

Town of Fairhaven, MA

# **Stormwater Management Program (SWMP): Volume 1**

*NPDES Phase II Small MS4 General Permit  
June 2025*

## **STORMWATER MANAGEMENT PLAN**

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Town of Fairhaven, MA

*NPDES Phase II Small MS4 General Permit*

## STORMWATER MANAGEMENT PLAN

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Prepared by: **BETA GROUP, INC.**

Prepared for: Town of Fairhaven

June 2025

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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, 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.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: Brian Wotton Title: Chair of Board of Public Works

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: Charles Murphy Title: Chair of Board of Selectmen

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## SUMMARY OF REVISIONS

| Revision # | Change   | Date / Permit Year |
|------------|--|--------------------|
| 0          | SWMP Volumes 1 Issued (SWMP)   | June 2019 / Year 1 |
| 1          | SWMP Volume 3 Issued (O&M)   | June 2020 / Year 2 |
| 2          | SWMP Volumes 1 & 3 Updated, Addendum Volume 2 and SWMP Volume 4 Added.<br>Reflects completed BMPs, Self-Audit / Status, Personnel Changes, 2016 List of Impaired Waters, IDDE Addendum & O&M Progress. | June 2021 / Year 3 |
| 3          | SWMP Volumes 1, 2, 3, 4 Updated.<br>Reflects 2018/2020 List of Impaired Waters, IDDE & O&M Progress<br>Volume 3, SWPPP update  | June 2022 / Year 4 |
| 4          | SWMP Volume 1 Updated, SWMP Appendix A Updated<br>Reflects 2022 List of Impaired Waters, IDDE & O&M Progress   | June 2025 / Year 7 |



## 1.0 EXECUTIVE SUMMARY

Each community with a municipal separate storm sewer system (MS4) in designated urbanized areas must develop a Stormwater Management Program (SWMP) that will guide its activities under the 2016 MS4 general permit. This SWMP was developed by the Town of Fairhaven to protect water quality and reduce the discharge of pollutants from the municipality's storm sewer system to the maximum extent practicable (MEP) as described herein.

The SWMP is comprised of four volumes. This report is Volume 1 of 4.

- **SWMP Volume 1 – Stormwater Management Plan**
- SWMP Volume 2 – Illicit Discharge Detection and Elimination (IDDE) Plan
- SWMP Volume 3 – Good Housekeeping and Pollution Prevention (O&M) Plan
- SWMP Volume 4 – Annual Reporting

Written plans for SWMP Volumes 1 and 2 are required to be completed by the end of Year 1 of the permit term (June 30, 2019). Written plan for Volume 3 is required to be completed by the end of Year 2 of the permit term (June 30, 2020). Volume 4 compiles the documentation required over each reporting period (July 1 to June 30) for assembly of annual reports due September 30<sup>th</sup> each year.

All documents are available for review and comment on the Town of Fairhaven Stormwater Website as follows:

**Stormwater Webpage** is located here:

<https://fairhaven-ma.gov/highway/>

**Town Bylaws** are located here:

<https://ecode360.com/34451184>

## 2.0 INTRODUCTION & BACKGROUND

### 2.1 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 Areas are required to seek NPDES permit coverage for those stormwater discharges.

### 2.2 PERMIT PROGRAM BACKGROUND

On May 1, 2003, EPA Region I issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4-2003 permit) consistent with the Phase II rule. The MS4-2003 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, hereinafter referred to as the Permit, which became effective on July 1, 2018.

### 2.3 TOWN SPECIFIC MS4 BACKGROUND

Fairhaven has eight water body segments that receive flow from the MS4 with five designated as Category 5 Waters and three designated as Category 4A. All but one of the receiving waters have a TMDL for bacteria including Acushnet River, New Bedford Inner Harbor, Outer New Bedford Harbor, Buzzards Bay, Little Bay, Nasketucket Bay and Mattapoisett Harbor: Wetlands. Acushnet River, New Bedford Inner Harbor, Outer New Bedford Harbor, and Nasketucket River also impaired for nitrogen. Bacteria and nitrogen are impairments requiring specific action under the Permit. Additional impairments and required actions are described in detail in **Section 5.0** of this report.

The Town of Fairhaven's MS4 is composed of pipes, catch basins, manholes, culverts, swales and outfalls discharging to wetland areas, streams, lakes, ponds and rivers. A GIS database has been established which contains Town-wide information for all of the drainage structures including:

- 2134 catch basins from the Town database
  - 2130 designated Town-owned
  - 4 designated private-owned
- 249 outfalls in Town GIS database
- 12 interconnections (From MMA)
- 828 storm drain manholes from the Town database
- 147 Drain Junctions (From MMA)
- 68 Drain water quality structures

A stormwater system map is included as part of the Illicit Discharge Detection and Elimination (IDDE) report, which is located in **SWMP Volume 2**. The map includes stormwater system structures and identifies the impaired water bodies and the MS4 areas tributary to each.

Massachusetts Department of Transportation (MassDOT) has several roads within Fairhaven including Route 195, 240 and 6. MassDOT is required to have their own NPDES MS4 Permit for their properties, which are therefore not the responsibility of the Town.

## **2.4 STORMWATER MANAGEMENT PROGRAM (SWMP)**

The Town was previously authorized by the MS4-2003 permit which had established six minimum control measures, Best Management Practice (BMPs) and measurable goals to meet the terms and conditions of that permit. This SWMP is a modification and update to the previous plan and efforts.

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 Town's plans and activities. The document will 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 change public behavior causing stormwater pollution, (2) an opportunity for the public to participate in 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.

This document will be made available at the Public Works office and on the Town website. The Permit covers the following which are included in this SWMP Plan:

- Identification of Responsible Parties
- Endangered and Threatened Species and Historic Properties Protection
- Increased Discharges and Discharges to Waters with TMDLs or Subject to Additional Requirements
- Implementation of Six Minimum Control Measures
- Sanitary Sewer Overflow Inventory
- Surface Drinking Water Supply Protection
- Annual Program Evaluation

## **2.5 IMPLEMENTATION SCHEDULE AND STATUS**

MS4 General Permit implementation timeline and current status is shown in **Figure 2-1**.

Figure 2-1: Town of Fairhaven MS4 Permit Compliance Schedule

| CM  | Task   | Date Required                | Complete During/By Year (Yr 1 is July 2018- June 2019) |   |   |   |   |   |   |   |   |    |
|---|--|------------------------------|--|---|---|---|---|---|---|---|---|----|
|   |  |                              | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|   | Notice of Intent (NOI)   | 9/30/2018                    |  |   |   |   |   |   |   |   |   |    |
|   | Stormwater Management Plan - SWMP (update/develop)             | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | SWMP Update  | Annually                     |  |   |   |   |   |   |   |   |   |    |
| <b>MINIMUM CONTROL MEASURES</b>   |  |                              |  |   |   |   |   |   |   |   |   |    |
| <b>1</b>  | <b>Public Education and Outreach Messages</b>                  |                              |  |   |   |   |   |   |   |   |   |    |
|   | Residents - 2 messages*  | By yr 5, min. 1 year apart   |  |   |   |   |   |   |   |   |   |    |
|   | Businesses & Institutions- 2 messages*                         | By yr 5, min. 1 year apart   |  |   |   |   |   |   |   |   |   |    |
|   | Developers - 2 messages  | By yr 5, min. 1 year apart   |  |   |   |   |   |   |   |   |   |    |
|   | Industrial Facilities - 2 messages                             | By yr 5, min. 1 year apart   |  |   |   |   |   |   |   |   |   |    |
| <b>2</b>  | <b>Public Involvement and Participation</b>                    |                              |  |   |   |   |   |   |   |   |   |    |
|   | Public Review of SWMP & Annual Report                          | Annually                     |  |   |   |   |   |   |   |   |   |    |
|   | Opportunities for Public Participation                         | Annually                     |  |   |   |   |   |   |   |   |   |    |
| <b>3</b>  | <b>Illicit Discharge Detection &amp; Elimination (IDDE)*</b>   |                              |  |   |   |   |   |   |   |   |   |    |
|   | Sanitary Sewer Overflows Inventory                             | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | System Mapping - Phase 1, inc. catchment delineations          | 6/30/2020                    |  |   |   |   |   |   |   |   |   |    |
|   | System Mapping - Phase 2                                       | Update Annually              |  |   |   |   |   |   |   |   |   |    |
|   | Written IDDE Program   | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | Outfall/Interconnects Inventory & Initial Catchment Ranking*   | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | Outfall/Interconnects Catchment Ranking Updates                | Update Annually              |  |   |   |   |   |   |   |   |   |    |
|   | Dry Weather Screening & Sampling                               | By yr 3 & every 5 yrs        |  |   |   |   |   |   |   |   |   |    |
|   | Catchment Investigations Procedures                            | 12/30/2019                   |  |   |   |   |   |   |   |   |   |    |
|   | Catchment Investigations Problem Outfalls                      | 6/30/2025                    |  |   |   |   |   |   |   |   |   |    |
|   | Catchment Investigations All Outfalls                          | 6/30/2028                    |  |   |   |   |   |   |   |   |   |    |
|   | Wet Weather Sampling   | part of catchment invest.    |  |   |   |   |   |   |   |   |   |    |
|   | Illicit Discharge Elimination (Locate & Remove)                | 60 Days from source ID       |  |   |   |   |   |   |   |   |   |    |
|   | Confirmatory Dry Weather Screening                             | 1 yr after removal           |  |   |   |   |   |   |   |   |   |    |
|   | Training   | annually                     |  |   |   |   |   |   |   |   |   |    |
| <b>4</b>  | <b>Construction Site Runoff Control</b>                        |                              |  |   |   |   |   |   |   |   |   |    |
|   | Construction Site Inspections & Enforcement Procedures         | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | Site Plan Review Procedures                                    | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | Requirement for Construction Site Erosion Controls             | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | Construction Site Waste Control Requirements                   | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
| <b>5</b>  | <b>New Development and Redevelopment</b>                       |                              |  |   |   |   |   |   |   |   |   |    |
|   | Update Regulations - Retention/Treatment                       | 6/30/2022                    |  |   |   |   |   |   |   |   |   |    |
|   | Assess Street Design & Parking Guidelines                      | 6/30/2022                    |  |   |   |   |   |   |   |   |   |    |
|   | Assess Regulations to allow Green Infrastructure               | 6/30/2022                    |  |   |   |   |   |   |   |   |   |    |
|   | Locate 5 Properties for Impervious Area Reduction              | 6/30/2022                    |  |   |   |   |   |   |   |   |   |    |
| <b>6</b>  | <b>Good Housekeeping</b>                                       |                              |  |   |   |   |   |   |   |   |   |    |
|   | Winter Road Maintenance Procedures                             | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | O&M, SWPPP & Infrastructure Program                            | 6/30/2020                    |  |   |   |   |   |   |   |   |   |    |
|   | Training for O&M and SWPPP Program Activities                  | Regularly/As Needed          |  |   |   |   |   |   |   |   |   |    |
|   | Catch Basin Cleaning Schedule                                  | 6/30/2019                    |  |   |   |   |   |   |   |   |   |    |
|   | Catch Basin Cleaning   | when 50% full                |  |   |   |   |   |   |   |   |   |    |
|   | Street Sweeping*   | Spring (& Fall for Nitrogen) |  |   |   |   |   |   |   |   |   |    |
|   | Inspections for SWPPP  | Quarterly                    |  |   |   |   |   |   |   |   |   |    |
|   | Inspection of Structural BMPs                                  | Annually                     |  |   |   |   |   |   |   |   |   |    |
|   | Maintenance of Structural BMPs                                 | as needed                    |  |   |   |   |   |   |   |   |   |    |
| <b>Nitrogen Source Identification Report</b>  |  |                              |  |   |   |   |   |   |   |   |   |    |
|   | Report   |                              |  |   |   |   |   |   |   |   |   |    |
|   | Evaluate Properties for BMP retrofits, provide plan & schedule |                              |  |   |   |   |   |   |   |   |   |    |
|   | Implement Plan   |                              |  |   |   |   |   |   |   |   |   |    |
| <b>Annual Reports</b>   |  |                              |  |   |   |   |   |   |   |   |   |    |
|   | by 9/30 annually   |                              |  |   |   |   |   |   |   |   |   |    |
| *Supplement requirements for Bacteria TMDL (to Acushnet River, New Bedford Inner Harbor, Outer New Bedford Harbor, Buzzards Bay, Little Bay, Nantasket Bay and Mattapoisett Harbor; Wetlands) and Nitrogen Impairment (to Acushnet River, New Bedford Inner Harbor, Outer New Bedford Harbor, Nasketucket River). |  |                              |  |   |   |   |   |   |   |   |   |    |

Due 6/30/2025 Future Yr Task Complete

### 3.0 SMALL MS4 AUTHORIZATION

The Notice of Intent (NOI) containing the information in Appendix E of the Permit was submitted to EPA on or prior to September 29, 2018.

The Town received authorization to discharge in a to the Town dated April 5, 2019.

## 4.0 IDENTIFICATION OF RESPONSIBLE PARTIES FOR IMPLEMENTATION OF PROGRAM

The implementation and coordination of this program is the responsibility of Fairhaven Highway Department, specifically the Highway Superintendent.

### SWMP Team Coordinator

|   |                 |        |  |             |              |
|---|-----------------|--------|--|-------------|--------------|
| Name:   | Vincent Furtado | Title: | Superintendent   | Department: | Public Works |
| Phone:  | 508-979-4030    | Email: | <a href="mailto:vfurtado@fairhaven-ma.gov">vfurtado@fairhaven-ma.gov</a> |             |              |
| Responsibilities: MS4 Coordinator, IDDE Program, Good Housekeeping, Reporting & Record Keeping, Public Education and Outreach, Public Participation |                 |        |  |             |              |

### SWMP Team

|  |              |        |  |             |     |
|--|--------------|--------|--|-------------|-----|
| Name:  | Joshua Crabb | Title: | Highway Superintendent   | Department: | DPW |
| Phone:   |              | Email: | <a href="mailto:jcrabb@fairhaven-ma.gov">jcrabb@fairhaven-ma.gov</a> |             |     |
| Responsibilities: IDDE Program, Good Housekeeping, Reporting & Record Keeping, Public Education and Outreach, Public Participation |              |        |  |             |     |

|  |                   |        |  |             |                            |
|--|-------------------|--------|--|-------------|----------------------------|
| Name:  | <b>Bruce Webb</b> | Title: | <b>Director of Planning &amp; Economic Development</b>             | Department: | <b>Planning Department</b> |
| Phone:   |                   | Email: | <a href="mailto:bwebb@fairhaven-ma.gov">bwebb@fairhaven-ma.gov</a> |             |                            |
| Responsibilities: <b>Public Education and Outreach, Public Participation, Stormwater Bylaw/Regulations</b> |                   |        |  |             |                            |

|   |              |        |  |             |              |
|---|--------------|--------|--|-------------|--------------|
| Name:   | Kelly Camara | Title: | Conservation Agent   | Department: | Conservation |
| Phone:  |              | Email: | <a href="mailto:kcamara@fairhaven-ma.gov">kcamara@fairhaven-ma.gov</a> |             |              |
| Responsibilities: Stormwater Bylaw/Regulations, Plan Review |              |        |  |             |              |

|   |                   |        |  |             |                 |
|---|-------------------|--------|--|-------------|-----------------|
| Name:   | David Flaherty    | Title: | Health Agent   | Department: | Board of Health |
| Phone:  | 508-979-4023 x125 | Email: | <a href="mailto:dflaherty@fairhaven-ma.gov">dflaherty@fairhaven-ma.gov</a> |             |                 |
| Responsibilities: Plan Review, Inspection, IDDE Program |                   |        |  |             |                 |

|   |                 |        |  |             |  |
|---|-----------------|--------|--|-------------|--|
| Name:   | Elisabeth Horan | Title: | Town Clerk   | Department: |  |
| Phone:  |                 | Email: | <a href="mailto:ehoran@fairhaven-ma.gov">ehoran@fairhaven-ma.gov</a> |             |  |
| Responsibilities: Public Education and Outreach, Public Participation |                 |        |  |             |  |

## 5.0 RESOURCE PROTECTION

### 5.1 ENDANGERED AND THREATENED SPECIES

The Permit requires applicants to assess the impacts of their stormwater discharges and discharge related activities on federally listed endangered and threatened species and designated critical habitat.

