

Plan for Optimizing Catch Basin Cleaning

Lynnfield, MA

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Prepared For:

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1 Introduction

This Catch Basin Cleaning Optimization Plan has been prepared by Lynnfield, MA to address the catch basin inspection, cleaning and maintenance requirements 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 MS4 Permit."

The 2016 MS4 Permit requires the permittee to document its plan for optimizing catch basin cleaning, inspections, or its schedule for gathering information to develop the optimization plan. This plan documents the Town's existing catch basin cleaning program and its plans for gathering additional information to refine its program to meet the requirements of the permit.

2 Permit Requirements

This Catch Basin Cleaning Optimization Plan addresses Section 2.3.7.a.iii.2 of the 2016 MS4 Permit (Infrastructure Operations and Maintenance), which includes the following requirements:

- **Establish a schedule** with the goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full¹;
- **Prioritize** inspection and maintenance for catch basins:
 - located near construction activities². These should be cleaned more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings;
 - discharging to impaired waters where the pollutant of concern is solids, oil and grease, or metals; and
 - with sumps more than 50% full during consecutive inspections.
- **Establish proper documentation** of catch basin inspections to include:
 - the location and total number of catch basins;
 - the location and total number of catch basins cleaned or inspected; and
 - the total volume or mass of material removed from catch basins.
- **Develop an optimization plan** for catch basin cleaning, inspection plans, or a schedule for gathering information to develop the optimization plan in the first annual report and in the SWMP.

¹ A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.

² Roadway construction; residential, commercial, or industrial development or redevelopment.

3 Existing Catch Basin Management Program

The Town has approximately 1,700 catch basins to clean and maintain. Refer to the map in **Appendix A**. The Town cleans each catch basin on a yearly basis typically during the summer months.

3.1 Inspection and Cleaning Schedule

The Town hires an outside contractor that uses a clam shell to complete the yearly cleanings of all catch basins. During cleaning, the contractor observes and records limited inspection details of catch basins, which are recorded on a tracking form. The City is exploring the use of electronic tracking compatible with GIS in the future.

Catch basin cleaning materials are stored at the Department of Public Works yard.

4 Plans to Refine Catch Basin Cleaning Optimization

4.1 Optimization Methodology

The following outlines Lynnfield's proposed methodology for collecting sediment depth data and optimizing its inspection/cleaning schedule to meet the requirements of the 2016 MS4 Permit.

Moving forward, Lynnfield will continue to implement its existing annual catch basin cleaning. During this time, it will collect data on the sump depth and sediment depth in each catch basin. The catch basin inspection form included with the standard operating procedure (SOP) in **Appendix B** will be used to document data collected during cleaning. A minimum of two years of data will be collected and evaluated to determine the status of the catch basins and whether the sump was more than half full. The catch basins that are more than 50% full will be evaluated for potential factors that may have contributed to it being 50% full (i.e., smaller sump, nearby construction, surrounding land uses, location in town). The evaluation will be used to identify catch basins that require more frequent inspection and/or cleaning and to develop an optimization plan that prioritizes these structures accordingly.

