MassDOT’s Impaired Waters Program Charles River Watershed

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Agenda

- Introduction and Impaired Waters Program Background

- Charles River Basin – Assessments

- Retrofit BMP Design and Implementation

- Questions and Discussion
Federal and State Stormwater Regulation

- NPDES - MS4 Permit
  - Individual Permit in 2012
- MA Stormwater Management Standards
  - 10 Standards Codified by DEP in 2008
Additional Program Drivers

- Environmental Stewardship
- EPA Clean Water Act
  - 303 (d) List Impaired Waters
  - State Water Quality Standards
  - TMDLs (Total Maximum Daily Load)
- EPA Input During Federal Lawsuit
Impaired Waters Program

- Programmed Projects
- Statewide Water Body Assessments
- Retrofit Program
Programmed Projects

- Resurfacing
- Interchange improvements
- Add-a-lane
- Bridge Improvements
Programmed Projects - Water Quality Data Form

<table>
<thead>
<tr>
<th>Location of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street(s) (and/or site name):</td>
</tr>
<tr>
<td>Project Number:</td>
</tr>
<tr>
<td>City:</td>
</tr>
<tr>
<td>County:</td>
</tr>
<tr>
<td>State: MA</td>
</tr>
<tr>
<td>District Number:</td>
</tr>
</tbody>
</table>

2 Who will have final ownership of the road or bridge this project is addressing?

Receiving Water Body Information
Answer the following questions on the stormwater receiving water body and send this form to the MassDOT Environmental Section at the 25% design stage.

3 Does runoff from the site enter a separate storm sewer system (MS4) operated by another organization?

4 How many waterbodies receive storm water runoff from the area impacted by this project?

5 Receiving water body name:

6 What is the receiving water body's segment ID?

7 What is the stressed basin classification in the project area?

Receiving Water Body Name:

Confirm that this waterbody name is for the project's receiving water body. If not, confirm that the water body segment ID is accurate.
Water Body Assessments
Assessment Methodologies

**TMDL Method**
- Address water body’s pollutant of concern
- Set target load based on Waste Load Allocations from TMDL

**IC Method**
- Use Impervious Cover as surrogate pollutant for stormwater impairments
- Set target based on EPA’s Regions I Impervious Cover TMDL Method (<9% IC)
Retrofit Program

- "Stand-alone" projects
- From water body assessment recommendations
- Focus on DOT properties:
  - Urban areas
  - Direct discharges
CHARLES RIVER – CASE STUDY
Watershed Approach
Impervious Cover

- Hydrologic
- Physical
- Water Quality
- Biologic
# Assessment Methodology

## Annual Load Comparison

<table>
<thead>
<tr>
<th>Condition</th>
<th>Runoff (ac-ft)</th>
<th>P (lb.)</th>
<th>TSS (lb.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%IC</td>
<td>15</td>
<td>6</td>
<td>709</td>
</tr>
<tr>
<td>5%IC</td>
<td>131</td>
<td>44</td>
<td>5,919</td>
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<tr>
<td>10% IC</td>
<td>245</td>
<td>88</td>
<td>12,799</td>
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<tr>
<td>20% IC</td>
<td>473</td>
<td>205</td>
<td>35,915</td>
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<tr>
<td>40% IC</td>
<td>924</td>
<td>560</td>
<td>134,827</td>
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<tr>
<td>60% IC</td>
<td>1,373</td>
<td>1,028</td>
<td>283,926</td>
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<tr>
<td>80% IC</td>
<td>1,817</td>
<td>1,565</td>
<td>464,413</td>
</tr>
<tr>
<td>100% IC</td>
<td>2,257</td>
<td>2,154</td>
<td>668,182</td>
</tr>
<tr>
<td>Site Runoff</td>
<td>2,038</td>
<td>1855</td>
<td>566,338</td>
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<tr>
<td>Site w/ BMP</td>
<td>102</td>
<td>48</td>
<td>5,473</td>
</tr>
</tbody>
</table>

<p>| Reduction % | 95% | 97% | 99% |
| Effective IC | 5% | 5% | 5% |</p>
<table>
<thead>
<tr>
<th>WBID</th>
<th>FeatureType</th>
<th>BMP_Classi</th>
<th>Cover_Type</th>
<th>PhosRedLBS</th>
<th>ICRedAC</th>
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</thead>
<tbody>
<tr>
<td>MA72-25</td>
<td>Potential BMP Area</td>
<td>Not BMP - Potential for Enhancment</td>
<td>Grass - Maintained</td>
<td>4.9</td>
<td>2.3</td>
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<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Grass - Maintained</td>
<td>6.7</td>
<td>3.2</td>
</tr>
<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Woods</td>
<td>2.3</td>
<td>1.1</td>
</tr>
<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Woods</td>
<td>1.2</td>
<td>0.6</td>
</tr>
<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Woods</td>
<td>1.8</td>
<td>0.8</td>
</tr>
<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Woods</td>
<td>2.6</td>
<td>1.2</td>
</tr>
<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Grass/Vegetation - Unmaintained</td>
<td>3.4</td>
<td>1.6</td>
</tr>
<tr>
<td>72-07 Toll</td>
<td>Basin</td>
<td>Infiltration Basin</td>
<td>Grass/Vegetation - Unmaintained</td>
<td>5.6</td>
<td>2.7</td>
</tr>
</tbody>
</table>
BMP Retrofit Selection Prioritization

Figure 1 – Toll area – all potential BMPs
Construction Support

- Quality Design
- Pre-Construction Meeting
- Construction Oversight
- Post Construction
Special Funding Mechanisms
FHWA Innovative Contracting (Special Experimental Project SEP - 14)

- Petitioned FHWA to use ‘Task Order Contract’
- Federally Aided
- Contractors bid on a type of project, items, and specifications
- Isolates ‘design’ form ‘design-bid-build’

Description on FHWA website
Retrofit Initiative (SEP-14)

- Streamlined design submission schedules
  - Accelerated in-house reviews
- No ROW required
- Simplified Environmental Process
  - Programmatic NEPA clearances
  - Programmatic Section 106 clearances
- Isolate difficult projects as ‘standalone’ retrofits
Progress to Date – Impaired Waters Program
Progress to Date – Retrofit

Lancaster - Median Bioretention Area
Progress to Date

Bellingham Bioretention Area
Progress to Date

Milford Bioretention Area