The NOI submitted in September of 2018 for coverage under the Permit identified three federally listed endangered species of concern, the Northern Long-eared Bat, Roseate Tern and Red Knot and determined eligibility for Endangered Species Act (ESA) under Criteria B. An ESA section 7 consultation was provided for the NOI certifying the activities under the Permit, and as described in this SWMP, will not adversely affect the species of concern. There is no reason to believe that the stormwater discharges, allowable non-stormwater discharges and discharge related activities will have any effect on this or any other listed species or critical habitat. This is based on the following:

1. All stormwater discharges are pre-existing or previously permitted by EPA;
2. Any planned operations and maintenance work covered by this permit will only affect previously disturbed areas where stormwater controls are already installed. In these situations, the chance of encountering and of the subject species is discountable;
3. The project implements EPA MS4 Best Management Practices (BMPs) and meets Clean Water Act and Massachusetts Water Quality Standards. Although permitted discharges may reach the environment used by these species, BMPs reduce pollutants to the extent that discharges are not known to have measurable impacts on these species or their habitat;
4. No new construction or structural BMPs are proposed under this permit at this time; and
5. It is agreed that if, during the course of the permit term, it is planned to install a structural BMP not identified in the Notice of Intent (NOI), the Town will re-initiate with the U.S. Fish and Wildlife Services as necessary.

The aforementioned requirements are all met under this Permit and as such there is no reason to believe that the stormwater discharges, allowable non-stormwater discharges and discharge related activities will have any adverse effect on the aforementioned species or any other listed species or critical habitat. If any future stormwater projects or activities are proposed the Town acknowledges that they will have to re-initiate either informal or formal consultation with USFWS as required under the MA MS4 General Permit Appendix C: Step 2(5).

The Environmental Overview Map in **Appendix A** includes Natural Heritage and Endangered Species Program (NHESP) estimated habitats of rare wildlife, priority habitats of rare species, certified vernal pools and wetlands. Future stormwater projects and activities proposed within these areas will require review for compliance with the Massachusetts ESA and the Wetlands Protection Act.

### 5.2 HISTORIC PROPERTIES

The MS4 Permit requires applicants to consider the effects of Federal undertakings on historical properties that are either listed on or eligible for listing on the National Register of Historic Places. The NOI identified eligibility for National Historic Preservation Act under Criteria A. The proposed BMPs outlined in this program have no potential to affect any historic properties because no changes are proposed to the existing MS4 infrastructure.

The Environmental Overview Map in **Appendix A** includes the Massachusetts Historical Commission's (MHC) inventory of historic points and areas. Future stormwater projects and activities proposed in and

around these properties should be referenced against this map as well as the state register. The state register provides an up-to-date comprehensive listing of buildings, structures objects and sites that have received local, state or national designations based on their historical or archaeological significance.

### 5.3 SUMMARY OF RECEIVING WATERS AND IMPAIRMENTS

Surface Water Quality Standards (SWQS) are provided by the Massachusetts Department of Environmental Protection (DEP). They are determined for a water body's designated use. The SWQS designate the uses that surface waters are protected for, and an assessment is performed to determine if the designated uses are met by the water bodies. The use is not assessed in instances when there is insufficient data or information. Assessment information is maintained by the DEP in the Water Body System (WBS) database, which is updated every two years. Designated uses include:

- Aquatic Life
- Fish Consumption
- Primary Contact Recreation (Swimming)
- Secondary Contact Recreation (Boating)
- Aesthetics

The aquatic life use is supported when suitable habitat is available in the water body to sustain a native and diverse aquatic environment. Impairments to the aquatic life use can result from anthropogenic sources of pollution. Organic enrichment, flow and habitat alteration, sedimentation (habitat destruction), and whole effluent toxicity are potential causes of water body impairment for this use.

The fish consumption use is met when pollutant concentrations are acceptable for edible marketable fish or shellfish or for the use of recreationally caught fish or other aquatic life for human ingestion.

The primary contact recreational use is any activity that involves prolonged contact with the water with a significant risk of ingestion. Activities include swimming, diving, water skiing, and wading, among others. The secondary contact recreational use includes any activity with incidental water contact including boating, fishing, and other activities.

The aesthetic use is supported when water bodies do not contain objectionable deposits, floating debris, scum, or other matter, which produces offensive odors, colors, taste or turbidity or produces noxious aquatic life.

Total Maximum Daily Loads (TMDLs) are the amount of a pollutant allowed to be discharged into a water body per day to assure attainment of the SWQS. The sum total of all pollutant load allocations cannot exceed the total maximum allowable pollutant load calculated for the water body.

Impaired water bodies are those that are not expected to meet the SWQS due to specific pollutants or stressors. However, numerical data is not available for every pollution indicator, so best available guidance in the literature may be applied. Not all water bodies are assessed; many small and/or unnamed water bodies are currently not assessed.

According to the Massachusetts Year 2022 Integrated List of Waters, there are five categories for water quality assessment.

- Category 1 — Waters attaining all designated uses
- Category 2 — Attaining some uses; other uses not assessed
- Category 3 — No uses assessed
- Category 4A — TMDL is completed



- Category 4B — Impairment controlled by alternative pollution control requirements
- Category 4C — Impairment not caused by a pollutant – TMDL not required
- Category 5 — Waters requiring a TMDL (i.e. the 303(d) List)

Fairhaven has eight water body segments that receive flow from the MS4 with six designated as Category 5 and two designated as Category 4A. **Table 5-1** summarizes these water bodies and the associated impairments and TMDLs requiring action as described in the Permit and this SWMP based on the Massachusetts Year 2022 Integrated List of Waters.

These impaired water bodies and the MS4 areas tributary to them can be found on the stormwater system map included as part of the IDDE report, which is located in **SWMP Volume 2**.

Appendix H of the Permit identifies specific requirements for water bodies that are Water Quality Limited in five categories of impairments (Nitrogen, Phosphorus, Bacteria/Pathogens, Chloride and Solids, Metals or Oil and Grease). These requirements apply to water bodies and their tributaries that do not meet applicable water quality standards, including but not limited to waters listed in category 5 and waters without an EPA approved TMDL.

Fairhaven WQLW Impairment(s)  
Nitrogen

Appendix F of the Permit identifies specific requirements for discharges to impaired waters or their tributaries with an approved TMDL.

Fairhaven TMDL(s)  
Bacteria and Pathogens

Table 5-1: Town Impaired Water Bodies

| <u>NAME</u>                   | <u>CATEGORY</u> | <u>SEGMENT ID</u> | <u>IMPAIRMENT CAUSE (EPA TMDL No.)</u>   |
|-------------------------------|-----------------|-------------------|--|
| Acushnet River                | 5               | MA95-33           | Debris/Trash<br>Color<br>Dissolved Oxygen<br><b>Enterococcus (36171)</b><br><b>Fecal Coliform (36171)</b><br>Metals<br><b>Nitrogen, Total (WQLW)</b><br>Nutrient/Eutrophication Biological Indicators<br>Odor<br>Oil and Grease<br>PCBs in Fish Tissue<br>Polychlorinated Biphenyls (PCBs) |
| New Bedford Inner Harbor      | 5               | MA95-42           | Debris/Trash<br>Dissolved Oxygen<br><b>Enterococcus (36171)</b><br><b>Fecal Coliform (36171)</b><br>Metals<br><b>Nitrogen, Total (WQLW)</b><br>Nutrient/Eutrophication Biological Indicators<br>Odor<br>Oil and Grease<br>PCBs in Fish Tissue<br>Polychlorinated Biphenyls (PCBs)          |
| Outer New Bedford Harbor      | 5               | MA95-63           | Dissolved Oxygen<br><b>Enterococcus (36171)</b><br><b>Fecal Coliform (36171)</b><br><b>Nitrogen, Total (WQLW)</b><br>PCBs in Fish Tissue   |
| Buzzards Bay                  | 5               | MA95-62           | Estuarine Bioassessments<br><b>Fecal Coliform (36172)</b><br>PCB in Fish Tissue  |
| Little Bay                    | 4A              | MA95-64           | <b>Fecal Coliform (36172)</b>  |
| Nasketucket River             | 5               | MA95-67           | <b>Nitrogen, Total (WQLW)</b>  |
| Nasketucket Bay               | 4A              | MA95-65           | Estuarine Bioassessments<br><b>Fecal Coliform (36172)</b>  |
| Mattapoisett Harbor: Wetlands | 5               | MA95-35           | Dissolved Oxygen<br>Estuarine Bioassessments<br><b>Fecal Coliform (36172)</b><br>Nutrient/Eutrophication Biological Indicators   |

*NOTE: Based on the Massachusetts Year 2022 Integrated List of Waters. Certain Pollutants (in BOLD) result in Total Maximum Daily Load (TMDL) or Water Quality Limited Water Bodies (WQLW) requirements defined in Appendix H & F of the Permit.*

## 5.4 REQUIREMENTS TO ADDRESS IMPAIRMENTS

The requirements specific to impairments and TMDLs of Fairhaven's receiving waters are summarized as follows:

### Nitrogen WQLW Requirements

Applicable Receiving Waters: Acushnet River (MA95-33), New Bedford Inner Harbor (MA95-42), Outer New Bedford Harbor (MA95-63), and Nasketucket River (MA95-67)

Requirement: Any catchment area that discharges to a water body impaired for nitrogen must comply with enhanced BMPs in addition to the requirements to reduce pollutants to the maximum extent practicable outlined in Section 2.3 of the Permit and covered in **Section 7.0** of this report. Required additional and enhanced BMPs include:

**Public education and outreach:** Supplement Residential and Business/Commercial/Institution program with annual timed messages on specific topics. Distribute an annual message in the spring (April/May) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers. Distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. Distribute an annual message in the fall (August/September/October) timeframe encouraging the proper disposal of leaf litter. Deliver an annual message on each of these topics, unless the Town determines that one or more of these issues is not a significant contributor of nitrogen to discharges from the MS4 and the Town retains documentation of this finding in the SWMP.

**Illicit Discharge** – Automatic designation of High Priority in the initial outfall ranking of the IDDE program.

**Stormwater Management in New Development and Redevelopment:** Adoption/amendment of the Town's ordinance or other regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for nitrogen removal; retrofit inventory and priority ranking under 2.3.6.1.b shall include consideration of BMPs to reduce nitrogen discharges.

**Good Housekeeping and Pollution Prevention for Permittee Owned Operations:** Establish requirements for use of slow release fertilizers on Town-owned property currently using fertilizer, in addition to reducing and managing fertilizer use as provided in 2.3.7.1; establish procedures to properly manage grass cuttings and leaf litter on Town property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces; 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, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall).

**Nitrogen Source Identification Report:** Within four years of the Permit effective date the Town shall complete a Nitrogen Source Identification Report. The report shall include the following elements:

1. Calculation of total MS4 area draining to the water quality limited water segments or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6
2. All screening and monitoring results pursuant to part 2.3.4.7.d., targeting the receiving water segment(s)
3. Impervious area and Directly Connected Impervious Area (DCIA) for the target catchment
4. Identification, delineation and prioritization of potential catchments with high nitrogen loading
5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment
6. The final Nitrogen Source Identification Report shall be submitted to EPA as part of the year 4 annual report.

**Potential Structural BMPs:** Within five years of the Permit effective date, the Town shall evaluate all permittee-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation under Permit part 2.3.6.d.ii. or identified in the Nitrogen Source Identification Report that are within the drainage area of the impaired water or its tributaries. The evaluation shall include:

1. The next planned infrastructure, resurfacing or redevelopment activity planned for the property (if applicable) OR planned retrofit date;
2. The estimated cost of redevelopment or retrofit BMPs; and
3. The engineering and regulatory feasibility of redevelopment or retrofit BMPs.

The Town shall provide a listing of planned structural BMPs and a plan and schedule for implementation in the year 5 annual report. The Town shall plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries within six years of the Permit effective date. The demonstration project shall be installed targeting a catchment with high nitrogen load potential. The Town shall install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year 5 annual report.

Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H of the Permit already existing or installed in the regulated area by the Town or its agents shall be tracked and the Town shall estimate the nitrogen removal by the BMP consistent with Attachment 1 to Appendix H of the Permit. The Town shall document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP in each annual report.

Status: The Town has incorporated these enhancements into the BMPs in **Section 7.0** of this report.

### **Bacteria and Pathogen TMDL Requirements**

Applicable Fairhaven Receiving Waters: Acushnet River (MA95-33), New Bedford Inner Harbor (MA95-42) Outer New Bedford Harbor (MA95-63), Buzzards Bay (MA95-62), Little Bay (MA95-64), Nasketucket Bay (MA95-35) and Mattapoisett Harbor: Wetlands (MA95-35)

Requirement: Any catchment area that discharges to a water body impaired for bacteria or pathogens must comply with enhanced BMPs in addition to the requirements to reduce pollutants to the maximum

extent practicable outlined in Section 2.3 of the Permit and covered in **Section 7.0** of this report. Required enhancement of BMPs include:

**Public Education** – Supplement residential program with an annual message encouraging proper management of pet waste, distribute education materials to dog owners at the time of licensing and provide information to owners of septic systems about proper maintenance.

**Illicit Discharge** – Automatic designation of either “Problem Catchment” or “HIGH Priority” in the implementation of the IDDE program.

Status: The Town has incorporated these enhancements into the BMPs in **Section 7.0** of this report.

#### **Relief of Requirements to Address Impairments**

The permit states that at any time during the permit term the permittee may be relieved of additional requirements in Appendix F and H as follows:

#### TMDLs (Appendix F):

- a. The permittee is relieved of its additional requirements as of the date when the following conditions are met:
  - i. The applicable TMDL has been modified, revised or withdrawn and EPA has approved a new TMDL applicable for the receiving water that indicates that no additional stormwater controls for the pollutant causing the impairment are necessary for the permittee’s discharge based on wasteload allocations in the newly approved TMDL.
- b. In such a case, the permittee shall document the date of the approved TMDL in its SWMP and is relieved of any remaining requirements of Appendix F as of that date and the permittee shall comply with the following:
  - i. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix F to date to reduce the pollutant load in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs.
  - ii. The permittee shall continue to implement all requirements of Appendix F required to be implemented prior to the date of the newly approved TMDL, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural BMPs in accordance with manufacturer or design specifications.

#### Water Quality Limited Waterbodies (Appendix H):

- a. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
  - i. The receiving water and all downstream segments are determined to no longer be impaired due to the named pollutant by MassDEP and EPA concurs with such determination.
  - ii. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of

said pollutant are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.

