



**Stormwater Infrastructure
Operation and Maintenance Plan**

Town of Belmont

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1.0 INTRODUCTION

This Operation and Maintenance (O&M) Plan has been prepared by the Town of Belmont to address stormwater infrastructure O&M requirements¹ of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

This O&M Plan addresses Minimum Control Measure 6, Good Housekeeping and Pollution Prevention for Permittee Owned Operations, by describing the activities and procedures the Town of Belmont will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. The O&M Plan outlines inspection and maintenance procedures for municipally owned catch basins, streets and parking lots, and stormwater BMPs.

The Department of Public Works (DPW) is responsible for inspection and maintenance of the stormwater infrastructure in Town of Belmont.

2.0 CATCH BASINS

The DPW performs routine inspections, cleaning, and maintenance of the approximately 2,009 catch basins. The Town implements the following catch basin inspection and cleaning procedures to reduce the discharge of pollutants from the MS4.

- Routine inspection and cleaning of catch basins. Catch basins are inspected and cleaned each year and moving forward the contractor will note if the catch basin is more than 50 percent full. After receiving this information from the contractor, the Town will establish optimal inspection and maintenance frequencies to meet the "50 percent" goal.
- The following information will be included in each annual report:
 - Any action taken in response to excessive sediment or debris loadings
 - Total number of catch basins
 - Number of catch basins inspected
 - Number of catch basins cleaned
 - Total volume or mass of material removed from catch basins.

3.0 STREETS AND PARKING LOTS

Public streets and municipally owned parking lots are swept annually twice in the spring and twice in the fall using a mechanical broom sweeper. Select business areas of the town are swept weekly from the Spring through December. All sweeping is suspended during the winter months.

¹ See Part 2.3.7.a.iii of the 2016 MS4 Permit for Infrastructure Operation and Maintenance program requirements.



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The Town will implement the following street and parking lot sweeping procedures to reduce the discharge of pollutants from the MS4:

Sweeping Frequency

- All streets should be swept and/or cleaned a minimum of once per year in the spring (with the exception of rural uncurbed roads with no catch basins or high speed limited access highways).
- Sweep as soon as possible after snow melt and following winter activities such as sanding to capture sand and debris before it is washed into the storm drainage system.
- The Town will consider more frequent sweeping for targeted areas based on pollutant load reduction potential, inspections, pollutant loads, catch basin cleaning or inspection results, land use, impaired waters, or other factors. Based on the most recent feedback from the Town's catch basin cleaning contract, annual cleaning for all catch-basin locations throughout the Town is currently adequate, with no problem areas identified for targeted cleaning.
- For rural uncurbed roadways with no catch basins and limited access highways, the Town will either meet the minimum frequency described above, or develop and implement an inspection, documentation, and targeted sweeping plan outlining reduced frequencies within two (2) years of the effective date of the MS4 Permit, and submit such plan with its year one annual report.
- In accordance with Charles River Phosphorus TMDL requirements, the Town will conduct more frequent sweeping for municipally-owned streets and parking lots. Sweeping will be performed in these areas a minimum of two times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept. 1 – Dec. 1; following leaf fall) to reduce runoff to Charles River.
- In accordance with the Charles River Phosphorus TMDL requirements, the Town will increase street sweeping frequency in commercial areas, high density residential areas, or drainage areas with a large amount of impervious area.
- The Town's annual report will include the sweeping schedule developed above to target areas with high pollutant loads.

Sweeping Practices

- Street sweeping should be conducted in dry weather. Sweeping should not be conducted during or immediately after rain storms.
- Dry cleaning methods should be used whenever possible, with the exception of very fine water spray for dust control. Avoid wet cleaning or flushing of the pavement.
- When necessary, enact parking bans to facilitate sweeping on busy streets.
- Sweep in a manner that avoids depositing debris into storm drains.
- Sweeping equipment (mechanical, regenerative air, vacuum filter, tandem sweeping) should be selected depending on the level of debris. Brush alignment, sweeper speed, rotation rate, and sweeping pattern should be set to optimal levels to manage debris.
- Routinely inspect and perform maintenance on sweeping equipment to reduce the potential for leaks. See the SOP for Operations and Maintenance of Municipal Vehicles and Equipment for more information.

