>Aesthetic</td>
<td>Aquatic Plants (Macrophytes)</td>
<td>Source Unknown</td>
</tr>
<tr>
<td>MA51110</td>
<td>Newton Pond</td>
<td>4A</td>
<td>Fish, other Aquatic Life and Wildlife</td>
<td>Non-Native Aquatic Plants</td>
<td>Introduction of Non-native Organisms (Accidental or Intentional)</td>
</tr>
<tr>
<td>MA51110</td>
<td>Newton Pond</td>
<td>4A</td>
<td>Primary Contact Recreation</td>
<td>Aquatic Plants (Macrophytes)</td>
<td>Source Unknown</td>
</tr>
<tr>
<td>MA51110</td>
<td>Newton Pond</td>
<td>4A</td>
<td>Secondary Contact Recreation</td>
<td>Aquatic Plants (Macrophytes)</td>
<td>Source Unknown</td>
</tr>
</tbody>
</table>

4. Water Quality Goals

Water quality goals may be established for a variety of purposes, including the following:

a.) For water bodies with known impairments, a Total Maximum Daily Load (TMDL) is established by MassDEP and the United States Environmental Protection Agency (USEPA) as the maximum amount of the target pollutant that the waterbody can receive and still safely meet water quality standards. If the waterbody has a TMDL for total phosphorus (TP) or total nitrogen (TN), or total suspended solids (TSS), that information is provided below and included as a water quality goal.

b.) For water bodies without a TMDL for total phosphorus (TP), a default water quality goal for TP is based on target concentrations established in the Quality Criteria for Water (USEPA, 1986) (also known as the “Gold Book”). The Gold Book states that TP should not exceed 50 ug/L in any stream at the point where it enters any lake or reservoir, nor 25 ug/L within a lake or reservoir. For the purposes of developing WBPs, MassDEP has adopted 50 ug/L as the TP target for all streams at their downstream discharge point, regardless of which type of water body the stream discharges to.

c.) Massachusetts Surface Water Quality Standards (314 CMR 4.00, 2013) prescribe the minimum water quality criteria required to sustain a waterbody’s designated uses. Newton Pond is a Class 'B' waterbody. The water quality goal for fecal coliform bacteria is based on the Massachusetts Surface Water Quality Standards.

Table A-4: Surface Water Quality Classification by Assessment Unit ID

<table>
<thead>
<tr>
<th>Assessment Unit ID</th>
<th>Waterbody</th>
<th>Class</th>
</tr>
</thead>
</table>

DRAFT
d.) **Other water quality goals set by the community** (e.g., protection of high quality waters, in-lake phosphorus concentration goal to reduce recurrence of cyanobacteria blooms, etc.).

**Table A-5: Water Quality Goals**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Goal</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Phosphorus (TP)</strong></td>
<td>The following table (originally on page 4 of “Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes” report, 2002) lists the lakes that were evaluated, their predicted total phosphorus concentration and load using the landuse model and selected target concentration and loads necessary to achieve water quality standards. The results indicate that current phosphorus loads to these lakes need to be reduced on an average of 27% and range from a low of about 2% (Eddy Pond, Auburn, MA) to a high of 68% (Southwick Pond, Leicester, MA).</td>
<td></td>
</tr>
<tr>
<td>WBID</td>
<td>Lake Name</td>
<td>Predicted TP (ppb)</td>
</tr>
<tr>
<td>MA51004</td>
<td>Auburn Pond, Auburn</td>
<td>34</td>
</tr>
<tr>
<td>MA51010</td>
<td>Brierly Pond, Millbury</td>
<td>30</td>
</tr>
<tr>
<td>MA51032</td>
<td>Curtis Pond North, Worcester</td>
<td>26</td>
</tr>
<tr>
<td>MA51033</td>
<td>Curtis Pond South, Worcester</td>
<td>27</td>
</tr>
<tr>
<td>MA51039</td>
<td>Dorothy Pond, Millbury</td>
<td>26</td>
</tr>
<tr>
<td>MA51043</td>
<td>Eddy Pond, Auburn</td>
<td>15</td>
</tr>
<tr>
<td>MA51056</td>
<td>Green Hill Pond, Worcester</td>
<td>44.2</td>
</tr>
<tr>
<td>MA51071</td>
<td>Howe Reservoir, Millbury</td>
<td>50.9</td>
</tr>
<tr>
<td>MA51078</td>
<td>Jordan Pond, Shrewsbury</td>
<td>67.6</td>
</tr>
<tr>
<td>MA51105</td>
<td>Mill Pond Shrewsbury</td>
<td>46.5</td>
</tr>
<tr>
<td>MA51110</td>
<td>Newton Pond Shrewsbury</td>
<td>31.9</td>
</tr>
<tr>
<td>MA51120</td>
<td>Pondville Pond, Auburn</td>
<td>28.1</td>
</tr>
<tr>
<td>MA51156</td>
<td>Smiths Pond, Leicester</td>
<td>30</td>
</tr>
<tr>
<td>MA51157</td>
<td>Southwick Pond, Leicester</td>
<td>30.4</td>
</tr>
<tr>
<td>MA51160</td>
<td>Stoneville Pond, Auburn</td>
<td>26.7</td>
</tr>
<tr>
<td>MA51196</td>
<td>Shirley Street Pond, Shrewsbury</td>
<td>37.7</td>
</tr>
</tbody>
</table>