- b. In such a case, the permittee shall document the date of the determination provided for in the paragraph above or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H as of the applicable date and the permittee shall comply with the following:
  - i. The permittee shall identify in its SWMP all activities that have been implemented in accordance with the requirements of Appendix H. as of the applicable date to reduce the pollutant in its discharges, including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs.
  - ii. The permittee shall continue to implement all requirements of Appendix H required to be done prior to the date of determination or the date of the approved TMDL, including ongoing implementation of identified nonstructural BMPs and routine maintenance and replacement of all structural BMPs in accordance with manufacturer or design specifications.

## 6.0 DISCHARGES

EPA has written the Permit to meet Massachusetts state water quality standards. Antidegradation provisions at 314 CMR § 4.04 are part of the current EPA-approved water quality standards for Massachusetts. As such, the Permit requires compliance with 314 CMR § 4.04 and increased discharges from MS4s remain subject to 314 CMR § 4.04.

### 6.1 INCREASED DISCHARGES AUTHORIZATION

The Massachusetts Stormwater Management regulations, current site development review practices and stormwater regulations adopted by the Planning Board prohibit increased discharges. They all require that any new development or re-development (including new impervious area) is subject to the Post-Construction Stormwater Management requirements, which include infiltration standards that are intended to mimic pre-development conditions. New impervious areas require the implementation of best management practices (BMPs). In a case where these conditions cannot be met, authorization for an increased discharge may be required.

All listed water bodies in Town are identified as impaired waters on the Massachusetts Year 2022 Integrated List of Waters. As discussed in **Section 5.4**, this SWMP incorporates the required actions outlined in Appendix F and H of the Permit aimed at decreasing pollutants causing impairments to those water bodies. These actions combined with the implementation of post construction stormwater requirements will decrease the overall pollutant loading to all receiving waters over time. Town compliance with these requirements of the Permit, including all reporting and documentation, demonstrates no net increase in pollutant loading from the MS4.

### 6.2 DISCHARGES TO TMDL OR WATER QUALITY LIMITED WATERS

As previously noted, all discharges in Town are to either TMDL or Water Quality Limited Waters. **Table 5-1** highlights the TMDL(s) and/or Water Quality Limitations for each of Fairhaven's listed water bodies. The MS4 area tributary to each water body is subject to the TMDL and/or Water Quality Limited Waters requirements (described in **Section 5.4**) based that water body's stormwater related impairments. A map of the MS4 discharge locations (i.e. outfalls and interconnections), the MS4 area tributary to each receiving water and the TMDL and/or Water Quality Limitation triggering additional requirements to reduce pollutant loading and protect water quality can be found in the IDDE report, which is located in **SWMP Volume 2**.

## 7.0 IMPLEMENTATION OF MINIMUM CONTROL MEASURES

The 2016 MS4 Permit states that the permittee shall continue to implement their 2003 MS4 SWMP while updating it pursuant to meet the requirements of the new permit. Upon adoption, this new SWMP supersedes the 2003 SWMP and all related deadlines and expectations. As indicated in the 2003 and 2016 MS4 permits, the permittee shall reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) using these 6 minimum control measures (MCM):

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

### 7.1 PUBLIC EDUCATION AND OUTREACH (MCM 1)

The Town Planner is responsible for ensuring the implementation of the public education and outreach program including measurable goals and reporting. Assisting departments for particular BMPs are listed below.

Public education and outreach materials can be found on the Town's stormwater webpage (<https://fairhaven-ma.gov/highway/>). Web Links are provided in the Executive Summary of this document and locations for specific BMPs are listed below.

Reporting forms and logs to document public education and outreach efforts can be found in **Appendix B**. Requirements and documentation measures for specific BMPs are identified below and annual reporting requirements are described in **Section 10**.

#### **Objective and Requirements**

The main objective of this control measure is to implement an education program that includes education 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 pollutants in stormwater are reduced.

The minimum requirements specified in section 2.3.2 of the Permit are as follows:

1. Distribute at a minimum two (2) educational messages over the five (5) year Permit term to each of the following audiences: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities. Message shall focus on topics most relevant to the community.
2. Document in each annual report the message for each audience, method of distribution, the measures/methods used to assess the effectiveness of the messages, and the method/measures used to assess the overall effectiveness of the education program.
3. Comply with enhanced requirements related to WQLW Impairment Requirements for Nitrogen which includes:
  - Supplement Residential and Business/Commercial/Institution program with annual timed messages on specific topics



In Fairhaven, this includes Acushnet River (MA95-33), New Bedford Inner Harbor (MA95-42), Outer New Bedford Harbor (MA95-63), and Nasketucket River (MA95-67).

4. Comply with enhanced requirements related to approved TMDL for bacteria and pathogens which include:

- Supplementing residential education program with an annual message encouraging proper management of pet waste.
- Distributing education materials to dog owners at the time of licensing.
- Providing information to owners of septic systems about proper maintenance.

In Fairhaven, this includes Acushnet River (MA95-33), New Bedford Inner Harbor (MA95-42), Outer New Bedford Harbor (MA95-63), Buzzards Bay (MA95-62), Little Bay (MA95-64), Nasketucket Bay (MA95-35) and Mattapoissett Harbor: Wetlands (MA95-35).

### **Best Management Practices and Measurable Goals**

#### **BMP-1.1. Educate Residents I**

Distribute first education message targeted to residents within the Town's MS4 area.

|                      |  |
|----------------------|--|
| Media/Location:      | Website, event, phone contact, site visit, and/or other means  |
| Responsible Parties: | Public Works Department  |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all residents within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Completed within 2 years of effective date of Permit</li> </ul> |

#### **BMP-1.2. Educate Businesses, Institutions, and Commercial Facilities I**

Distribute first education message targeted to business, institution, and commercial facility property owners within the Town's MS4 area.

|                      |   |
|----------------------|---|
| Media/Location:      | Website, event, phone contact, site visit, and/or other means   |
| Responsible Parties: | Public Works Department   |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all business, institution, and commercial facility property owners within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Completed within 2 years of effective date of Permit</li> </ul> |

**BMP-1.3. Educate Developers and Contractors I**

Distribute first education message targeted to developers and contractors within the Town's MS4 area.

|                      |  |
|----------------------|--|
| Media/Location:      | Website, event, phone contact, site visit, and/or other means  |
| Responsible Parties: | Public Works Department  |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all developers and contractors with active projects within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Completed within 4 years of effective date of Permit</li> </ul> |

**BMP-1.4. Educate Industrial Facility Owners I**

Distribute first education message targeted to industrial property owners within the Town's MS4 area.

|                      |   |
|----------------------|---|
| Media/Location:      | Mailing, website, event, phone contact, site visit, and/or other means  |
| Responsible Parties: | Public Works Department   |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all industrial property owners within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Completed within 4 years of effective date of Permit</li> </ul> |

**BMP-1.5. Educate Residents II**

Distribute second education message targeted to residents within the Town's MS4 area.

|                      |  |
|----------------------|--|
| Media/Location:      | Mailing, website, event, phone contact, site visit, and/or other means   |
| Responsible Parties: | Public Works Department  |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all residents within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Completed within 4 years of effective date of Permit</li> </ul> |

**BMP-1.6. Educate Businesses, Institutions, and Commercial Facilities II**

Distribute second education message targeted to business, institution, and commercial facility property owners within the Town's MS4 area.

|                      |   |
|----------------------|---|
| Media/Location:      | Mailing, website, event, phone contact, site visit, and/or other means  |
| Responsible Parties: | Public Works Department   |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all business, institution, and commercial facility property owners within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Completed within 4 years of effective date of Permit</li> </ul> |

**BMP-1.7. Educate Developers and Contractors II**

Distribute second education message targeted to developers and contractors within the Town's MS4 area.

|                      |   |
|----------------------|---|
| Media/Location:      | Website, event, phone contact, site visit, and/or other means   |
| Responsible Parties: | Public Works Department   |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>• Distribute message to all developers and contractors with active projects within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Complete within 5 years of effective date of Permit</li> </ul> |

**BMP-1.8. Educate Industrial Facility Owners II**

Distribute second education message targeted to industrial property owners within the Town's MS4 area.

|                     |  |
|---------------------|--|
| Media/Location:     | Mailing, website, event, phone contact, site visit, and/or other means   |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Distribute message to all industrial property owners within the Town's MS4 area.</li> <li>• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.</li> <li>• Complete within 5 years of effective date of Permit</li> </ul> |

Appendix F of the Permit requires implementation of the following BMPs due to bacteria impairments:

**BMP-1.9. Educate Residents Annually on Proper Management of Pet Waste with Dog License Applications**

Distribute annual education message targeted to pet owners in watershed areas with bacteria/pathogens TMDL or impairments.

|                     |   |
|---------------------|---|
| Media/Location:     | Brochures or pamphlets distributed with dog license   |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Distribute message to all residents when they (re)apply for a dog license.</li> <li>• Record number of hard copies distributed, and locations posted.</li> </ul> |

**BMP-1.10. Educate Residents Annually on Proper Management of Septic Systems**

Distribute annual education message targeted to septic system owners in watershed areas with bacteria/pathogens TMDL or impairments.

|                     |   |
|---------------------|---|
| Media/Location:     | Brochures or pamphlets by mail and/or posted to website   |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Distribute message to all residents who have septic systems.</li> <li>• Record number of hard copies distributed, and locations posted.</li> </ul> |

**BMP-1.11. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Lawn Care**

Distribute annual spring education message regarding proper use and disposal of lawn clippings and proper use of slow-release fertilizers targeted to Residents, Businesses, Institutions, and Commercial Facilities in watershed areas with a nitrogen TMDL or impairment.

|                     |   |
|---------------------|---|
| Media/Location:     | Brochures or pamphlets by mail and/or posted to website   |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Distribute message to all residents in watershed areas with a nitrogen TMDL or impairment in the spring (April/May).</li> <li>• Record number of hard copies distributed, and locations posted.</li> </ul> |

**BMP-1.12. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Management of Pet Waste**

Distribute annual summer education message regarding proper management of pet waste with regulation cited targeted to Residents, Businesses, Institutions, and Commercial Facilities in watershed areas with a nitrogen TMDL or impairment.

|                     |   |
|---------------------|---|
| Media/Location:     | Brochures or pamphlets posted to website  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Distribute message in watershed areas with a nitrogen TMDL or impairment in the summer (June/July).</li> <li>• Record locations posted and number of hits on website.</li> </ul> |

**BMP-1.13. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Disposal of Leaf Litter**

Distribute annual fall education message targeted to Residents, Businesses, Institutions, and Commercial Facilities in watershed areas with a nitrogen TMDL or impairment.

|                     |  |
|---------------------|--|
| Media/Location:     | Brochures or pamphlets by mail and posted to website   |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Distribute message in watershed areas with a nitrogen TMDL or impairment in the Fall (Aug/Sept/Oct)</li> <li>• Record number of hard copies distributed, and locations posted.</li> </ul> |

## 7.2 PUBLIC INVOLVEMENT AND PARTICIPATION (MCM 2)

The Town Planner is responsible for ensuring the implementation of proposed BMPs including measurable goals and reporting. Assisting departments for particular BMPs are listed below.

Reporting forms and logs to document public involvement and participation efforts can be found in **Appendix B**. Web Links and locations for specific BMPs identified below are listed in the Executive Summary and annual reporting requirements are described in **Section 10**.

### **Objective and Requirements**

The main objective of this control measure is for the Town to provide opportunities to engage the public to participate in the review and implementation of the Town's Stormwater Management Program (SWMP).

The minimum requirements specified in section 2.3.3 of the Permit are as follows:

1. Public involvement activities shall comply with state notice requirements (MGL Chapter 30A, Section 18-25 effective 7/10/2010). The SWMP and all annual reports shall be available to the public.
2. Annually provide the public an opportunity to participate in the review and implementation of the SWMP. Public participation opportunities may include, but are not limited to, websites; hotlines; clean-up teams; monitoring teams; or an advisory committee.
3. Report on the activities undertaken to provide public participation opportunities including compliance with state public notice requirements referenced above.

### **Best Management Practices and Measurable Goals**

#### **BMP-2.1. Public Review of Stormwater Management Program**

Make SWMP available to review by Town residents.

|                     |   |
|---------------------|---|
| Media/Location:     | Town Stormwater Webpage and email, Highway Dept.  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Provide opportunity for residents to view the SWMP online and provide public access to the printed document.</li> <li>• Record web page hits, emails and requests to view printed document.</li> <li>• Update posted plan annually.</li> </ul> |

#### **BMP-2.2. Public Participation and Comment of Stormwater Management Program**

Record and review comments received by residents upon review of SWMP.

|                     |   |
|---------------------|---|
| Media/Location:     | Town Stormwater Webpage and email, Highway Dept.  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Keep a log of comments for review and consideration when annually updating the SWMP.</li> <li>• Include comment log in the annual report.</li> </ul> |

**BMP-2.3. Public Participation Activities**

Public participation activities may include meetings, cleanup teams, monitoring teams, hazmat drop off events, watershed organization events, hotlines, or an advisory committee.

|                     |   |
|---------------------|---|
| Media/Location:     | Town Stormwater Webpage   |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Advertise at least one activity per year.</li> <li>• Record method of advertising. Record the number of attendees and/or quantity of cleanup achieved.</li> <li>• Record compliance with state public notice requirements where applicable.</li> </ul> |

**7.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM (MCM 3)**

The Highway Department is responsible for ensuring the implementation of proposed BMPs including measurable goals and reporting. Assisting departments for particular BMPs are listed below.

Reporting forms and logs to document IDDE efforts can be found in **Appendix B** and are expanded on in **SWMP Volume 2**. Web Links and locations for specific BMPs identified below are listed in the Executive Summary and annual reporting requirements are described in **Section 10**.

**Objective and Requirements**

The main objective of this control measure is to systematically find and eliminate illicit sources of non-stormwater discharge to its municipal storm sewer system and implement procedures to prevent such discharges.

The minimum requirements specified in section 2.3.4 of the Permit are as follows:

1. Develop and implement a regulatory mechanism to provide adequate legal authority to the Town to implement and enforce the Illicit Discharge Detection and Elimination (IDDE) Program.
2. Develop an SSO inventory covering the previous five (5) years within one (1) year of the effective date of the Permit.
3. Update storm sewer system map for Phase I mapping requirements within two (2) years of the effective date of the Permit, annually update the mapping as new information is discovered, and develop a system wide storm sewer system map for Phase II mapping requirements within ten (10) years of Permit effective date.
4. Develop an IDDE Program within one (1) year of the effective date of the Permit.
5. Develop an initial inventory and a priority ranking of outfalls/interconnections within one (1) year of the effective date of the Permit and update annually.
6. Develop a catchment investigation program within 18 months of the effective date of the Permit and implement according to the IDDE program.
7. Record and report in each annual report about the IDDE program progress and overall effectiveness.
8. Ongoing screening plan of outfalls once every five years.
9. Provide training to employees involved in the IDDE program annually. The training frequency and type shall be reported in the annual report.

10. Comply with enhanced requirements as specified in the appendix F and H of the Permit regarding Impaired Waters and TMDL requirements as follows:
  - Automatic designation of either “Problem Catchment” or “High Priority” in the implementation of the IDDE program for catchments discharging to waters impaired for bacteria. In Fairhaven, this includes Acushnet River (MA95-33), New Bedford Inner Harbor (MA95-42) Outer New Bedford Harbor (MA95-63), Buzzards Bay (MA95-62), Little Bay (MA95-64), Nasketucket Bay (MA95-35) and Mattapoisett Harbor: Wetlands (MA95-35) for bacteria and pathogens.
11. Comply with additional requirements specified in Section 3.0 of the Permit for discharges to surface drinking water supplies and their tributaries including the following:
  - Automatic designation of “High Priority” in the implementation of the IDDE program for catchments discharging to public surface drinking water supply sources and their tributaries. In Fairhaven, there are currently no (surface) public drinking water supply sources.