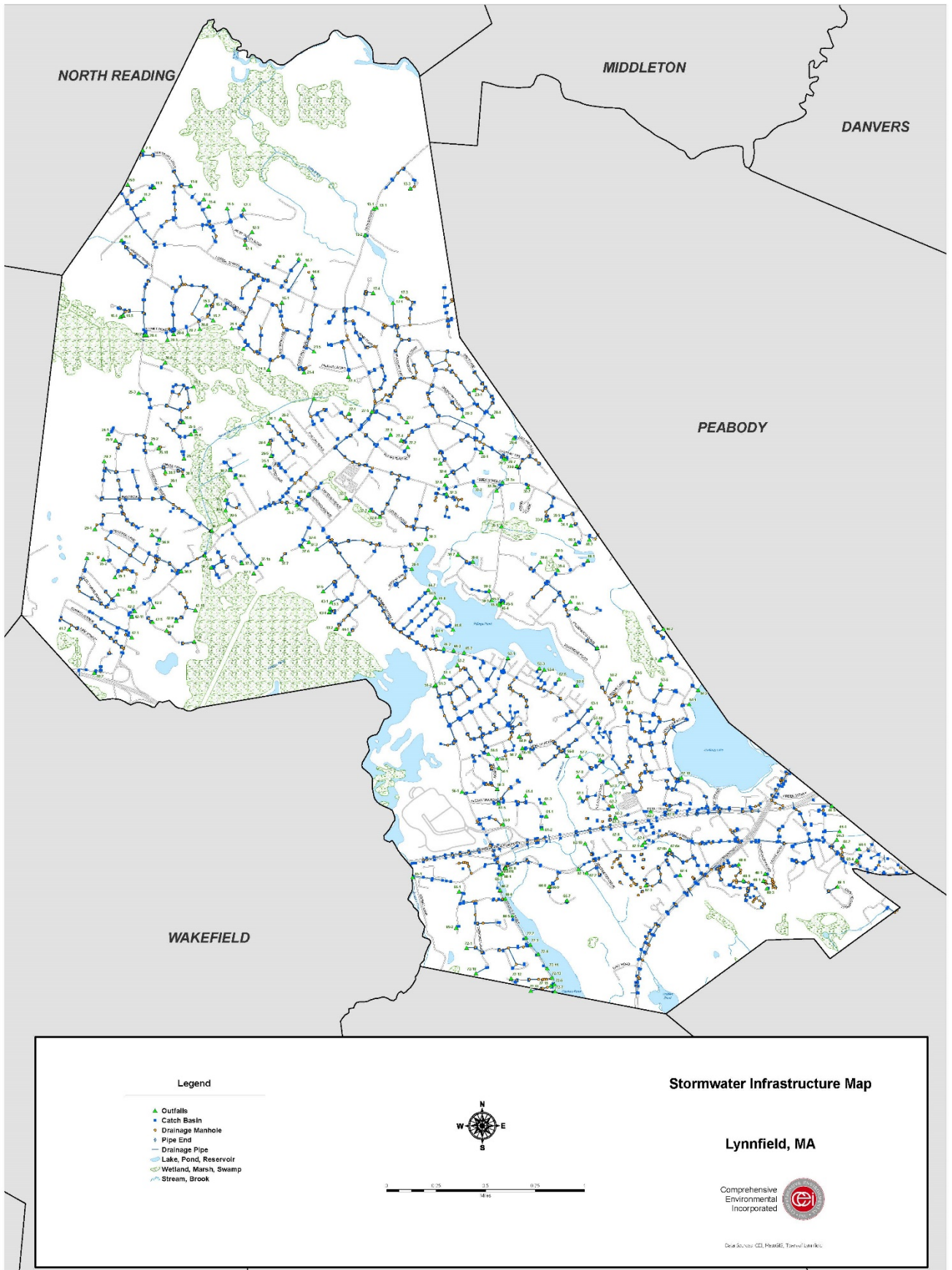
4.2 Catch Basin Cleaning Standard Operation Procedure (SOP)

All catch basins will be inspected and cleaned following the standard operating procedures (SOP) provided in **Appendix B**.

4.3 Catch Basin Cleanings Storage and Disposal

Lynnfield currently stores catch basin cleanings at the DPW yard. The Town will explore possible beneficial uses for its collected catch basin cleanings.

Appendix A: Map of Drainage Infrastructure



Appendix B: SOPs

Standard Operating Procedures for Catch Basin Cleaning and
Inspection

Permit Requirements

As required by the 2016 MS4 Permit, catch basin inspection and cleaning requirements include the following:

- **Inspect and clean catch basins** to ensure that no catch basin is not more than 50 percent full;
- **Prioritize inspection and maintenance** for catch basins:
 - located near construction activities;
 - discharging to impaired waters; and
 - with sumps more than 50% full during consecutive inspections.
- **Establish proper documentation** of catch basin inspections; and
- **Develop an optimization plan** for catch basin cleaning and inspection.