Sweepings Reuse and Disposal

- The reuse of sweepings is recommended by MassDEP. If street sweepings are reused (e.g., as anti-skid material or fill in parking lots), they should be properly filtered to remove solid waste,



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such as paper or trash, in accordance with their intended reuse. All reuse and/or disposal of street sweepings will be managed in accordance with current MassDEP policies and regulations.

- Sweepings intended for reuse can be stored for up to one year in approved temporary storage areas. Storage areas should be protected to prevent erosion and runoff and should be located away from wetland resource areas and buffer zones, surface water, or groundwater.
- Sweepings are classified as solid waste. If not reused, they should be disposed of at solid waste disposal sites.
- For additional information on approved reuses of sweepings and storage/disposal policies, refer to MassDEP policy #BAW-18-001: Reuse and Disposal of Street Sweeping (<https://www.mass.gov/files/documents/2018/05/14/street-sweepings.pdf>).
- The Town will store sweepings intended for reuse at the DPW yard in accordance with MS4 regulations. Street sweepings will be disposed of in Nashua once full.
- The following information will be included in each annual report:
 - Any action taken in response to excessive sediment or debris loadings
 - Total volume or mass of material removed by street sweeping.

4.0 CATCH BASIN CLEANINGS AND STREET SWEEPINGS

Catch basin cleanings (i.e., solid materials such as leaves, sand and twigs removed from stormwater collection systems during cleaning operations) and street sweepings will be managed in compliance with current Massachusetts Department of Environmental Protection policies:

- Catch Basin Cleanings
<http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html>
- Street Sweepings
<http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf>

Prior to disposal or reuse, catch basin cleanings and street sweepings will be stored indoors or using proper controls such that they do not discharge to receiving waters.

5.0 WINTER ROAD MAINTENANCE

The Town performs a variety of maintenance activities to ensure safe winter driving conditions on its roads and parking lots. The Town will implement the following winter maintenance procedures to reduce the discharge of pollutants from the MS4:

Equipment and Maintenance

- Calibrate equipment to reduce and optimize salt use and ensure deicing agents are being used efficiently. Provide employee training on proper calibration procedures.
- Do not overfill trucks with deicing materials as it may lead to spills.
- Encourage the use of automated application equipment like zero velocity spreaders.



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- When possible, retrofit vehicles to include equipment such as on-board application regulators, temperature sensors for air and pavement, and anti-icing and pre-wetting equipment.
- Wash equipment using proper procedures to prevent pollutants from entering the stormwater system. Dry cleanup procedures should be used when possible. Vehicles dirtied from salt or sand application should be washed according to procedures in the SOP for Operations and Maintenance of Municipal Vehicles and Equipment.
- Regularly inspect and maintain equipment to reduce the potential for leaks. See SOP for Operations and Maintenance of Municipal Vehicles and Equipment for more information.

Anti-icing and Deicing

- Minimize the use and optimize the application of sodium chloride and other salt² (while maintaining public safety) and consider opportunities for use of alternative materials.
- Optimize sand and/or chemical application rates through the use, where practicable, of automated application equipment (e.g., zero velocity spreaders), anti-icing and pre-wetting techniques, implementation of pavement management systems, and alternate chemicals.
- Remove as much snow as possible using mechanical means like plowing, blowing, or shoveling before deicing to reduce the need for road salt or other deicing chemicals.
- When possible, use anti-icing practices to prevent ice formation and reduce the need for deicers.
- Apply anti-icing agents 1-2 hours before winter weather events to ensure optimal performance (can be applied up to 24 prior).
- Only apply road salt when the pavement temperature is above 15° F.
- When using deicers, use pre-wetting agents (e.g., salt brine) to help them work more efficiently and to reduce road salt scatter and bounce.
- Salt brine solution used for anti-icing and pre-wetting can be stored for up to a year – concentration should be tested before use. If temperatures fall below 0° F, use a circulator pump to prevent the brine from freezing.
- Use alternative deicing materials instead of sodium chloride as appropriate (e.g., calcium magnesium acetate, magnesium chloride, or calcium chloride).
- Avoid mixing road salt and sand. Doing so makes both the salt and sand work less efficiently and leads to over-application.
- Only apply enough deicer so that plows can remove the snow and ice. Adjust the application rate of deicers based on the type of storm, type of agent used, and anti-icing and pre-wetting techniques used.
- Perform unloading/loading of trucks on impervious surfaces whenever possible. These areas should be frequently cleaned and swept to reduce the tracking and runoff of salt and to capture any spills.
- Track the amount of deicer used and maintain records of the application of sand, anti-icing and/or de-icing chemicals to document the reduction of chemicals to meet established goals.