### **Best Management Practices and Measurable Goals**

#### **BMP-3.1. IDDE Legal Authority**

The IDDE Legal Authority was adopted as a General Bylaw “Town of Fairhaven Illicit Discharge and Connection Stormwater Bylaw” at the May 4, 2019 Town meeting with the authorized enforcement agency identified as the Public Works Superintendent or Highway superintendent.

|                     |  |
|---------------------|--|
| Media/Location:     | <a href="https://ecode360.com/34451184">https://ecode360.com/34451184</a>          |
| Responsible Party:  | Public Works Superintendent or Highway superintendent                              |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Regulation Adopted May 4, 2019</li> </ul> |

#### **BMP-3.2. Sanitary Sewer Overflow (SSO) Inventory**

Develop and maintain a SSO inventory that covers the previous five years in accordance with Permit conditions.

|                     |  |
|---------------------|--|
| Media/Location:     | The inventory is included in the IDDE Plan.  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Inventory completed (Year 1).</li> <li>• In the event of an overflow or bypass, provide notification with 24 hours to MassDEP &amp; EPA followed by a written report within 5 calendar days.</li> <li>• Update annually.</li> </ul> |



**BMP-3.3. Storm Sewer System Map**

Update storm sewer system map in accordance with Permit mapping requirements.

|                     |   |
|---------------------|---|
| Media/Location:     | The map is included as Appendix A of the IDDE Plan. Town Stormwater Website.  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>Updated map within 2 years of effective date of Permit for Phase 1 mapping.</li> <li>Update annually as new/corrected information is discovered.</li> <li>Complete full system map (Phase 2) within 10 years of effective date of Permit.</li> </ul> |

**BMP-3.4. Written IDDE program**

Develop/update written IDDE program.

|                     |  |
|---------------------|--|
| Media/Location:     | IDDE Plan. Town Stormwater Website.  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>Written program completed (Year 1).</li> <li>Update as required.</li> </ul> |

**BMP-3.5. Implement IDDE Program**

Implement catchment investigations according to IDDE program and Permit conditions and based on the outfall/interconnection inventory, initial ranking and dry weather outfall and interconnection screening and sampling results.

|                     |  |
|---------------------|--|
| Media/Location:     | IDDE Plan. Town Stormwater Website.  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>Conduct 100% of catchment investigations for "Problem" outfalls within 7 years of effective date of Permit.</li> <li>Conduct 100% of catchment investigations for all outfalls within 10 years of effective date of Permit.</li> <li>Report results and progress in annual report.</li> </ul> |

**BMP-3.6. Employee Training**

Provide annual training on IDDE implementation in accordance with IDDE program.

|                     |  |
|---------------------|--|
| Media/Location:     | IDDE Plan. Town Stormwater Website.  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Conduct annual IDDE training.</li> <li>• Provide record of training and attendance in annual report.</li> </ul> |

**BMP-3.7. Dry Weather Screening and Sampling**

Conduct dry outfall screening and sampling of outfalls/interconnections in MS4 area in accordance IDDE program

|                     |   |
|---------------------|---|
| Media/Location:     | IDDE Plan. Town Stormwater Website.   |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed dry outfall screening and sampling within 3 years of effective date of Permit.</li> <li>• Report results and progress in annual report.</li> </ul> |

**BMP-3.8. Wet Weather Sampling of Outfalls**

Conduct wet weather outfall sampling in accordance with IDDE program. This sampling can be done upon completion of any dry weather investigation but must be completed before the catchment investigation is marked as complete.

|                     |  |
|---------------------|--|
| Media/Location:     | IDDE Plan. Town Stormwater Website.  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed wet weather outfall sampling of "Problem" outfalls within 7 years of effective date of Permit</li> <li>• Complete wet weather outfall sampling of all outfalls within 10 years of effective date of Permit.</li> <li>• Report results and progress in annual report.</li> </ul> |

**BMP-3.9. Ongoing Screening**

Conduct ongoing dry weather and wet weather screening and sampling (as necessary) of outfalls in accordance with IDDE program.

|                     |  |
|---------------------|--|
| Media/Location:     | IDDE Plan. Town Stormwater Website.  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Complete ongoing outfall screening within 5 years of completing catchment investigations.</li> <li>• Report results and progress in annual report.</li> </ul> |

## 7.4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL (MCM 4)

The Highway Department and the Planning Board are responsible for ensuring the implementation of proposed BMPs and measurable goals. Assisting departments for particular BMPs are listed below.

Regulations, requirements and guidance on construction site stormwater runoff control can be found on the Town's stormwater webpage. Web Links are provided in the executive summary of this report and locations for specific BMPs are listed below.

Reporting forms and logs to document these efforts can be found in **Appendix B**. Reporting measures for specific BMPs are identified below and reporting requirements are described in **Section 10**.

### **Objective and Requirements**

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

The minimum Permit requirements in accordance with MS4-2016 section 2.3.5 are as follows:

1. Implement and enforce a program to reduce pollutants in stormwater runoff discharge to the MS4 from all construction activities that result in land disturbance greater than or equal to one acre within regulated area.
2. Develop and implement a construction site runoff control program with written procedures and a regulatory mechanism for site plan review and enforcement within one (1) year from effective date of the Permit. Program must include the following elements for sediment and erosion control:
  - a. Regulatory mechanism that requires the use of sediment and erosion control practices at construction sites including controls for other wastes on construction sites
  - b. Written procedures for site inspection and enforcement
  - c. Sediment and erosion control requirements for construction site operators performing land disturbance activities
  - d. Requirements to control waste from construction sites
  - e. Written procedures for site plan review and inspection and enforcement
3. Comply with additional requirements for discharges to surface drinking water supplies and their tributaries include the following:
  - Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries.
  - Direct discharges to Class A waters should be avoided to the extent feasible.

In Fairhaven, there are currently no (surface) public drinking water supply sources.

**Best Management Practices and Measurable Goals****BMP-4.1. Sediment and Erosion Control Regulation**

Chapter 194 Sediment and Erosion Control Bylaw was at the May 4, 2019 Town meeting with the authorized enforcement agency identified as the Board of Public Works.

|                     |  |
|---------------------|--|
| Media/Location:     | Town Bylaw and Stormwater Regulations. Town Stormwater Website   |
| Responsible Party:  | Board of Public Works  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Regulation Adopted May 4, 2019</li> <li>• Implement for 100% of applicable projects.</li> </ul> |

**BMP-4.2. Site Inspections and Enforcement of Erosion and Sediment Control Measures.**

Provide/update written requirements for site inspections and enforcement procedures.

|                     |   |
|---------------------|---|
| Media/Location:     | Chapter 194 Sediment and Erosion Control Bylaw  |
| Responsible Party:  | Board of Public Works   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Written procedures completed (Year 1)</li> <li>• Implement for 100% of applicable projects.</li> <li>• Conduct construction site inspections consistent with the written procedures. Keep records of inspections.</li> </ul> |

**BMP-4.3. Site Plan Review**

Provide/update written procedures for site plan review and begin implementation.

|                     |   |
|---------------------|---|
| Media/Location:     | Chapter 194 Sediment and Erosion Control Bylaw  |
| Responsible Party:  | Board of Public Works   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Written procedures completed (Year 1)</li> <li>• Implement for 100% of applicable projects.</li> <li>• Keep records of projects submitted for site plan review.</li> </ul> |

**BMP-4.4. Construction Site Operators Erosion and Sediment Control Program**

Provide/update written requirements for construction operators to implement a sediment and erosion control program.

|                     |  |
|---------------------|--|
| Media/Location:     | Chapter 194 Sediment and Erosion Control Bylaw   |
| Responsible Party:  | Board of Public Works  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Written procedures completed (Year 1)</li> <li>• Implement for 100% of applicable projects.</li> <li>• During construction site inspections review for erosion controls and make note of compliance status. Keep records of inspections.</li> </ul> |

**BMP-4.5. Construction Waste Control**

Adopt requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes

|                     |   |
|---------------------|---|
| Media/Location:     | Chapter 194 Sediment and Erosion Control Bylaw  |
| Responsible Party:  | Board of Public Works   |
| Measurable Goal(s): | <ul style="list-style-type: none"><li>• Written procedures completed (Year 1)</li><li>• Implement for 100% of applicable projects.</li><li>• During construction site inspections review for waste control and make note of compliance status. Keep records of inspections.</li></ul> |

## 7.5 STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST CONSTRUCTION STORMWATER MANAGEMENT) (MCM 5)

The Highway Department and the Planning Board are responsible for ensuring the implementation of proposed BMPs and measurable goals. Assisting departments for particular BMPs are listed below.

Regulations, requirements and guidance on post construction stormwater management can be found on the Town's Stormwater Webpage. Web Links and locations for specific BMPs identified below are listed in the Executive Summary.

Reporting forms and logs to document these efforts can be found in **Appendix B**. Reporting measures for specific BMPs are identified below and reporting requirements are described in **Section 10**. As part of the MS4 Permit Year 4 requirements, an assessment of current regulations for the Town of Fairhaven was completed and is provided in **Appendix C**.

### **Objective and Requirements**

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.

The minimum Permit requirements in accordance with MS4-2016 section 2.3.6 are as follows:

1. Develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites that disturb one or more acres and discharge into the permittees MS4 at a minimum.
  - Update Permit requirement and regulations to require for development projects the use of LID techniques to the maximum extent feasible
  - Develop/update Permit requirements and stormwater regulations to meet new development and redevelopment design requirements of Permit
  - Update Permit requirement and regulations to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP
2. Develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover within four (4) years from effective date of the Permit.
3. Develop a report assessing existing local regulation to determine if green infrastructures are allowable when appropriate site conditions exist. This report shall be completed within four (4) years from the effective date of the Permit.
4. Identify within four (4) years from the effective date of the Permit a minimum of 5 permittee-owned properties that could potentially be modify or retrofitted with BMPs.
5. Comply with enhanced requirements related to WQLW Impairment Requirements for Nitrogen which includes:
  - Adopt/amend the Town's ordinance or other regulatory mechanism to include a requirement that new development and redevelopment stormwater management BMPs be optimized for nitrogen removal
  - Include consideration of BMPs to reduce nitrogen discharges retrofit inventory and priority ranking

In Fairhaven, this includes Acushnet River (MA95-33), New Bedford Inner Harbor (MA95-42) Outer New Bedford Harbor (MA95-63), and Nasketucket River (MA95-67).

6. Comply with additional requirements specified in Section 3.0 of the Permit for discharges to surface drinking water supplies and their tributaries include the following:

- Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries.
- Direct discharges to Class A waters should be avoided to the extent feasible.

In Fairhaven, there are currently no (surface) public drinking water supply sources.

**Best Management Practices and Measurable Goals**

**BMP-5.1. Low Impact Development (LID) Techniques**

Update Permit requirement and regulations to require for development projects the use of LID techniques to the maximum extent feasible.

|                     |   |
|---------------------|---|
| Media/Location:     | §198-31.1 Stormwater Management of Article III General Regulations  |
| Responsible Party:  | Planning Board  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 4 years of the effective date of Permit.</li> <li>• Implement for 100% of applicable projects.</li> <li>• Keep records of development projects approved with LIDs.</li> </ul> |

**BMP-5.2. New Development and Redevelopment (Post-Construction) Design Regulations**

Develop/update Permit requirements and stormwater regulations to meet new development and redevelopment design requirements of Permit

|                     |   |
|---------------------|---|
| Media/Location:     | §198-31.1 Stormwater Management of Article III General Regulations  |
| Responsible Party:  | Planning Board  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 4 years of the effective date of Permit.</li> <li>• Implement for 100% of applicable projects.</li> <li>• Keep records of development projects approved to meet regulations.</li> </ul> |

**BMP-5.3. As-Built Plans**

Update Permit requirement and regulations to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP

|                     |  |
|---------------------|--|
| Media/Location:     | §198-31.1 Stormwater Management of Article III General Regulations   |
| Responsible Party:  | Planning Board   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 2 years of the effective date of Permit.</li> <li>• Implement for 100% of applicable projects.</li> <li>• Keep records of projects requiring and fulfilling as-</li> </ul> |

|  |                             |
|--|-----------------------------|
|  | built and O&M requirements. |
|--|-----------------------------|

**BMP-5.4. Street Design and Parking Lot Guidelines Report**

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.

|                     |  |
|---------------------|--|
| Media/Location:     | Stormwater Regulations. Town Stormwater Website  |
| Responsible Party:  | Planning Board   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 4 years of the effective date of Permit.</li> <li>• Implement recommendations of the report.</li> <li>• Report progress of implementation annually.</li> </ul> |

**BMP-5.5. Green Infrastructure Report**

Develop a report assessing local regulations to determine feasibility of allowing green roofs, raingardens, water harvesting and other similar practices.

|                     |  |
|---------------------|--|
| Media/Location:     | Stormwater Regulations. Town Stormwater Website  |
| Responsible Party:  | Planning Board   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 4 years of the effective date of Permit.</li> <li>• Implement recommendations of the report.</li> <li>• Report progress of implementation annually.</li> </ul> |



**BMP-5.6. List of 5 properties to Provide (effective) Reduction of Impervious area**

Identify and maintain a list of at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually

Measurable Goal: Complete within 4 years of effective date of Permit and report annually on retrofitted properties

|                      |  |
|----------------------|--|
| Media/Location:      | Public Works Department  |
| Responsible Parties: | Public Works Department  |
| Measurable Goal(s):  | <ul style="list-style-type: none"> <li>Completed list within 4 years of the effective date of Permit.</li> <li>Update list as needed and report annually on retrofitted properties.</li> </ul> |

## 7.6 GOOD HOUSEKEEPING AND POLLUTION PREVENTION FOR PERMITTEE OWNED OPERATIONS (MCM 6)

The Highway Department is responsible for ensuring the implementation of proposed BMPs and measurable goals. Assisting departments for particular BMPs are listed below.

Reporting forms and logs to document these efforts can be found in **Appendix B** and are to be expanded upon in **SWMP Volume 3**. Reporting measures for specific BMPs are identified below and reporting requirements are described in **Section 10**. As part of the Nutrient Source Identification Report (NSIR) completed for MS4 Permit Year 4, BMP retrofit locations were developed. A table of these findings is included in **Appendix G – BMP Retrofit Matrix of SWMP Volume 3**.

### Objective and Requirements

The Town will 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 Town-owned operations.