**Class B Standards**

- Public Bathing Beaches: For E. coli, geometric mean of 5 most recent samples shall not exceed 126 colonies/100 ml and no single sample during the bathing season shall exceed 235 colonies/100 ml. For enterococci, geometric mean of 5 most recent samples shall not exceed 33 colonies/100 ml and no single sample during bathing season shall exceed 61 colonies/100 ml;
- Other Waters and Non-bathing Season at Bathing Beaches: For E. coli, geometric mean of samples from most recent 6 months shall not exceed 126 colonies/100 ml (typically based on min. 5 samples) and no single sample shall exceed 235 colonies/100 ml. For enterococci, geometric mean of samples from most recent 6 months shall not exceed 33 colonies/100 ml and no single sample shall exceed 61 colonies/100 ml.

**Massachusetts Surface Water Quality Standards**

- (314 CMR 4.00, DRAFT)
months shall not exceed 33 colonies/100 ml, and no single sample shall exceed 61 colonies/100 ml.

Note: There may be more than one water quality goal for bacteria due to different Massachusetts Surface Water Quality Standards Classes for different Assessment Units within the watershed.

5. Land Use Information

A. Watershed Land Uses

Table A-6: Watershed Land Uses

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (acres)</th>
<th>% of Watershed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>155.1</td>
<td>5.6</td>
</tr>
<tr>
<td>Commercial</td>
<td>75.3</td>
<td>2.7</td>
</tr>
<tr>
<td>Forest</td>
<td>1746.78</td>
<td>63.5</td>
</tr>
<tr>
<td>High Density Residential</td>
<td>73.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Highway</td>
<td>5.16</td>
<td>0.2</td>
</tr>
<tr>
<td>Industrial</td>
<td>69.55</td>
<td>2.5</td>
</tr>
<tr>
<td>Low Density Residential</td>
<td>316.49</td>
<td>11.5</td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>93.02</td>
<td>3.4</td>
</tr>
<tr>
<td>Open Land</td>
<td>146.37</td>
<td>5.3</td>
</tr>
<tr>
<td>Water</td>
<td>68.66</td>
<td>2.5</td>
</tr>
</tbody>
</table>
B. Watershed Impervious Cover

There is a strong link between impervious land cover and stream water quality. Impervious cover includes land surfaces that prevent the infiltration of water into the ground, such as paved roads and parking lots, roofs, basketball courts, etc.

**Impervious areas that are directly connected (DCIA)** to receiving waters (via storm sewers, gutters, or other impervious drainage pathways) produce higher runoff volumes and transport stormwater pollutants with greater efficiency than disconnected impervious cover areas which are surrounded by vegetated, pervious land. Runoff volumes from disconnected impervious cover areas are reduced as stormwater infiltrates when it flows across adjacent pervious surfaces.

An estimate of DCIA for the watershed was calculated based on the Sutherland equations. USEPA provides guidance (USEPA, 2010) on the use of the Sutherland equations to predict relative levels of connection and disconnection based on the type of stormwater infrastructure within the **total impervious area (TIA)** of a watershed. Within each subwatershed, the total area of each land use were summed and used to calculate the percent TIA.

Estimated TIA in the watershed: 12.1%
The relationship between TIA and water quality can generally be categorized as follows (Schueler et al. 2009):

Table A-7: Relationship between Total Impervious Area (TIA) and water quality (Schueler et al. 2009)