Before Cleaning and/or Inspection

- **Notify residents and business** of catch basin cleaning schedule to restrict parking that could obstruct catch basin cleaning operations.
- **Gather** all required forms and maps.
 - Catch Basin Inspection Form; and
 - Maps of area to be cleaned/inspected

Cleaning and Inspection during Cleaning

1. Clean sediment and trash off of grate.
2. Remove grate.
3. Fill out **Catch Basin Inspection Form** with basin-specific information:
 - **Before cleaning:**
 - Do a visual inspection of outside of grate.
 - Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
 - Measure depth from rim of catch basin to top of sediment.
 - Measure depth from rim of catch basin to the top of the outlet pipe.
 - Take photo of catch basin.
 - **Clean catch basin:**
 - For manual removal, place removed material in a location protected from potential runoff and place cleanings in a vehicle for transport to designated disposal area.
 - OR use a high-powered vac truck to remove sediment.

- **After cleaning:**
 - Measure depth from rim to bottom of catch basin.
 - Measure depth of sump (outlet pipe to bottom of catch basin).
 - Note if the catch basin is more than 50% full with sediment.
 - Note if the catch basin requires maintenance or if there are pollutants present.
 - Take photo of catch basin.
- 4. **Storage:** Bring cleanings to designated location at the Lynnfield DPW Yard at 55 Summer Street, Lynnfield, MA for storage and disposal.
- 5. If any illicit discharges are observed or suspected, notify supervisor.

Interim Inspection between Cleaning Cycles

1. Clean sediment and trash off grate.
2. Remove grate.
3. Fill out **Catch Basin Inspection Form** with basin-specific information:
 - Do a visual inspection of outside of grate.
 - Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
 - Measure depth from rim of catch basin to top of sediment.
 - Using sump depth collected during previous cleaning, note if the catch basin is more than 50% full with sediment.
 - Note if the catch basin requires maintenance or if there are pollutants present.
4. If any illicit discharges are observed or suspected, notify supervisor.

Catch Basin Inspection Form

Inspection Information										
Catch Basin ID										
Street Location				GPS Location						
Inspector's Name										
Date of Inspection				Time of Inspection						
Weather (circle)		Dry		Light Rain		Heavy Rain		Snow		
Catch Basin Information										
Location		Surface Type				Grate				
<input type="checkbox"/> Road/Curb <input type="checkbox"/> Alley <input type="checkbox"/> Ditch <input type="checkbox"/> Parking Lot <input type="checkbox"/> Driveway <input type="checkbox"/> Sidewalk Other: _____		<input type="checkbox"/> Asphalt <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Grass/Dirt Other: _____				____ inches x ____ inches Material: _____ Shape: _____				
Catch Basin Condition										
CB Damage: No Yes		Comment: _____								
	Materials (circle)						Condition (circle)			
Grate	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent	
Frame	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent	
Chimney	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent	
Walls	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent	
Trap/Hood	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent	
Sump	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent	
Sediment Depth and IDDE (inches)										
A. Depth from Rim to Top of Sediment: _____ B. Depth from Rim to Bottom of Basin (after vac): _____ C. Sump Depth: _____ D. Depth of Sediment (B-A): _____ E. More than 50% Full of Sediment? (D/C): _____ CB Cleaned? No Yes Suspected illicit discharge? No Yes						Check those Present: __ Sanitary Waste/Smell __ Excessive Sediment __ Oil Sheen __ Floatables/Trash __ Pet Waste: Other: _____ Potential Source: _____				

SOP. MI-2

Catch Basin Cleaning and Inspection



LYNNFIELD DEPARTMENT OF PUBLIC WORKS CATCH BASIN CLEANING REPORT

Page ____/____

Operator

Day/Date

Weather

Machine Used(bucket volume)

[illegible]