The minimum Permit requirements in accordance with MS4-2016 section 2.3.7 are as follows:

1. Develop an Operations and Maintenance (O&M) Program for Town-owned facilities within two (2) years from effective date of the Permit.
2. Inventory of all Town owned facilities within two (2) years from the effective date of the Permit.
3. Develop an Infrastructure Operations and Maintenance Program within two (2) years from the effective date of the Permit.
4. Optimize routine inspections, cleaning and maintenance of catch basins.
5. Establish and implement procedures for sweeping and/or cleaning streets and Town-owned parking lots.
6. Ensure proper storage of catch basins cleanings and street sweepings prior to disposal.
7. Establish and implement procedures for winter road maintenance.
8. Establish and implement inspections and maintenance of stormwater treatment structures.
9. Develop Stormwater Pollution Prevention Plans (SWPPPs) for Town-owned or -operated facilities within two (2) years from effective date of the Permit.
10. Comply with enhanced requirements related to WQLW Impairment Requirements for nitrogen which includes:
  - Establish requirements for use of slow-release fertilizers on Town owned property currently using fertilizer
  - Reduce and manage fertilizer use
  - Establish procedures to properly manage grass cuttings and leaf litter on Town property
  - Prohibit blowing organic waste materials onto adjacent impervious surfaces
  - Increase street sweeping frequency of all municipal owned streets and parkingIn Fairhaven, this includes Lee River (MA61-02) and Mount Hope Bay (MA61-06 & MA61-07).
11. Comply with additional requirements specified in Section 3.0 of the Permit for discharges to surface drinking water supplies and their tributaries including the following:
  - Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries.
  - Direct discharges to Class A waters should be avoided to the extent feasible.In Fairhaven, there are currently no (surface) public drinking water supply sources.

**Best Management Practices and Measurable Goals****BMP-6.1. Parks and Open Space Operations and Maintenance Procedures**

Create written O&M procedures including all requirements of the Permit for Town owned parks and open spaces.

|                     |   |
|---------------------|---|
| Media/Location:     | SWMP Volume 3: O&M Plan. Town Stormwater Website  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 2 years of effective date of Permit.</li> <li>• Implement on 100% of Town owned parks and open spaces.</li> <li>• Keep records of O&amp;M performed and report annually.</li> </ul> |

**BMP-6.2. Buildings and Facilities Operations and Maintenance Procedures**

Create written O&M procedures including all requirements of the Permit for Town owned buildings and facilities.

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: O&M Plan. Public Works Department   |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 2 years of effective date of Permit.</li> <li>• Implement on 100% of Town owned buildings and facilities.</li> <li>• Keep records of O&amp;M performed and report annually.</li> </ul> |

**BMP-6.3. Vehicles and Equipment Operations and Maintenance Procedures**

Create written O&M procedures including all requirements of the Permit for Town owned vehicles and equipment.

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: O&M Plan. Public Works Department   |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Completed within 2 years of effective date of Permit.</li> <li>• Implement on 100% of Town owned vehicles and equipment.</li> <li>• Keep records of O&amp;M performed and report annually.</li> </ul> |

**BMP-6.4. Inventory all Permittee-Owned Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment**

Create an inventory of Town owned parks and open spaces, buildings and facilities, and vehicles and equipment facilities for implementation of O&M Plan.

|                     |   |
|---------------------|---|
| Media/Location:     | SWMP Volume 3: O&M Plan. Public Works Department  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>Completed within 2 years of effective date of Permit.</li> <li>Update inventory annually.</li> </ul> |

**BMP-6.5. Municipal Infrastructure Operation and Maintenance Program**

Develop and implement program to ensure proper function of the MS4 stormwater infrastructure.

|                     |   |
|---------------------|---|
| Media/Location:     | SWMP Volume 3: O&M Plan. Public Works Department  |
| Responsible Party:  | Public Works Department   |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>Completed within 2 years of effective date of Permit.</li> <li>Implement so that 100% of infrastructure is maintained and functioning properly.</li> <li>Keep records of O&amp;M performed and report annually.</li> </ul> |

**BMP-6.6. Catch Basin Cleaning Program**

Develop written program for catch basin cleaning with a goal that each catch basin is no more than 50% full at any given time.

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: Good Housekeeping. Town Stormwater Website  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>Written program completed (Year 1).</li> <li>Clean catch basins on established schedule.</li> <li>Report number of catch basins cleaned and volume of material moved annually.</li> </ul> |

**BMP-6.7. Street Sweeping Program**

Develop and implement a street sweeping program so that all streets and municipal parking lots are swept in accordance with Permit conditions. In the tributary areas of Lee River (MA61-02) and Mount Hope Bay (MA61-06 & MA61-07) sweeping is to be done twice per year due to nitrogen impairment.

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: Good Housekeeping Town Stormwater Website   |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Written program completed (Year 1).</li> <li>• Annually sweep all streets and municipal parking lots in accordance with established schedule.</li> <li>• Keep records of sweeping performed and report annually.</li> </ul> |

**BMP-6.8. Winter Road Maintenance Program**

Develop and implement a program to manage storage and use of road salt.

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: Good Housekeeping. Town Stormwater Website  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Written program completed (Year 1).</li> <li>• Implement program as necessary.</li> <li>• Evaluate at least one salt/chloride alternative for use in the Town.</li> </ul> |

**BMP-6.9. Stormwater Treatment Structures Inspections and Maintenance Procedures**

Develop and implement inspection and maintenance procedures and frequencies for Town-owner stormwater BMPs (excluding catch basins).

Measurable Goals: Complete within 1 year of effective date of Permit. Inspect and maintain 100% of BMPs treatment structures at least annually

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: Good Housekeeping Town Stormwater Website   |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Written procedures completed (Year 1).</li> <li>• Inspect and maintain 100% of BMPs treatment structures at least annually.</li> <li>• Keep records of inspection and maintenance performed and report annually.</li> </ul> |

**BMP-6.10. Stormwater pollution prevention plan (SWPPP)**

Develop and implement SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities.

Measurable Goal: Complete and implement within 2 years of effective date of Permit implement SWPPPs for all required facilities.

|                     |  |
|---------------------|--|
| Media/Location:     | SWMP Volume 3: O&M Plan. Highway Department  |
| Responsible Party:  | Public Works Department  |
| Measurable Goal(s): | <ul style="list-style-type: none"> <li>• Developed and implemented SWPPPs within 2 years of effective date of Permit.</li> <li>• Keep records of inspection and maintenance performed and report as required in the SWPPPs.</li> </ul> |

## 8.0 SANITARY SEWER OVERFLOWS INVENTORY

The Town does not have any known locations where SSOs have discharged to the MS4 within the previous five (5) years. If any are identified going forward, they will be inventoried. An inventory form is provided and maintained as part of **SWMP Volume 2: IDDE Plan**.

## 9.0 SURFACE DRINKING WATER SUPPLY SOURCES

Section 3.0 of the Permit addresses requirements for MS4 systems that discharge to public surface drinking water supply sources (Class A and Class B surface waters used for drinking water) or their tributaries. According to 314 CMR 4.00, Massachusetts Surface Water Quality Standards, 4.05: Classes and Criteria and 4.06: Basin Classification and Maps. In Fairhaven, there are currently no (surface) public drinking water supply sources.

## 10.0 ANNUAL PROGRAM EVALUATION

Program evaluation, record keeping, and reporting are required annually to document what the Town has done during the previous reporting period, judge compliance with Permit provisions, and to verify that efforts are resulting in an improvement to the stormwater, and ultimately the receiving water's quality.

The Town is required to submit annual reports each year of the Permit term. The reporting period is a one-year period commencing on the Permit effective date (July 1, 2018) and each anniversary thereafter. The exception is that the first annual report will also include the period from May 1, 2018 to June 30, 2019. Annual reports are due ninety days from the close of the reporting period (September 30). The annual reports will review compliance with the Permit terms and conditions including assessment of selected BMPs, status and progress assessment of planned activities, description of IDDE and O&M program activities, evaluation of construction and post construction stormwater management, and the method/measures used to assess the overall effectiveness of the education program. Description of activities for the next reporting cycle and any changes in identified BMPs or measurable goals will be included. The following data will be collected and reported by the Town using the reporting forms in **Appendix B** to support the ongoing efforts mandated by the Permit:

- Public education and outreach materials with dated distribution/attendance list(s)
- Public involvement and participation materials with dated distribution/attendance list(s)
- Data related to Implementation of the IDDE Program including:
  - SSO reporting forms and updated inventory table
  - Illicit discharge reporting forms and inventory table
  - Outfall screening and sampling data
  - Record of mapping updates
  - Inventory of catchment investigations, data collected, and illicit connections removed
  - Outfall and catchment ranking and assessment updates (Updated Matrix)
  - IDDE program training attendance log
- Inventory of construction runoff management including number of projects reviewed, inspected and enforcement actions
- Inventory of site plan review and BMP implementation for new/re-development projects
- O&M inspection and maintenance forms and logs including:
  - Catch basin cleaning and activities
  - Street sweeping and parking lot sweeping logs
  - MS4 infrastructure BMP inspection forms and logs
  - Town facilities inspection forms and logs
  - SWPPP inspection reports

EPA has indicated they are developing an annual report template for MS4s which will populate information from the NOI and be in the form of an electronic fillable PDF. When it is available, the Town will review the annual report template to determine the best method for data management to be compatible.



# APPENDIX A

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- Environmental Overview Map



# Town of Fairhaven, Massachusetts

## SWMP Appendix A

### Environmental Overview Map

Map Legend

Fairhaven Stormwater Layouts

- Drain Outfall
- Drain BMPs
- Drain Inlet
- Drain Manhole
- Drain Catch Basin
- Drain Pipe
- Drain Culvert

NHESP

- Certified Wetland
- Unassessed Wetland

MassDEP 2022 Integrated List of Waters Bodies

- 2 - Attaining some uses, other uses not assessed
- 4A - Impaired - TMDL is completed
- 4C - Impaired not caused by a pollutant
- 5 - Impaired - TMDL required
- 3 - No uses assessed
- 4B - Impaired - TMDL is completed
- 4C - Impaired not caused by a pollutant
- 5 - Impaired - TMDL required

MassDEP Wetlands

- Shoreline
- Hydrologic Connection
- Mean Low Water Line
- Wetland Limit
- Outcrop Line
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Tidal Flats
- Beach/Rock

Mass Historic Commission

- Historic Areas
- Historic Buildings, Burial Grounds, Structures, and Objects

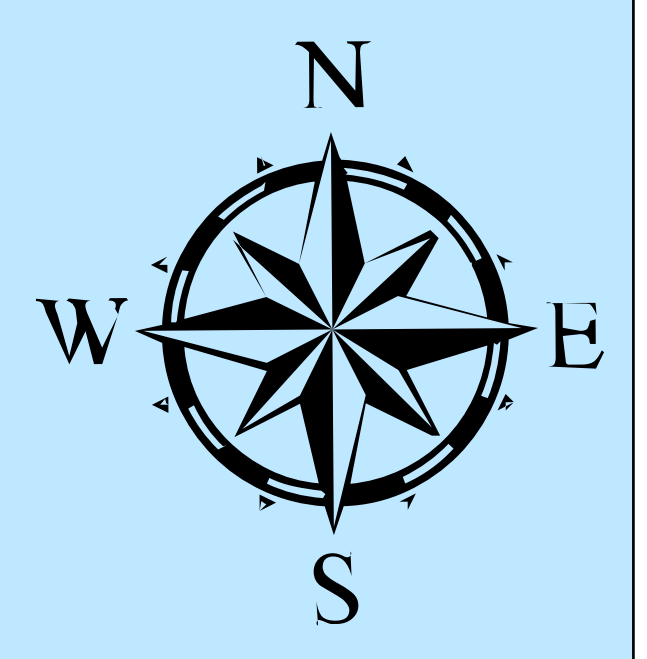
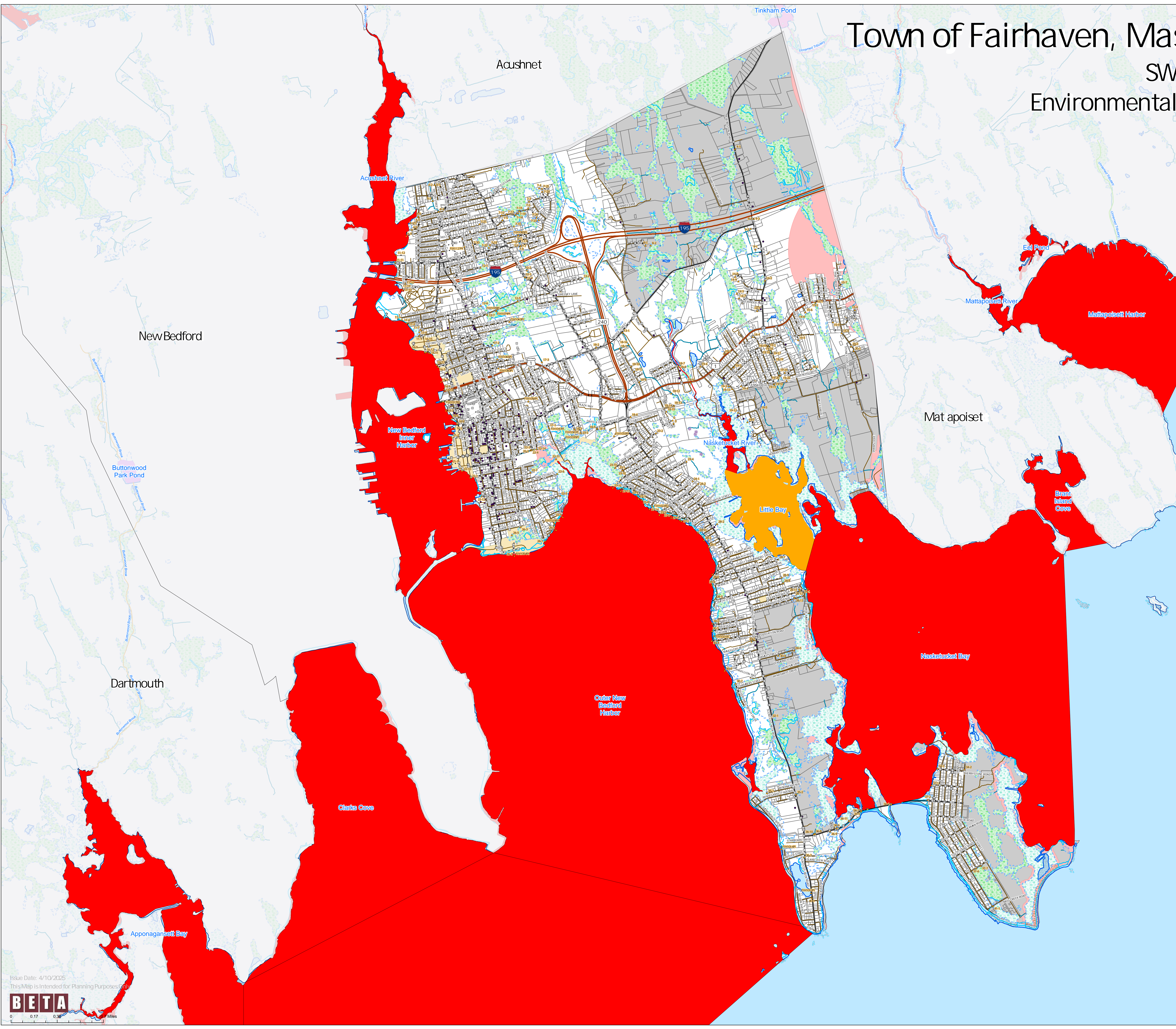
Roads

- Highway
- Major road
- Local Road

Boundary

- MMA Areas

Data Source: MassDEP Wetlands, MassDEP 2022 Integrated List of Water Bodies, MassDOT, MassGIS, MassHistoric Commission Inventory, Natural Heritage & Endangered Species Program, Town of Fairhaven Stormwater Data





## APPENDIX B

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- **Reporting Forms**

**Index**

- **MCM 1: Public Participation and Outreach**
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  - Public Education Reporting Form
- **MCM 2: Public Involvement & Participation Log**
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  - Public Participation Comment Form
- **MCM 3: Illicit Discharge Detection & Elimination Program**
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  - Sanitary Sewer Overflows – Inventory
  - Illicit Discharge Incident Reporting Form
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    - Stormwater BMP Inspection Form – Subsurface Structures

**MCM1: PUBLIC EDUCATION AND OUTREACH LOG**

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

| BMP # | Title/Description                       | Audience                 | Responsible Party                | Method of Delivery            | Date    | Record of Measurable Goal* |
|-------|---|--------------------------|----------------------------------|-------------------------------|---------|----------------------------|
| 1.9   | Management of Pet Waste: Dog License    | Residents                | Town Clerk                       | Distributed with Dog Licenses | Ongoing |                            |
| 1.10  | Septic System Maintenance               | Residents                | Board of Health                  | Mail and post to website      |         |                            |
| 1.11  | Lawn Care: grass clippings & fertilizer | Residents & Bus/Inst/Com | Community & Economic Development | Mail and post to website      |         |                            |
| 1.12  | Management of Pet Waste                 | Residents & Bus/Inst/Com | Community & Economic Development | Post to website               |         |                            |
| 1.13  | Disposal of Leaf Litter                 | Residents & Bus/Inst/Com | Community & Economic Development | Mail and post to website      |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |
|       |   |                          |                                  |                               |         |                            |

\*May include: # distributed, attendees, web page hits, social media likes, etc.