<table>
<thead>
<tr>
<th>% Watershed Impervious Cover</th>
<th>Stream Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10%</td>
<td>Typically high quality, and typified by stable channels, excellent habitat structure, good to excellent water quality, and diverse communities of both fish and aquatic insects.</td>
</tr>
<tr>
<td>11-25%</td>
<td>These streams show clear signs of degradation. Elevated storm flows begin to alter stream geometry, with evident erosion and channel widening. Streams banks become unstable, and physical stream habitat is degraded. Stream water quality shifts into the fair/good category during both storms and dry weather periods. Stream biodiversity declines to fair levels, with most sensitive fish and aquatic insects disappearing from the stream.</td>
</tr>
<tr>
<td>26-60%</td>
<td>These streams typically no longer support a diverse stream community. The stream channel becomes highly unstable, and many stream reaches experience severe widening, downcutting, and streambank erosion. Pool and riffle structure needed to sustain fish is diminished or eliminated and the substrate can no longer provide habitat for aquatic insects, or spawning areas for fish. Biological quality is typically poor, dominated by pollution tolerant insects and fish. Water quality is consistently rated as fair to poor, and water recreation is often no longer possible due to the presence of high bacteria levels.</td>
</tr>
<tr>
<td>&gt;60%</td>
<td>These streams are typical of “urban drainage”, with most ecological functions greatly impaired or absent, and the stream channel primarily functioning as a conveyance for stormwater flows.</td>
</tr>
</tbody>
</table>
6. Pollutant Loading

The land use data (MassGIS, 2009b) was intersected with impervious cover data (MassGIS, 2009a) and United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils data (USDA NRCS and MassGIS, 2012) to create a combined land use/land cover grid. The grid was used to sum the total area of each unique land use/land cover type.

The amount of DCIA was estimated using the Sutherland equations as described above and any reduction in impervious area due to disconnection (i.e., the area difference between TIA and DCIA) was assigned to the pervious D soil category for that land use to simulate that some infiltration will likely occur after runoff from disconnected impervious surfaces passes over pervious surfaces.
Pollutant loading for key nonpoint source pollutants in the watershed was estimated by multiplying each land use/cover type area by its pollutant load export rate (PLER). The PLERs are an estimate of the annual total pollutant load exported via stormwater from a given unit area of a particular land cover type. The PLER values for TN, TP and TSS were obtained from USEPA (Voorhees, 2016b) (see documentation provided in Appendix A) as follows:

\[ L_n = A_n \times P_n \]

Where \( L_n \) = Loading of land use/cover type n (lb/yr); \( A_n \) = area of land use/cover type n (acres); \( P_n \) = pollutant load export rate of land use/cover type n (lb/acre/yr)

Table A-8: Estimated Pollutant Loading for Key Nonpoint Source Pollutants

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Pollutant Loading(^1)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Phosphorus (TP)</td>
<td>Total Nitrogen (TN)</td>
<td>Total Suspended Solids (TSS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(lbs/yr)</td>
<td>(lbs/yr)</td>
<td>(tons/yr)</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>90</td>
<td>569</td>
<td>10.05</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>82</td>
<td>709</td>
<td>8.87</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>273</td>
<td>1,477</td>
<td>53.37</td>
<td></td>
</tr>
<tr>
<td>High Density Residential</td>
<td>49</td>
<td>333</td>
<td>4.94</td>
<td></td>
</tr>
<tr>
<td>Highway</td>
<td>5</td>
<td>41</td>
<td>2.59</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>68</td>
<td>587</td>
<td>7.35</td>
<td></td>
</tr>
<tr>
<td>Low Density Residential</td>
<td>97</td>
<td>947</td>
<td>13.39</td>
<td></td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>29</td>
<td>236</td>
<td>3.38</td>
<td></td>
</tr>
<tr>
<td>Open Land</td>
<td>58</td>
<td>498</td>
<td>11.56</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>751</td>
<td>5,396</td>
<td>115.49</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)These estimates do not consider loads from point sources or septic systems.

Pollutant loading information:
Element B: Determine Pollutant Load Reductions Needed to Achieve Water Quality Goals

1. Estimated Pollutant Loads

Table 1 lists estimated pollutant loads for the following primary nonpoint source (NPS) pollutants: total phosphorus (TP), total nitrogen (TN), total suspended solids (TSS). These estimated loads are based on the pollutant loading analysis presented in Section 4 of Element A.

2. Water Quality Goals

Water quality goals for primary NPS pollutants are listed in Table 1 based on the following:

- TMDL water quality goals (if a TMDL exists for the water body);
- For all water bodies, including impaired waters that have a pathogen TMDL, the water quality goal for bacteria is based on the Massachusetts Surface Water Quality Standards (314 CMR 4.00, 2013) that apply to the Water Class of the selected water body.
- If the water body does not have a TMDL for TP, a default target TP concentrations is provided which is based on guidance provided by the USEPA in Quality Criteria for Water (1986), also known as the “Gold Book”. Because there are no similar default water quality goals for TN and TSS, goals for these pollutants are provided in Table 1 only if a TMDL exists or alternate goal(s) have been optionally established by the WBP author.
- According to the USEPA Gold Book, total phosphorus should not exceed 50 ug/L in any stream at the point where it enters any lake or reservoir. The water quality loading goal was estimated by multiplying this target maximum phosphorus concentration (50 ug/L) by the estimated annual watershed discharge for the selected water body. To estimate the annual watershed discharge, the mean flow was used, which was estimated based on United States Geological Survey (USGS) “Runoff Depth” estimates for Massachusetts (Cohen and Randall, 1998). Cohen and Randall (1998) provide statewide estimates of annual Precipitation (P), Evapotranspiration (ET), and Runoff (R) depths for the northeastern U.S. According to their method, Runoff Depth (R) is defined as all water reaching a discharge point (including surface and groundwater), and is calculated by:

\[ P - ET = R \]
A mean Runoff Depth $R$ was determined for the watershed by calculating the average value of $R$ within the watershed boundary. This method includes the following assumptions/limitations:

a. For lakes and ponds, the estimate of annual TP loading is averaged across the entire watershed. However, a given lake or reservoir may have multiple tributary streams, and each stream may drain land with vastly different characteristics. For example, one tributary may drain a highly developed residential area, while a second tributary may drain primarily forested and undeveloped land. In this case, one tributary may exhibit much higher phosphorus concentrations than the average of all streams in the selected watershed.

b. The estimated existing loading value only accounts for phosphorus due to stormwater runoff. Other sources of phosphorus may be relevant, particularly phosphorus from on-site wastewater treatment (septic systems) within close proximity to receiving waters. Phosphorus does not typically travel far within an aquifer, but in watersheds that are primarily unsewered, septic systems and other similar groundwater-related sources may contribute a significant load of phosphorus that is not captured in this analysis. As such, it is important to consider the estimated TP loading as "the expected TP loading from stormwater sources."

### Table B-1: Pollutant Load Reductions Needed

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Existing Estimated Total Load</th>
<th>Water Quality Goal</th>
<th>Required Load Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus</td>
<td>See TMDL information below</td>
<td>See TMDL information below</td>
<td>See TMDL information below</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>5396 lbs/yr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>115 ton/yr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Bacteria               | **MSWQS for bacteria are concentration standards (e.g., colonies of fecal coliform bacteria per 100 ml), which are difficult to predict based on estimated annual loading.** | **Class B. Class B Standards**
  • Public Bathing Beaches: For E. coli, geometric mean of 5 most recent samples shall not exceed 126 colonies/100 ml and no single sample during the bathing season shall exceed 235 colonies/100 ml. For enterococci, geometric mean of 5 most recent samples shall not exceed 33 colonies/100 ml and no single sample during bathing season shall exceed 61 colonies/100 ml;
  • Other Waters and Non-bathing Season at Bathing Beaches: For E. coli, geometric mean of samples from most recent 6 months shall not exceed 126 colonies/100 ml (typically based on min. 5 samples) and no single sample shall exceed 235 colonies/100 ml. For | |
TMDL Pollutant Load Criteria

Total Phosphorus (MA51110)

Loading Capacity
Modeling Assumptions, Key Input, Calibration and Validation:
There are no numeric models available to predict the growth of rooted aquatic macrophytes as a function of nutrient loading estimates, therefore the control of nuisance aquatic plants is based on best professional judgment. However, the goal of the TMDL is to prevent future eutrophication from occurring, thus the nutrient loading still needs to be controlled. To control eutrophication, the Carlson Trophic State Index (TSI) predicts a lake should have total phosphorus concentrations of about 40 ppb to meet the 4-foot transparency requirement for swimming beaches in Massachusetts and targets are set lower than this. Due to the lack of data on mean depth and other parameters, a simple water quality model was used to link watershed phosphorus loading to in-lake total phosphorus concentration targets. Based on the NPSLAKE model phosphorus loading output and predicted water runoff volumes, an estimated in-lake total phosphorus (TP) concentration was derived based on the Reckhow (1979) model:

\[ \text{TP} = \frac{L}{(11.6 + 1.2*q)} \times 1000 \]

where
- TP = the predicted average total phosphorus concentration (mg/l) in the lake.
- L = Phosphorus loading in g/m²/yr (the total loading in grams divided by lake area in meters).
- q = The areal water loading in m/yr from total water runoff in m³/yr divided by lake area in m².

Similarly, by setting the TP to the target total phosphorus concentration, a target load was estimated by solving the equation above. As noted in Mattson and Isaac (1999) the Reckhow (1979) model was developed on similar, north temperate lakes and most Massachusetts lakes will fall within the range of phosphorus loading and hydrology of the calibration data set. Additional assumptions, and details of calibration and validation are given in Reckhow (1979).