Storage of Deicing Materials

- Prevent exposure of deicing product (salt, sand, or alternative products) storage piles to precipitation by enclosing or covering the storage piles. Implement good housekeeping,

² For purposes of the MS4 Permit, salt means any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.



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diversions, containment, or other measures to minimize exposure resulting from adding to or removing materials from the pile. Store piles in such a manner as not to impact surface water resources, groundwater resources, recharge areas, and wells.

- Store materials under covered or enclosed areas and on impervious surfaces.
- Ensure that there are adequate drainage controls in storage areas to prevent runoff from entering the stormwater system.
- Follow appropriate loading and unloading procedures. If there are spills when loading or unloading materials, follow the protocol outlined in the SOP for Spill Response and Cleanup.
- Frequently sweep near the storage/loading areas to reduce the amount of salt, sand, or other materials that is tracked out.
- For liquid deicing chemicals, provide secondary storage containment.
- Do not store road salt near drinking water supplies, surface water resources, groundwater resources, recharge areas, and wells. Follow proper storage guidelines from MassDEP. (<https://www.mass.gov/guides/guidelines-on-road-salt-storage>).

Snow Storage and Disposal

- Snow should not be pushed or dumped into waterbodies or wetlands, into stormwater drainage swales or ditches, or on top of catch basins.
- Snow should not be stored near drinking water areas, waterbodies, or wetlands.
- Avoid storing snow in areas that are unstable, areas of potential erosion, or high points where snow may melt and collect debris as runoff before it enters the stormwater system.
- Consider sun exposure when storing snow. Snow in areas with higher sun exposure will melt faster but may require deicers if the snowmelt refreezes.
- Consider practices such as living snow fences to contain snow piles and reduce snow drifting.
- The MS4 Permit prohibits snow disposal into waters of the United States. Snow disposal and storage activities, including selection of appropriate snow disposal sites, will adhere to the MassDEP Snow Disposal Guidance, Guideline No. BWR G2015-01 (<http://www.mass.gov/eea/agencies/massdep/water/regulations/snow-disposal-guidance.html>).
- The Town currently disposes of snow at the incinerator site in compliance with MS4 regulations.

6.0 STRUCTURAL STORMWATER BMPS

The Town currently maintains seven (7) structural stormwater Best Management Practices (BMPs). An inventory of structural stormwater BMPs is provided in **Table 1**. Inspections are performed annually using the Central Massachusetts Regional Stormwater Coalition Inspection procedures. The Inspection Form is provided in **Attachment A**.

Table 1: Inventory of Structural Stormwater Best Management Practices (BMPs)

BMP ID	Location	BMP Type	Inspection Frequency
B-1	372 Brighton St	Leaching Catch Basin and Manhole	Annual
B-2	Scott Rd at Radcliff Rd	Baffle Tank	Annual
B-3	62 Radcliff Rd	Leaching Catch Basin and Manhole	Annual



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BMP ID	Location	BMP Type	Inspection Frequency
B-4	96 Radcliff Rd	Two Leaching Catch Basins	Annual
B-5	Rutledge Rd @ Claremont St	Baffle Tank	Annual
B-6	83 Richmond Rd	Baffle Tank	Annual
B-7	144 Rutledge Rd	Leaching Manholes	Annual



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ATTACHMENT A

INSPECTION OF "OTHER" BMP

General Information

BMP Description			
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Yes No	
		Yes No	
		Yes No	
		Yes No	