Note: See section 7.1 of SWMP for BMP reporting descriptions and requirements.

Town of Fairhaven, MA

**PUBLIC EDUCATION REPORTING FORM**

|                                    |  |  |  |       |  |
|------------------------------------|--|--|--|-------|--|
| Reporter Name:                     |  | Dept.  |  | Date  |  |
| Target Audience                    |  |  |  |       |  |
| <input type="checkbox"/> Residents | <input type="checkbox"/> Businesses, Institutions (Churches, Hospitals), and Commercial Facilities   | <input type="checkbox"/> Developers (Construction)   | <input type="checkbox"/> Industrial Facilities |       |  |
| Requirement*                       |  |  |  |       |  |
| <input type="checkbox"/> Standard  | Impairments: <input type="checkbox"/> Spring (Apr/May) <input type="checkbox"/> Summer (Jun/Jul) <input type="checkbox"/> Fall (Aug/Sep/Oct) |  |  |       |  |
| Document Publishing/Distribution:  |  |  |  | Dater |  |
| Developed/Provided By:             |  | <input type="checkbox"/> Town <input type="checkbox"/> NepRWA <input type="checkbox"/> EPA <input type="checkbox"/> NSP <input checked="" type="checkbox"/> Other: _____ |  |       |  |

| BMP Media/Category*   | Title/Description |
|---|-------------------|
| <input type="checkbox"/> Brochure/Pamphlet                  |                   |
| <input type="checkbox"/> Flyer                              |                   |
| <input type="checkbox"/> Web Page Article/Notice            |                   |
| <input type="checkbox"/> Social Media                       |                   |
| <input type="checkbox"/> Newspaper Articles/Press Releases  |                   |
| <input type="checkbox"/> Local Public Service Announcements |                   |
| <input type="checkbox"/> School Curricular/Programs         |                   |
| <input type="checkbox"/> Contests                           |                   |
| <input type="checkbox"/> Special Events/Festivals/Fairs     |                   |
| <input type="checkbox"/> Displays/Posters/Kiosks            |                   |
| <input type="checkbox"/> Videos                             |                   |
| <input type="checkbox"/> Other                              |                   |

\*Please attach a printed copy of the BMP to this form.



**PUBLIC EDUCATION REPORTING FORM (CONT.)**

|  |                  |  |                    |  |
|--|------------------|--|--------------------|--|
| Method of Delivery                             |                  |  |                    |  |
| <input type="checkbox"/> Printed hard copy     | Location:        |  | Quantity:          |  |
| <input type="checkbox"/> Mailed hard copy      | Recipient Group: |  | # Recipients:      |  |
| <input type="checkbox"/> Email                 | Recipient Group: |  | # Recipients:      |  |
| <input type="checkbox"/> Digital: E-News       | Recipient Group: |  | # Recipients:      |  |
| <input type="checkbox"/> Digital: Website      | Web Page URL:    |  | # Hits             |  |
| <input type="checkbox"/> Digital: Social Media | Network Site:    |  | User/Profile Name: |  |
| <input type="checkbox"/> Event                 | Description:     |  | # Attendees        |  |
| <input type="checkbox"/> Other:                |                  |  |                    |  |

Comments:

**MCM2: PUBLIC INVOLVEMENT & PARTICIPATION LOG**

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

**RECORD OF SWMP AND ANNUAL REPORT POSTING FOR PUBLIC REVIEW**

| Date | Responsible Party | Public Notice Provided | Location of Posting | Record of Measurable Goal* |
|------|-------------------|------------------------|---------------------|----------------------------|
|      |                   |                        |                     |                            |
|      |                   |                        |                     |                            |
|      |                   |                        |                     |                            |

*\*May include: web page hits, requests to view printed document, # of comments received***RECORD OF PUBLIC COMMENTS**

| Date | Comment From | Received Via | Comment |
|------|--------------|--------------|---------|
|      |              |              |         |
|      |              |              |         |
|      |              |              |         |

**RECORD OF PUBLIC PARTICIPATION ACTIVITIES**

| Date | Responsible Party | Public Notice Provided | Activity | Record of Measurable Goal* |
|------|-------------------|------------------------|----------|----------------------------|
|      |                   |                        |          |                            |
|      |                   |                        |          |                            |
|      |                   |                        |          |                            |

*\*May include: # of participants, attendees, and/or quantity of cleanup achieved*

Note: See section 7.2 of SWMP for BMP reporting descriptions and requirements.



**PUBLIC PARTICIPATION OPPORTUNITY REPORTING FORM**

|                |  |       |  |      |  |
|----------------|--|-------|--|------|--|
| Reporter Name: |  | Dept. |  | Date |  |
|----------------|--|-------|--|------|--|

|   |  |   |
|---|--|---|
| Public Participation Minimum Control Measure:                 |  |   |
| <input type="checkbox"/> Notice of Intent                     | <input type="checkbox"/> Stormwater Management Program | <input type="checkbox"/> Public Education                 |
| <input type="checkbox"/> Public Involvement and Participation | <input type="checkbox"/> IDDE                          | <input type="checkbox"/> Construction Site Runoff Control |
| <input type="checkbox"/> New Development                      | <input type="checkbox"/> Good Housekeeping             | <input type="checkbox"/> Other:                           |

|                               |  |
|-------------------------------|--|
| Title of Document:            |  |
| Date of Public Participation: |  |

|  |                                      |                                       |
|--|--------------------------------------|---------------------------------------|
| Type/Location of Public Participation Posting:                                     |                                      |                                       |
| <input type="checkbox"/> Web Page  | <input type="checkbox"/> Town Office | <input type="checkbox"/> Public Venue |
| <input type="checkbox"/> Mass Media (newspaper, public service announcement, etc.) | <input type="checkbox"/> Other:      |                                       |

|                        |
|------------------------|
| Action Taken (if any): |
|                        |

**MCM3: IDDE PROGRAM REPORTING SUMMARY LOG**

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

**EMPLOYEE TRAINING**

| Date | # of Attendees | Location | Presenter | Topic/Discussion Items |
|------|----------------|----------|-----------|------------------------|
|      |                |          |           |                        |
|      |                |          |           |                        |

**SSO INVENTORY**

| Report # | Date | Reporter | Location | Status & Comments |
|----------|------|----------|----------|-------------------|
|          |      |          |          |                   |
|          |      |          |          |                   |
|          |      |          |          |                   |
|          |      |          |          |                   |

**ILLICIT DISCHARGE INVENTORY**

| Report # | Date | Reporter | Location | Status & Comments |
|----------|------|----------|----------|-------------------|
|          |      |          |          |                   |
|          |      |          |          |                   |
|          |      |          |          |                   |
|          |      |          |          |                   |
|          |      |          |          |                   |

**STORM SEWER MAPPING UPDATES**

| Type | Date | Updated by | Location | Description |
|------|------|------------|----------|-------------|
|      |      |            |          |             |
|      |      |            |          |             |
|      |      |            |          |             |
|      |      |            |          |             |

**OUTFALL SCREENING AND SAMPLING**

| Dry/Wet | Date(s) | Inspector | Location(s) | Comments |
|---------|---------|-----------|-------------|----------|
|         |         |           |             |          |
|         |         |           |             |          |
|         |         |           |             |          |
|         |         |           |             |          |

**CATCHMENT INVESTIGATIONS**

| Category | Date(s) | Inspector | Location | Description/Results |
|----------|---------|-----------|----------|---------------------|
|          |         |           |          |                     |
|          |         |           |          |                     |
|          |         |           |          |                     |
|          |         |           |          |                     |

Note: See section 7.3 of SWMP for BMP reporting descriptions and requirements.

## SANITARY SEWER OVERFLOWS (SSOs) – INVENTORY

| Incident No. | Location (Closest Address) | Discharge to:<br>(Yes or No) |     | Occurrence |       |     | Volume Discharge<br>(gal. ±) | Mitigation / Corrective Measures |          |         |
|--------------|----------------------------|------------------------------|-----|------------|-------|-----|------------------------------|----------------------------------|----------|---------|
|              |                            |                              |     |            | Time  |     |                              | Measures                         | Date:    |         |
|              |                            | Waters                       | MS4 | Date:      | Start | End |                              |                                  | Complete | Planned |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |
|              |                            |                              |     |            |       |     |                              |                                  |          |         |

This Inventory includes reported SSO's from 2014 to Present

## ILLICIT DISCHARGE INCIDENT REPORTING FORM

|   |  |  |   |
|---|--|--|---|
| Incident ID                                 |  | Logged By:   |   |
| Location,<br>Nearest<br>Street<br>Address,: |  | Outfall #  |   |
|   |  | Latitude   |   |
|   |  | Longitude  |   |
| Reported by:                                |  | Date:  |   |
| Contact Info                                |  |  |   |
| Discharge<br>Type:                          | <input type="checkbox"/> Sewer Overflow<br><input type="checkbox"/> Sewer Connection   | <input type="checkbox"/> Spill<br><input type="checkbox"/> Dumping   | <input type="checkbox"/> Wash<br><input type="checkbox"/> Other |
| Incident<br>Description:                    |  |  |   |
| Area<br>Impacted                            | <input type="checkbox"/> Stream/River (name) _____<br><input type="checkbox"/> Upland (name) _____   | <input type="checkbox"/> Wetland (near) _____<br><input type="checkbox"/> Other _____  |   |
| Stormwater<br>System<br>Impacted            | <input type="checkbox"/> Catchbasin (ID #) _____<br><input type="checkbox"/> Drain Manhole (ID #) _____<br><input type="checkbox"/> Surface Basin (ID #) _____ | <input type="checkbox"/> Subsurface Basin (near) _____<br><input type="checkbox"/> Outfall (ID #) _____<br><input type="checkbox"/> None |   |
| Recent Rain:                                |  |  |   |
| Add. Info:                                  |  |  |   |

### AREA ACTIVES – POSSIBLE CAUSE OF ISSUE

|                |  |               |  |          |  |
|----------------|--|---------------|--|----------|--|
| Dumping:       | <input type="checkbox"/> Yes <input type="checkbox"/> No | Oil/Chemicals | <input type="checkbox"/> Yes <input type="checkbox"/> No | Sewerage | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Septic System: | <input type="checkbox"/> Yes <input type="checkbox"/> No | Wash Water:   | <input type="checkbox"/> Yes <input type="checkbox"/> No | Staining | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Other:         |  |               |  | Suds:    | <input type="checkbox"/> Yes <input type="checkbox"/> No |

### INDICATORS OF POTENTIAL ISSUES – FURTHER INVESTIGATION RECOMMENDED

|            |   |            |  |
|------------|---|------------|--|
| Odor:      | <input type="checkbox"/> None <input type="checkbox"/> Sewer <input type="checkbox"/> Eggs <input type="checkbox"/> Petroleum <input type="checkbox"/> Laundry <input type="checkbox"/> Unknown | Floatables | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Oil Sheen: | <input type="checkbox"/> Yes <input type="checkbox"/> No  | Cloudy::   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Other:     |   |            | Suds:  |
|            |   |            | <input type="checkbox"/> Yes <input type="checkbox"/> No |

### SUSPECTED VIOLATOR KNOWN: ☐ YES ☐ NO

|             |  |               |  |
|-------------|--|---------------|--|
| Name        |  | Address       |  |
| Description |  | License Plate |  |

## ILLICIT DISCHARGE INCIDENT INVESTIGATION REPORT FORM (CONT.)

### LOCATION MAP/SKETCH/PHOTOS

### RESPONSE ACTION(s)

|  |  |                    |  |
|--|--|--------------------|--|
| Date Investigated:   |  | Investigator:      |  |
| <input type="checkbox"/> No Investigation                  |  | Reason:            |  |
| <input type="checkbox"/> Referred to another Department    |  | Department         |  |
| <input type="checkbox"/> Investigated – No Action Required |  | Action Description |  |
| <input type="checkbox"/> Investigated – Action Required    |  |                    |  |
| <input type="checkbox"/> Action Completed                  |  | Date:              |  |
| <input type="checkbox"/> Incident Closed                   |  | Date:              |  |

Notes:

## SCREENING AND SAMPLING FORM

|            |  |   |     |       |
|------------|--|---|-----|-------|
| Type:      | <input type="checkbox"/> Outfall <input type="checkbox"/> Interconnection <input type="checkbox"/> Key Junction            | <input type="checkbox"/> Pipe <input type="checkbox"/> DMH <input type="checkbox"/> CB <input type="checkbox"/> Other | ID: |       |
| Location:  |  | Material:   |     | Size: |
| Inspector: |  | Date:   |     | Time: |
| Weather:   | <input type="checkbox"/> Sunny <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Snow | Recent Rainfall:  |     |       |

### ENVIRONMENTAL INSPECTION

|             |   |             |   |             |  |
|-------------|---|-------------|---|-------------|--|
| Area:       | <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Municipal <input type="checkbox"/> Open Space <input type="checkbox"/> Unknown                                    |             |   |             |  |
| Flowing To: | <input type="checkbox"/> Upland <input type="checkbox"/> Wetland/Marsh <input type="checkbox"/> Stream/River <input type="checkbox"/> Lake/Pond <input type="checkbox"/> Open Space <input type="checkbox"/> Other MS4 <input type="checkbox"/> Outfall |             |   |             |  |
| Submerged:  | <input type="checkbox"/> Yes <input type="checkbox"/> No  | Accessible: | <input type="checkbox"/> Yes... <input type="checkbox"/> No | Other Info: |  |

### FLOW

|         |   |             |  |
|---------|---|-------------|--|
| Amount: | <input type="checkbox"/> None <input type="checkbox"/> Drip <input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial | Clarity:    | <input type="checkbox"/> None <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque |
| Color:  |   | Other Info: |  |

### INDICATORS OF POTENTIAL ISSUES – FURTHER INVESTIGATION RECOMMENDED

|               |  |                      |  |             |   |
|---------------|--|----------------------|--|-------------|---|
| Sediment:     | <input type="checkbox"/> Yes <input type="checkbox"/> No   | Scouring:            | <input type="checkbox"/> Yes <input type="checkbox"/> No | Staining:   | <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| Algae Growth: | <input type="checkbox"/> Yes <input type="checkbox"/> No   | Stressed Vegetation: | <input type="checkbox"/> Yes <input type="checkbox"/> No | Floatables: | <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| Oil Sheen:    | <input type="checkbox"/> Yes <input type="checkbox"/> No   | Turbidity:           | <input type="checkbox"/> Yes <input type="checkbox"/> No | Other:      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Odor:         | <input type="checkbox"/> None <input type="checkbox"/> Sewer <input type="checkbox"/> Eggs <input type="checkbox"/> Fuel <input type="checkbox"/> Laundry <input type="checkbox"/> Unknown |                      |  |             |   |