Wasteload Allocations, Load Allocations and Margin of Safety:
For most lakes, point source wasteload allocation is zero. The margin of safety is set by establishing a target that is below that expected to meet the 4-foot swimming standard (about 40 ppb). Thus, the TMDL is the same as the target load allocation to nonpoint sources as indicated in the right side of the following table (originally part of Table 4 of “Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes” report, 2002). Loading allocations are based on the NPSLAKE landuse modeled phosphorus budget. Note that if lakes have surface TP concentrations that are much larger than that predicted by the NPSLAKE model, internal sources of phosphorus, such as the sediments, may also be a contributing source of phosphorus to the surface waters and should be considered for further evaluation and control.

<table>
<thead>
<tr>
<th>Source</th>
<th>Current TP Loading (kg/yr)</th>
<th>Target TP Load Allocation (kg/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td>88</td>
<td>88</td>
</tr>
<tr>
<td>Agriculture</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Open Land</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>Residential (Low den.)</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td>Residential (High den.)</td>
<td>128</td>
<td>90</td>
</tr>
<tr>
<td>Comm. Indust.</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td>Septic System</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Inputs</td>
<td>330</td>
<td>257</td>
</tr>
</tbody>
</table>
Phosphorus loading allocations for each landuse category are shown (are rounded to the nearest kg/yr) in the above table. No reduction in forest loading is targeted, because other than logging operations, which are relatively rare and already have BMPs in place, this source is unlikely to be reduced by additional BMPs. The remaining load reductions are allocated as a proportional phosphorus loading reduction.

The TMDL is the sum of the wasteload allocations (WLA) from point sources (e.g., sewage treatment plants) plus load allocations (LA) from nonpoint sources (e.g., landuse sources) plus a margin of safety (MOS). Thus, the TMDL can be written as:

\[ \text{TMDL} = \text{WLA} + \text{LA} + \text{MOS} \]

Seasonality:
As the term implies, TMDLs are often expressed as maximum daily loads. However, as specified in 40 CFR 130.2(I), TMDLs may be expressed in other terms when appropriate. For this case, the TMDL is expressed in terms of allowable annual loadings of phosphorus. Although critical conditions occur during the summer season when weed growth is more likely to interfere with uses, water quality in many lakes is generally not sensitive to daily or short term loading, but is more a function of loadings that occur over longer periods of time (e.g. annually).

Therefore, seasonal variation is taken into account with the estimation of annual loads. In addition, evaluating the effectiveness of nonpoint source controls can be more easily accomplished on an annual basis rather than a daily basis.

For most lakes, it is appropriate and justifiable to express a nutrient TMDL in terms of allowable annual loadings. The annual load should inherently account for seasonal variations by being protective of the most sensitive time of year. The most sensitive time of year in most lakes occurs during summer, when the frequency and occurrence of nuisance algal blooms and macrophyte growth are usually greatest. Therefore, because these phosphorus TMDLs were established to be protective of the most environmentally sensitive period (i.e., the summer season), it will also be protective of water quality during all other seasons. Additionally, the targeted reduction in annual phosphorus load to the ponds will result in the application of phosphorus controls that also address seasonal variation. For example, certain control practices such as stabilizing eroding drainage ways or maintaining septic systems will be in place throughout the year while others will be in effect during the times the sources are active (e.g., application of lawn fertilizer).


*Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes*

Pollutant load reduction information:
Element C: Describe management measures that will be implemented to achieve water quality goals

Table C1 presents the proposed management measures as well as the estimated pollutant load reductions and costs. The planning level cost estimates and pollutant load reduction estimates and estimates of BMP footprint were based off information obtained in the following sources and were also adjusted to 2016 values using the Consumer Price Index (CPI) (United States Bureau of Labor Statistics, 2016):

- Geosyntec Consultants, Inc. (2014);
- Geosyntec Consultants, Inc. (2015);
- King and Hagen (2011);
- Leisenring, et al. (2014);
- King and Hagen (2011);
- MassDEP (2016a);
- MassDEP (2016b);
- University of Massachusetts, Amherst (2004);
- Voorhees (2015);
- Voorhees (2016a);
- Voorhees (2016b);

Table C-1: Proposed Management Measures, Estimated Pollutant Load Reductions and Costs

<table>
<thead>
<tr>
<th>Structural BMPs</th>
<th>No Structural BMP Data Found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional BMPs</td>
<td>No Additional BMP Data Found</td>
</tr>
</tbody>
</table>
Element D: Identify Technical and Financial Assistance Needed to Implement Plan

**Element D:** Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.

Table D-1 presents the funding needed to implement the management measures presented in this watershed plan. The table includes costs for structural and non-structural BMPs, operation and maintenance activities, information/education measures, and monitoring/evaluation activities.

<table>
<thead>
<tr>
<th>Management Measures</th>
<th>Location</th>
<th>Capital Costs</th>
<th>Operation &amp; Maintenance Costs</th>
<th>Relevant Authorities</th>
<th>Technical Assistance Needed</th>
<th>Funding Needed</th>
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<tr>
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<td>Information/Education (see Element E)</td>
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<tr>
<td>Monitoring and Evaluation (see Element H/I)</td>
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<td>Total Funding Needed:</td>
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<td></td>
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<td></td>
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Funding Sources:
Element E: Public Information and Education

Element E: Information and Education (I/E) component of the watershed plan used to:
1. Enhance public understanding of the project; and
2. Encourage early and continued public participation in selecting, designing, and implementing the NPS management measures that will be implemented.

Step 1: Goals and Objectives
The goals and objectives for the watershed information and education program.

Step 2: Target Audience
Target audiences that need to be reached to meet the goals and objectives identified above.

Step 3: Outreach Products and Distribution
The outreach product(s) and distribution form(s) that will be used for each.

Step 4: Evaluate Information/Education Program
Information and education efforts and how they will be evaluated.
Elements F & G: Implementation Schedule and Measurable Milestones

**Element F**: Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.

**Element G**: A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.

Table FG-1: Implementation Schedule and Interim Measurable Milestones

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<tr>
<td>B. Public Education &amp; Outreach</td>
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<tr>
<td>C. Monitoring</td>
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Scheduling and milestone information:
Elements H & I: Progress Evaluation Criteria and Monitoring

**Element H:** A set of criteria used to determine (1) if loading reductions are being achieved over time and (2) if progress is being made toward attaining water quality goals. Element H asks "how will you know if you are making progress towards water quality goals?" The criteria established to track progress can be direct measurements (e.g., E. coli bacteria concentrations) or indirect indicators of load reduction (e.g., number of beach closings related to bacteria).

**Element I:** A monitoring component to evaluate the effectiveness of implementation efforts over time, as measured against the Element H criteria. Element I asks "how, when, and where will you conduct monitoring?"

The water quality target concentration(s) is presented under Element A of this plan. To achieve this target concentration, the annual loading must be reduced to the amount described in Element B. Element C of this plan describes the various management measures that will be implemented to achieve this targeted load reduction. The evaluation criteria and monitoring program described below will be used to measure the effectiveness of the proposed management measures (described in Element C) in improving the water quality of Gulf Pond.

**Indirect Indicators of Load Reduction**

**Project-Specific Indicators**

**TMDL Criteria**
References / Appendix

References

314 CMR 4.00 (2013). "Division of Water Pollution Control, Massachusetts Surface Water Quality Standards"


MassDEP (2012). "Massachusetts Year 2012 Integrated List of Waters Final Listing of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act"

MassDEP (2016a). "Massachusetts Clean Water Toolkit"


MassGIS (1999). "Networked Hydro Centerlines" Shapefile

MassGIS (2001). "USGS Topographic Quadrangle Images" Image


MassGIS (2009a). "Impervious Surface" Image


MassGIS (2013). "MassDEP 2012 Integrated List of Waters (305(b)/303(d))" Shapefile


United States Geological Survey (2016). "National Hydrography Dataset, High Resolution Shapefile"

University of Massachusetts, Amherst (2004). "Stormwater Technologies Clearinghouse"

USDA NRCS and MassGIS (2012). "NRCS SSURGO-Certified Soils" Shapefile


USEPA. (2010). "EPA’s Methodology to Calculate Baseline Estimates of Impervious Area (IA) and Directly Connected Impervious Area (DCIA) for Massachusetts Communities."

Voorhees, Mark, USEPA. (2015). "FW: Description of additional modelling work for Opti-Tool Project" Message to Chad Yaindl, Geosyntec Consultants. 23 April 2015. E-mail.


Voorhees, Mark, USEPA. (2016b). "FW: Description of additional modelling work for Opti-Tool Project" Message to Chad Yaindl, Geosyntec Consultants. 23 April 2015. E-mail.