### SAMPLING

|                    |  |                     |  |            |  |
|--------------------|--|---------------------|--|------------|--|
| Sampling Required: | <input type="checkbox"/> Yes <input type="checkbox"/> No | Sampling Performed: | <input type="checkbox"/> Yes <input type="checkbox"/> No | Struct. ID |  |
|--------------------|--|---------------------|--|------------|--|

### RECORDED DATA

|           |  |               |  |             |  |     |  |
|-----------|--|---------------|--|-------------|--|-----|--|
| Ammonia:  |  | Salinity:     |  | Temp:       |  | pH: |  |
| Chlorine: |  | Conductivity: |  | Surfactant: |  |     |  |

### LAB SAMPLES TAKEN

|                                       |  |   |       |                                   |  |                              |  |
|---------------------------------------|--|---|-------|-----------------------------------|--|------------------------------|--|
| <input type="checkbox"/> E. coli      |  | <input type="checkbox"/> Phosphorus     |       | <input type="checkbox"/> Nitrogen |  | <input type="checkbox"/> DO  |  |
| <input type="checkbox"/> Enterococcus |  | <input type="checkbox"/> Fecal Coliform |       | <input type="checkbox"/> Metals   |  | <input type="checkbox"/> TSS |  |
| Sent To                               |  |   | Date: |                                   |  | Date Received:               |  |



EMPLOYEE TRAINING RECORD

Topic: \_\_\_\_\_ Date: \_\_\_\_\_ Duration: \_\_\_\_\_ Sheet \_\_\_\_ of \_\_\_\_.

| Name | Title | Signature |
|------|-------|-----------|
|      |       |           |
|      |       |           |
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|      |       |           |



**IDDE TRAINING SUMMARY FORM**

|              |  |                        |  |
|--------------|--|------------------------|--|
| Training By: |  | Dept./<br>Organization |  |
| Date         |  | Time:                  |  |
| Location:    |  |                        |  |

|   |  |                  |  |
|---|--|------------------|--|
| Public Participation Minimum Control Measure: |  |                  |  |
| Subject:                                      |  |                  |  |
| Audience:                                     |  | No. Participants |  |
| Goals:  |  |                  |  |

|                         |  |
|-------------------------|--|
| Summary of<br>Training: | <ul style="list-style-type: none"><li></li></ul> |
| Handouts                | <ul style="list-style-type: none"><li></li></ul> |

|            |  |
|------------|--|
| Comments : | <ul style="list-style-type: none"><li></li></ul> |
|------------|--|

MCM 4: CONSTRUCTION SITE INSPECTION LOG

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

| Report # | Date | Inspector | Project/Location | Status & Comments |
|----------|------|-----------|------------------|-------------------|
|          |      |           |                  |                   |
|          |      |           |                  |                   |
|          |      |           |                  |                   |
|          |      |           |                  |                   |
|          |      |           |                  |                   |
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|          |      |           |                  |                   |
|          |      |           |                  |                   |
|          |      |           |                  |                   |
|          |      |           |                  |                   |

Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.

Town of Fairhaven, MA

Report No. \_\_\_\_\_

**CONSTRUCTION SITE INSPECTION FORM**

|                                   |                                  |                                    |                                       |                                     |  |
|-----------------------------------|----------------------------------|------------------------------------|---------------------------------------|-------------------------------------|--|
| Project:                          |                                  | Date:                              |                                       | Last Insp:                          |  |
| Location:                         |                                  | Arrive:                            |                                       | Leave:                              |  |
| Operator:                         |                                  | Site Rep:                          |                                       |                                     |  |
| Inspector:                        |                                  |                                    |                                       |                                     |  |
| Type                              | <input type="checkbox"/> Regular | <input type="checkbox"/> Pre-Storm | <input type="checkbox"/> During Storm | <input type="checkbox"/> Post Storm |  |
| Recent Rainfall:                  |                                  | Current Weather:                   |                                       |                                     |  |
| Description of Current Site Work: |                                  |                                    |                                       |                                     |  |
| Add. Info:                        |                                  |                                    |                                       |                                     |  |

**EROSION AND SEDIMENT CONTROL MAINTENANCE/ACTION REQUIRED:** ☐ YES ☐ NO

(Inspect for all applicable controls listed – ECB = Erosion Control Barrier)

| Control                                    | Condition | Required Action | Completed (by)           | Date |
|--|-----------|-----------------|--------------------------|------|
| <input type="checkbox"/> SWPPP Report(s)   |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Adjacent Street   |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Const. Access Dr. |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Perimeter ECB     |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Outside ECB       |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Sediment Basin(s) |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> CB Protection     |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Stockpiles        |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Exposed Soils     |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Exposed Slopes    |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Outlet(s)         |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Receiving Waters  |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Other             |           |                 | <input type="checkbox"/> |      |

**CONSTRUCTION WASTE CONTROL MAINTENANCE/ACTION REQUIRED:** ☐ YES ☐ NO

(Inspect for all applicable controls listed)

| Control                                      | Condition | Required Action | Completed (by)           | Date |
|--|-----------|-----------------|--------------------------|------|
| <input type="checkbox"/> Trash/Litter        |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Dumpsters           |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Fueling Areas       |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Sanitary Facilities |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Dewatering          |           |                 | <input type="checkbox"/> |      |
| <input type="checkbox"/> Haz Mat Storage     |           |                 | <input type="checkbox"/> |      |

**SITE PHOTOS**

MCM 4: CONSTRUCTION SITE ENFORCEMENT ACTION LOG

Year 1 Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

| Project/Location | Date | Action Taken | Status & Comments |
|------------------|------|--------------|-------------------|
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Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.

MCM 4: SITE PLAN REVIEW LOG

Year 1 Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

| Project/Location | Filing Date | Reviewer | Comments | Status |
|------------------|-------------|----------|----------|--------|
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Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.

**MCM 5: POST CONSTRUCTION STORMWATER MANAGEMENT IMPLEMENTATION LOG**

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

| Project/Location      | Filing Date | Reviewer | Requirements Met  | Project Status |
|-----------------------|-------------|----------|---|----------------|
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |
|                       |             |          | <input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs<br><input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M |                |
| Description/Comments: |             |          |   |                |

Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.



**MCM 6: TOWN FACILITIES OPERATIONS AND MAINTENANCE LOG**

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

**PARKS AND OPEN SPACE**

| Report # | Date | Inspector | Location | Status & Comments |
|----------|------|-----------|----------|-------------------|
|          |      |           |          |                   |
|          |      |           |          |                   |
|          |      |           |          |                   |
|          |      |           |          |                   |

**BUILDINGS AND FACILITIES**

| Report # | Date | Inspector | Location | Status & Comments |
|----------|------|-----------|----------|-------------------|
|          |      |           |          |                   |
|          |      |           |          |                   |
|          |      |           |          |                   |
|          |      |           |          |                   |

**VEHICLES AND EQUIPMENT**

| Report # | Date | Inspector | Location | Status & Comments |
|----------|------|-----------|----------|-------------------|
|          |      |           |          |                   |
|          |      |           |          |                   |
|          |      |           |          |                   |
|          |      |           |          |                   |

Note: See section 7.6 of SWMP for BMP reporting descriptions and requirements.

**MCM 6: MUNICIPAL INFRASTRUCTURE OPERATIONS AND MAINTENANCE LOG**

Reporting Period: \_\_\_\_\_ – \_\_\_\_\_

**RECORD OF CATCHBASIN CLEANING**

| Date(s) | Location(s) | Responsible Party | # CBs Cleaned | Volume of Cleaning |
|---------|-------------|-------------------|---------------|--------------------|
|         |             |                   |               |                    |
|         |             |                   |               |                    |
|         |             |                   |               |                    |
|         |             |                   |               |                    |

**RECORD OF STREET AND PARKING LOT SWEEPING**

| Date(s) | Location(s) | Responsible Party | Length/# lots | Volume of Cleaning |
|---------|-------------|-------------------|---------------|--------------------|
|         |             |                   |               |                    |
|         |             |                   |               |                    |
|         |             |                   |               |                    |
|         |             |                   |               |                    |

**BMP INSPECTION AND MAINTENANCE**

| Report # | Date | Inspector | BMP/Location | Status & Comments |
|----------|------|-----------|--------------|-------------------|
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|          |      |           |              |                   |
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**SWPPP INSPECTION AND MAINTENANCE**

| Report # | Date | Inspector | Location | Status & Comments |
|----------|------|-----------|----------|-------------------|
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|          |      |           |          |                   |

Note: See section 7.6 of SWMP for BMP reporting descriptions and requirements.

## CATCHBASIN INSPECTION FORM

Inspector: \_\_\_\_\_

Date: \_\_\_\_\_

Sheet \_\_\_\_ of \_\_\_\_.

| CB ID           | <25%                     | 25-50%                   | >50%                     |  | CB ID           | <25%                     | 25-50%                   | >50%                     |  | CB ID           | <25%                     | 25-50%                   | >50%                     |
|-----------------|--------------------------|--------------------------|--------------------------|--|-----------------|--------------------------|--------------------------|--------------------------|--|-----------------|--------------------------|--------------------------|--------------------------|
| _____ St/Rd/Ave |                          |                          |                          |  | _____ St/Rd/Ave |                          |                          |                          |  | _____ St/Rd/Ave |                          |                          |                          |
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## STREET/PAVEMENT SWEEPING RECORD FORM

Operator: \_\_\_\_\_ Date: \_\_\_\_\_

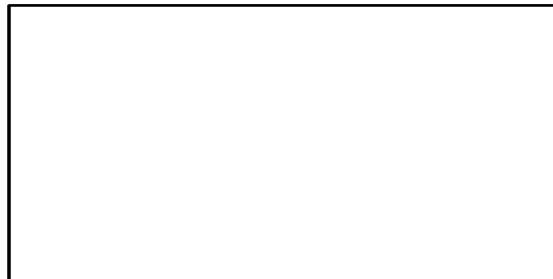
Sheet \_\_\_\_ of \_\_\_\_

[illegible]

## STORMWATER BMP INSPECTION FORM – SURFACE STRUCTURES

|                  |                                    |  |                                       |                                       |      |
|------------------|------------------------------------|--|---------------------------------------|---------------------------------------|------|
| BMP ID:          |                                    |  |                                       |                                       |      |
| Location:        |                                    | Length                                       | ±ft.                                  | Depth                                 | ±ft. |
| Description:     |                                    | Top Width                                    | ±ft.                                  | Bot Width                             | ±ft. |
| Type:            | <input type="checkbox"/> Detention | <input type="checkbox"/> Retention           | <input type="checkbox"/> Infiltration | <input type="checkbox"/> Bioretention |      |
|                  | <input type="checkbox"/> Swale     | <input type="checkbox"/> Infiltration Trench | <input type="checkbox"/> Other        |                                       |      |
| Inspector:       |                                    |  |                                       | Date:                                 |      |
| Recent Rainfall: |                                    |  |                                       |                                       |      |
| Notes:           |                                    |  |                                       |                                       |      |

### LOCATION MAP



**MAINTENANCE REQUIRED:** ☐ YES ☐ NO

(Inspect for all problems listed – provide information for required maintenance only)

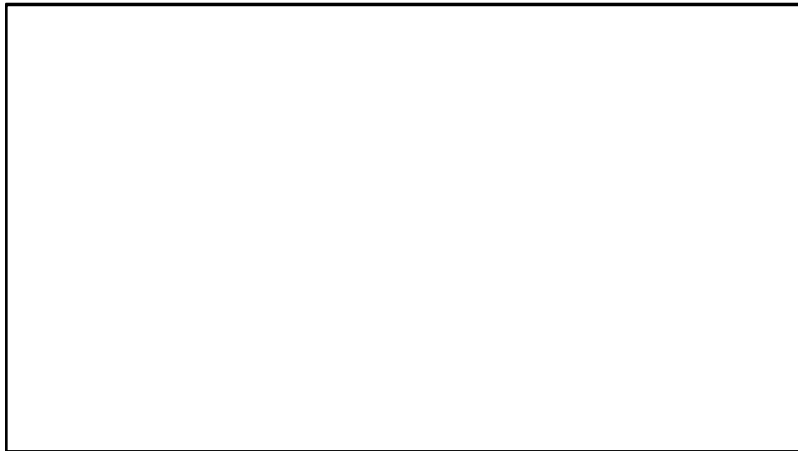
| Problem                                   | Description | Quantity (±) | Completed (personnel)    | Date |
|---|-------------|--------------|--------------------------|------|
| <input type="checkbox"/> Sediment/Debris  |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Vegetation       |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Erosion          |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Water Pond       |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Sediment Forebay |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Outlet Struct    |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Inlet            |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Outlet           |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Riprap           |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Check Dam        |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Access           |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Fence            |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Other            |             |              | <input type="checkbox"/> |      |

**BMP PHOTOS**

## STORMWATER BMP INSPECTION FORM – SUBSURFACE STRUCTURES

|                  |  |  |                                      |                   |      |
|------------------|--|--|--------------------------------------|-------------------|------|
| BMP ID:          |  |  |                                      |                   |      |
| Location:        |  | Cover/Grate size                               | ±ft.                                 | Cover/Grate shape | ±ft. |
| Description:     |  | Structure Diameter                             | ±ft.                                 | Depth             | ±ft. |
|                  |  | Structure Material                             |                                      |                   |      |
| Type:            | <input type="checkbox"/> Oil-Grit Separator        | <input type="checkbox"/> Proprietary Structure | <input type="checkbox"/> Leaching CB |                   |      |
|                  | <input type="checkbox"/> Infiltration Chamber/Pipe | <input type="checkbox"/> Sand Filter           | <input type="checkbox"/> Other       |                   |      |
| Inspector:       |  |  | Date:                                |                   |      |
| Recent Rainfall: |  |  |                                      |                   |      |
| Add. Info:       |  |  |                                      |                   |      |

### LOCATION MAP





**MAINTENANCE REQUIRED:** ☐ YES ☐ NO

(Inspect for all problems listed – provide information for required maintenance only)

| Problem  | Description | Quantity (±) | Completed (personnel)    | Date |
|--|-------------|--------------|--------------------------|------|
| <input type="checkbox"/> Grate/Cover             |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Structure               |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Hood/Trap/Insert        |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Pipes & Joints          |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Ladder                  |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Sediment/Debris         |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Vegetation/Roots        |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Contaminants/Pollution  |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Infiltration Capability |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Discharge               |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Fence                   |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Access                  |             |              | <input type="checkbox"/> |      |
| <input type="checkbox"/> Other                   |             |              | <input type="checkbox"/> |      |

**BMP PHOTOS**

## APPENDIX C

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- Assessment of Current Regulations

Fairhaven, MA

# ASSESSMENT OF CURRENT REGULATIONS

NPDES Phase II Small MS4 General Permit

June 2022

## LID & GREEN INFRASTRUCTURE

---



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# ASSESSMENT OF CURRENT REGULATIONS

Fairhaven, MA

NPDES Phase II Small MS4 General Permit

## LID & GREEN INFRASTRUCTURE

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Prepared by: BETA GROUP, INC.