**Water Quality Assessment Reports**


**TMDL**

"Total Maximum Daily Loads of Phosphorus for Selected Northern Blackstone Lakes"
## Appendix A – Pollutant Load Export Rates (PLERs)

<table>
<thead>
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<th>Land Use &amp; Cover</th>
<th>PLERs (lb/acre/year)</th>
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1HSG = Hydrologic Soil Group
Massachusetts Year 2014 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

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Matthew A. Beaton, Secretary
Massachusetts Department of Environmental Protection
Martin Suuberg, Commissioner
Bureau of Water Resources
Douglas E. Fine, Assistant Commissioner
### MASSACHUSETTS CATEGORY 4A WATERS

"TMDL is completed"

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* TMDL not required (Non-pollutant)

---

Final Massachusetts Year 2014 Integrated List of Waters
December, 2015 (2)
CN 450.1

91
Massachusetts Year 2016 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

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Kathleen A. Theoharides, Secretary
Massachusetts Department of Environmental Protection
Martin Suuberg, Commissioner
Bureau of Water Resources
Kathleen Baskin, Assistant Commissioner
## Category 4c waters listed alphabetically by major watershed
"Impairment not caused by a pollutant – TMDL not required"

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</tr>
<tr>
<td>Howe Reservoirs</td>
<td>MA51070</td>
<td>[East Basin] Millbury.</td>
<td>2.00</td>
<td>Acres</td>
<td>(Dewatering*)</td>
</tr>
<tr>
<td>Ironstone Reservoir</td>
<td>MA51074</td>
<td>Uxbridge.</td>
<td>28.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Jenks Reservoir</td>
<td>MA51075</td>
<td>Bellingham.</td>
<td>26.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Mill Pond</td>
<td>MA51104</td>
<td>Upton.</td>
<td>10.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Miscoe Lake</td>
<td>MA51106</td>
<td>Wrentham (size indicates portion in Massachusetts) (entire portion in MA is from 1000 feet upstream of the state line, these interstate surface waters are public water supply in Rhode Island and designated in MA as Class A/PWS/ORW).</td>
<td>5.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Newton Pond</td>
<td>MA51110</td>
<td>Shrewsbury/Boylston.</td>
<td>54.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>North Pond</td>
<td>MA51112</td>
<td>Hopkinton/Milford.</td>
<td>231.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Pratt Pond</td>
<td>MA51123</td>
<td>Upton.</td>
<td>40.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Quinsigamond River</td>
<td>MA51-09</td>
<td>Headwaters, outlet Flint Pond, Grafton to confluence with the Blackstone River in Fisherville Pond, Grafton (excluding approximately 0.5 mile through Lake Ripple segment MA51135) (segment includes all of Hovey Pond formerly segment MA51068 and a portion of Fisherville Pond formerly segment MA51048).</td>
<td>5.20</td>
<td>Miles</td>
<td>(Eurasian Water Milfoil, Myriophyllum spicatum*)</td>
</tr>
<tr>
<td>Riverlin Street Pond</td>
<td>MA51137</td>
<td>Millbury.</td>
<td>2.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Rivulet Pond</td>
<td>MA51138</td>
<td>Uxbridge.</td>
<td>4.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Sibley Reservoir</td>
<td>MA51148</td>
<td>Sutton.</td>
<td>25.00</td>
<td>Acres</td>
<td>(Dewatering*)</td>
</tr>
<tr>
<td>Silver Lake</td>
<td>MA51150</td>
<td>Bellingham.</td>
<td>42.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Silver Lake</td>
<td>MA51151</td>
<td>Grafton.</td>
<td>25.00</td>
<td>Acres</td>
<td>(Dewatering*)</td>
</tr>
<tr>
<td>Singletary Pond</td>
<td>MA51152</td>
<td>Sutton/Millbury.</td>
<td>341.00</td>
<td>Acres</td>
<td>(Eurasian Water Milfoil, Myriophyllum spicatum*)</td>
</tr>
<tr>
<td>Stevens Pond</td>
<td>MA51159</td>
<td>Sutton.</td>
<td>85.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Swans Pond</td>
<td>MA51164</td>
<td>Sutton/Northbridge.</td>
<td>32.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
<tr>
<td>Taft Pond</td>
<td>MA51165</td>
<td>Upton.</td>
<td>11.00</td>
<td>Acres</td>
<td>(Non-Native Aquatic Plants*)</td>
</tr>
</tbody>
</table>

* TMDL not required (Non-pollutant)
### Appendix 3

**Impairments removed from categories 4 or 5 of the integrated list in 2016**

(waters listed alphabetically by major watershed)

<table>
<thead>
<tr>
<th>Water Body</th>
<th>Segment ID</th>
<th>Category</th>
<th>2014</th>
<th>2016</th>
<th>Impairment Cause</th>
<th>EPA TMDL No.</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackstone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Debris/Floatables/Trash*)</td>
<td></td>
<td>Applicable WQS attained; reason for recovery unspecified.</td>
</tr>
<tr>
<td>Beaver Brook</td>
<td>MA51-07</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>Taste and Odor</td>
<td></td>
<td>Applicable WQS attained; reason for recovery unspecified.</td>
</tr>
<tr>
<td>Blackstone River</td>
<td>MA51-04</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>DDT (dichlorodiphenyltrichloroethane)</td>
<td></td>
<td>Impairment changed from &quot;DDT&quot; to &quot;DDT in Fish Tissue&quot;.</td>
</tr>
<tr>
<td>Blackstone River</td>
<td>MA51-06</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>DDT (dichlorodiphenyltrichloroethane)</td>
<td></td>
<td>Impairment changed from &quot;DDT&quot; to &quot;DDT in Fish Tissue&quot;.</td>
</tr>
<tr>
<td>Brierly Pond</td>
<td>MA51010</td>
<td>4A</td>
<td>4C</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>175</td>
<td>Not caused by a pollutant, impairment still exists.</td>
</tr>
<tr>
<td>Dark Brook</td>
<td>MA51-16</td>
<td>5</td>
<td>5</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>2377</td>
<td>Applicable WQS attained; reason for recovery unspecified.</td>
</tr>
<tr>
<td>Eddy Pond</td>
<td>MA51043</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>2382</td>
<td>Not caused by a pollutant, impairment still exists.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nutrient/Eutrophication Biological Indicators</td>
<td>2382</td>
<td>New impairment, covered under existing TMDL [CN 070.1, 5/2/2002], added to this segment for 2016.</td>
</tr>
<tr>
<td>Flint Pond</td>
<td>MA51050</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>444</td>
<td>Not caused by a pollutant, impairment still exists.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nutrient/Eutrophication Biological Indicators</td>
<td>444</td>
<td>New impairment, covered under existing TMDL [CN 115.0, 6/28/2002], added to this segment for 2016.</td>
</tr>
<tr>
<td>Flint Pond</td>
<td>MA51188</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>444</td>
<td>Not caused by a pollutant, impairment still exists.</td>
</tr>
<tr>
<td>Howe Reservoirs</td>
<td>MA51071</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>550</td>
<td>Not caused by a pollutant, impairment still exists.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nutrient/Eutrophication Biological Indicators</td>
<td>550</td>
<td>New impairment, covered under existing TMDL [CN 070.1, 5/2/2002], added to this segment for 2016.</td>
</tr>
<tr>
<td>Indian Lake</td>
<td>MA51073</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>2323</td>
<td>Applicable WQS attained; according to new assessment method.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Harmful Algal Blooms</td>
<td>2323</td>
<td>New impairment, covered under existing TMDL [CN 116.0, 6/28/2002], added to this segment for 2016.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nutrient/Eutrophication Biological Indicators</td>
<td>2323</td>
<td>New impairment, covered under existing TMDL [CN 116.0, 6/28/2002], added to this segment for 2016.</td>
</tr>
<tr>
<td>Jordan Pond</td>
<td>MA51078</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Harmful Algal Blooms</td>
<td>2385</td>
<td>New impairment, covered under existing TMDL [CN 070.1, 5/2/2002], added to this segment for 2016.</td>
</tr>
<tr>
<td>Kettle Brook</td>
<td>MA51-01</td>
<td>5</td>
<td>5</td>
<td></td>
<td>(Debris/Floatables/Trash*)</td>
<td></td>
<td>Applicable WQS attained; reason for recovery unspecified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>2391</td>
<td>Applicable WQS attained; reason for recovery unspecified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Turbidity</td>
<td>2389</td>
<td>Applicable WQS attained; reason for recovery unspecified.</td>
</tr>
<tr>
<td>Mill River</td>
<td>MA51-36</td>
<td>5</td>
<td>5</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>862</td>
<td>Applicable WQS attained; according to new assessment method.</td>
</tr>
<tr>
<td>Newton Pond</td>
<td>MA51110</td>
<td>4A</td>
<td>4C</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td></td>
<td>Applicable WQS attained; according to new assessment method.</td>
</tr>
<tr>
<td>Shirley Street Pond</td>
<td>MA51196</td>
<td>4A</td>
<td>4A</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>2392</td>
<td>Not caused by a pollutant, impairment still exists.</td>
</tr>
<tr>
<td>Singletary Brook</td>
<td>MA51-31</td>
<td>5</td>
<td>5</td>
<td></td>
<td>Aquatic Plants (Macrophytes)</td>
<td>2392</td>
<td>New impairment, covered under existing TMDL [CN 070.1, 5/2/2002], added to this segment for 2016.</td>
</tr>
</tbody>
</table>

* TMDL not required (Non-pollutant)

**Final Massachusetts Year 2016 Integrated List of Waters**

December, 2019 (9)

CN 470.1