Prepared for: Town of Fairhaven, Massachusetts

June 2022

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## 1.0 INTRODUCTION

This assessment has been developed by the Town of Fairhaven (the Town) to assess local requirements in relation to the creation of impervious cover and the feasibility allowing the use of low-impact-design (LID) and green infrastructure. This is done in accordance with the 2016 MS4 General Permit (the Permit) Stormwater Management in New Development and Redevelopment Section 2.3.6.b & c requirements and shall be part of the Town's Stormwater Management Plan (SWMP).

### OBJECTIVE

The objective is to identify opportunities to revise municipal regulations to better support LID and green infrastructure options. As stated in the Mass Audubon tool, the key areas of analysis include:

1. Overall site design: Open Space Conservation Development (OSCD) vs. conventional subdivisions
2. Project design and layout standards in relation to LID: road layout and width, curbing, drainage, sidewalks, parking, landscaping
3. Maintenance and operations, mechanisms for enforcement: Who is responsible for maintaining drainage/LID (municipal or homeowner); easements, homeowner association option; municipal inspection and administration systems.

The following report sections summarize the current regulations and includes recommendations to update those regulations.

## 2.0 CURRENT REGULATIONS

The General Code for the Town is available to view here: <https://ecode360.com/FA1596>.

Regulations review as part of this task include:

- Chapter 194 Zoning (2019)
- Chapter 322 Subdivision (2007)
- Chapter 194 Stormwater Management (2020)

## 3.0 REVIEW STANDARDS AND METHODOLOGY

The analysis compares the existing regulations to the state's recommended best practices within the Smart Growth/Smart Energy Toolkit. This was completed using the tool developed by Mass Audubon: Bylaw Review for LID & Climate Smart, Nature-Based Solutions. The Excel tool provides a structured evaluation of the existing town regulations in a "Conventional", "Better" and "Best Practice" format in relation to over 30 best practice considerations. The tool can be downloaded from the following webpage:

<https://www.massaudubon.org/our-conservation-work/policy-advocacy/shaping-climate-resilient-communities/publications-community-resources/bylaw-review>

The tool includes a description of the assessment standards as follows.

### OPEN SPACE RESIDENTIAL DESIGN (OSRD) OVERVIEW

This section reviews how local bylaws for cluster, Open Space Residential Design (OSRD), or Natural Resource Protection Zoning (NRPZ) compared to the state's recommended best practices. Communities may currently have multiple bylaws that cover this in different residential areas, in which case they can

each be compared to the model regulations. However, in most cases, we would encourage simplification and the use of a single OSRD bylaw with local priorities clearly defined.

Communities may also have no cluster, OSRD, or NRPZ bylaws on the books. In this case, the state's best practice model can be used to create one. If the community closely follows the model, they'll meet the characteristics described within the analysis. However, the analysis still provides a quick checklist.

Some of the most important aspects of OSRD in any community include: the four-step review process that carefully considers the natural landscape before drawing lot lines; the minimum amount of open space protected; the incorporation of LID practices; and allowing this type of development by right instead of special permit.

#### ZONING, SUBDIVISION, SITE PLAN REVIEW, AND STORMWATER OVERVIEW

This section reviews not only the individual bylaws and regulations, but also how they work together and how consistent they are. Communities often update portions of bylaws or regulations in a piecemeal way over decades, leading to inconsistencies among various provisions. This color-coded analysis provides a quick overview of not only which rules are out of date and not meeting best practices for LID and preservation of Green Infrastructure, but also how certain topics (such as siting of LID) may be inconsistent between different parts of land use rules.

Not all factors (such as road width, siting of LID, limits on clearing and grading, or allowing common drives) may be addressed in each of the sections considered (Zoning bylaws, Subdivision Rules and Regulations, Site Plan Review (SPR), and Stormwater/LID bylaw). Where that factor is not usually included within a regulation or bylaw, you'll notice that "(Not Applicable)" will appear in that box. For example, setbacks and frontage requirements are addressed under Zoning, but often not under other bylaws or regulations.

This review may also help towns identify best practices that comply with MS4 permit requirements, issued by EPA and Mass DEP, though it is not comprehensive in relation to the permit requirements and additional actions may be needed. Consultation with EPA and/or DEP is strongly recommended. Visit [www.mass.gov/guides/municipal-compliance-fact-sheet-stormwater](http://www.mass.gov/guides/municipal-compliance-fact-sheet-stormwater) for more info.

The analysis is broken into five goals, each with factors that address the goal:

##### Goal 1: Protect Natural Resources and Open Space

The focus of this section is to limit clearing and grading and encourage soil management, the use of native species, and revegetation of disturbed areas. Often, communities have language such as "due regard shall be shown for natural features" without any specific limitations or guidelines that can be used by local boards to ensure developers are following the true intent of the community. The retention of natural vegetation and soils is the single most efficient means of reducing development impacts on water resources, avoiding costs associated with piping and other "grey" stormwater management features as well as the need for irrigation. There are also many other benefits – including habitat for birds and pollinators, trees for shade and clean air, and protection of natural scenery that contributes to property values and a high quality of life.

##### Goal 2: Promote Efficient, Compact Development Patterns and Infill

Often, making dimensional requirements such as setbacks, lot size, and frontage more flexible as well as allowing common drives will help allow the community to encourage efficient, compact designs. These help to decrease the amount of impervious surfaces and increase infiltration, while still supporting new development.

#### Goal 3: Smart Designs that Reduce Overall Imperviousness

This section reviews site design such as street location, road width, cul-de-sac design, curbing, roadside swales, and sidewalk design and location. There are many opportunities for communities to minimize impervious surfaces and allow for infiltration through curb cuts, swales, and cul-de-sacs with bioretention, among other things.

#### Goal 4: Adopt Green Infrastructure Stormwater Management Provisions

This section looks to explicitly discuss LID as a preferred method, such as requiring roof runoff to be directed into vegetated areas, and a preference for infiltration wherever soils allow or can be amended. Bylaws and/or regulations should clearly specify what LID is and which BMPs are preferred or required. Communities should also require an operations and maintenance plan to encourage effective use of LID methods. Adopting a specific LID bylaw can help clearly define and incorporate LID as a preferential stormwater management technique. Defining LID within this bylaw also decreases the need to explain LID throughout each of the Zoning bylaws, SPR, and subdivision rules and regulations and reduce the potential for any conflict between regulations and bylaws. This section also includes additional stormwater management considerations relevant to the MS4 permit.

#### Goal 5: Encourage Efficient Parking

Parking accounts for a large amount of impervious surface within new and redevelopment projects and offers an enormous opportunity for using LID. By reducing the amount of required parking - or even including parking maximums instead of minimums, communities can drastically reduce their impervious surfaces and runoff. Many communities already require landscaping in parking areas, which also offers an opportunity to allow curb cuts and infiltration in these areas - improving water quality and reducing the need for irrigation.

## 4.0 OPEN SPACE DEVELOPMENT ASSESSMENT

The Town has begun the process of drafting a Cluster Development Bylaw. At this time the Town does not have regulations to promote residential development projects with compact and required open space. Refer to Appendix A to include best practices.

## 5.0 BYLAWS AND REGULATIONS ASSESSMENT

Appendix B outlines the regulations in a similar format ("Conventional", "Better", and "Best Practice") against sets of factors that address 5 goals. Findings for each regulation are color coded to match "Conventional", "Better" and "Best Practice" factors. The 5 goals are:

1. Protect Natural Resources and Open Space
2. Promote Efficient, Compact Development Patterns and Infill
3. Smart Designs that Reduce Overall Imperviousness



4. Adopt Green Infrastructure Stormwater Management Provisions
5. Encourage Efficient Parking

This analysis indicates where specific requirements rate relative to best practices for LID and green infrastructure.

Each bylaw may cover different parts of each goal, so the analysis compared any differences between regulations as well.

## 6.0 RECOMMENDATIONS

As shown in Appendices A and B, there is room for improvement to better promote LID and green infrastructure within the Zoning Bylaws, Subdivision Regulations, and Stormwater Management Regulations. Fairhaven can also create a Site Plan Review Process that incorporates the goals identified in the Mass Audubon Tool.

More acknowledgement and emphasis of the importance of natural green infrastructure will help limit stormwater impacts. This can be accomplished by implementing some or all of the recommendations included below. Reference should be made to Appendices A and B for a complete analysis of areas that need improvement.

### GENERAL COORDINATION OF BYLAWS AND REGULATIONS

To avoid current or potential conflicts and facilitate a consistent review of all projects to meet the best practices as it relates to stormwater management and low impact development (LID) techniques, it is recommended that the Stormwater Management Regulations be updated as outlined below and the Zoning Bylaw and Subdivision remove stormwater management design standards and provide a reference in other bylaws requiring compliance with the Town's Stormwater Management Regulations.

### GOAL 1: PROTECT NATURAL RESOURCES AND OPEN SPACE

The following are factors the Town may want to consider to provide increased protection of natural resources and open space:

1. 1. Consider creating Open Space Conservation Development regulations to "better" and "best" practices outlined in Section 3.0 Open Space Development
1. 2. Require soil management plan as part of large developments
1. 3. Limit clearing, lawn size and require retention of vegetation
1. 4. Require at least 75% native plantings

### GOAL 2: PROMOTE EFFICIENT, COMPACT DEVELOPMENT PATTERNS AND INFILL

The following are factors the Town may want to consider to promote efficient, compact development patterns and infiltration:

2. 1. Allow lot size, frontage and setbacks be set through OSCD process by right
2. 2. Allow multifamily housing by right in most residential areas, cluster developments encouraged with density bonuses for LID features and no maximum lot coverage
2. 3. Allow common driveways in residential districts

**GOAL 3: SMART DESIGNS THAT REDUCE OVERALL IMPERVIOUSNESS**

The following are factors the Town may want to consider to promote smart designs that reduce overall imperviousness:

3. 1. Set impervious cover limits based on zoning district and use
3. 2. Allow street location and right-of-way and roadway widths set through OSCD process by right
3. 3. Allow one-way loops with lower right of way width
3. 4. Require bioretention at cul-de-sac islands
3. 5. Allow country drainage and or opening in curbing to all roadside swales/bioretention
3. 6. Allow and encourage permeable sidewalks or slope sidewalks to drain to lots

**GOAL 4: ADOPT GREEN INFRASTRUCTURE STORMWATER MANAGEMENT PROVISIONS**

The following are factors the Town may want to consider to including provision to promote green infrastructure stormwater management:

- 4.1. Require minimum recharge of 1 inch of all roof runoff except in soil with a hydrologic soil group rating of D
- 4.2. Develop site design checklist to review project site constraints and require inclusion of LID techniques and/or infiltration
- 4.3. Allow pervious pavements in select conditions
- 4.4. Provide specific requirement to submit as-built surveys prior to occupancy

**GOAL 5: ENCOURAGE EFFICIENT PARKING**

The following are factors the Town may want to consider to encourage efficient parking:

- 5.1. Provide provisions to reduce parking spaces numbers based on need and/or allow portions of required parking areas to remain lawn area and not be constructed until needed
- 5.2. Restrict parking space size to (9 ft x 18 ft) and allow a percentage of smaller size (compact) spaces
- 5.3. Allow shared parking in where demand time for uses differ
- 5.4. Develop site design checklist to review project site constraints and require inclusion of LID techniques or infiltration

The Town can further help encourage better practices by creating a Site Plan Review Process that addresses the items in Appendices A and B.

## 7.0 IMPLEMENTATION

It is encouraged that when changes are being made to any of the analyzed bylaws and/or regulations, the Town will consult this report to incorporate open space, green infrastructure, and reduction in impervious cover.

# APPENDIX A

---

- Open Space Design Review Matrix

| Best Practices Factors   | Conventional   | Better  | Best Practice   | No current Open Space Bylaw |
|--|--|---|---|-----------------------------|
| Permit Type  | Special Permit   | By Right  | Mandatory   |                             |
| Land area to which the zoning is applicable  | Only a small amount of developable land  | Land of particular environmental sensitivity  | All developable land zoned residential  |                             |
| Minimum Open Space   | 50-65%   | 65-75%  | ≥ 75%   |                             |
| Yield Calculation  | Full plan with full percolation tests  | Sketch plan with selected percolation test(s)   | By formula  |                             |
| Minimum parcel size  | ≥ 10 acres   | 5-10 acres  | None  |                             |
| Review Process   | No detailed analysis of site characteristics in relation to design   | Cluster layout  | Flexible “OSRD” 4 Step  |                             |
| Ownership of Open Space  | Appropriate to the resources present. For example, agricultural land by the farmer, watershed land by a water dept. or district, habitat land by the conservation commission, or recreational open space by a parks and recreation commission or homeowners association. |   |   |                             |
| Dimensional Standards; area, frontage, etc.  | Specified, < than for standard subdivision   | Formulaic reduction with specified minimums   | None set or small minimums  |                             |
| Quality of open space conserved: Specificity of local priorities for natural, cultural, and historic resource conservation | No indication of local conservation priorities, or language that refers only to regulated resource areas.  | Lack of specificity regarding local conservation priorities; no map of priority locations   | Local priorities clearly and unambiguously stated and mapped for use in site design.  |                             |
| Contiguity of open space; relationship to previously protected open space  | No contiguity requirement  | Contiguity required within subdivision  | Contiguity required; adjacent land considered   |                             |
| Quality of open space conserved: Allowed uses of open space  | Allowed use of open space not addressed  | Vague language regarding use of conserved open space  | Clear list of allowed uses consistent with conservation and recreation goals  |                             |
| Quality of open space conserved: Submission requirements - GIS maps, data, etc. to inform the review process               | Vague or no language regarding submission of information on site resources and no specified process for the use of the data submitted  | General non-comprehensive data and mapping requirements; vague process for the application of the data to site design and open space conservation | Specific plans, maps, & comprehensive data regarding natural, cultural, and historic resources required and used as the basis for open space conservation |                             |
| Relationship to Plans  | Relationship to plans not discussed  | Optional consideration of open space goals of OSRP, master, and/or regional policy plan   | Required consideration of open space goals of OSRP, master, and/or regional policy plan   |                             |
| Low Impact Design  | Not addressed  | Encouraged  | Required  |                             |
| Density bonus for enhanced public benefit(s)   | No bonus offered   | Bonus by special permit   | Automatic or formulaic bonus  |                             |
| Review Entity  | ZBA, council or selectmen as special permit authority  | Planning Board  | Planning Board  |                             |
| Flexibility re: open space protection to facilitate wastewater treatment facilities  | No flexibility provided  | Aggregate calculations allowed by board of health   | If necessary, required open space may be reduced by < 10% to accommodate; disposal area deed restricted; aggregate calculations allowed by BoH, etc.      |                             |
| Monitoring of open space   | No specified monitoring requirements and no requirements that would assist the party responsible for monitoring  | Loose provisions to facilitate, municipal monitoring, or no specificity regarding monitoring interval   | Specific provisions to aid endowed monitoring by a conservation org at stated intervals   |                             |

## APPENDIX B

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- Municipal Regulations Review Matrix

| Factors   | Conventional  | Better   | Best  | Zoning Chapter 198  | Chapter 322 Subdivision of Land   | Chapter 194 Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control Bylaw |
|---|---|--|---|---|---|--|
| GOAL 1: PROTECT NATURAL RESOURCES AND OPEN SPACE  |   |  |   |   |   |  |
| Soils managed for revegetation  | Not addressed   | Limitations on removal from site, and/or requirements for stabilization and revegetation         | Prohibit removal of topsoil from site. Require prep of soils compacted during construction  | §198-31.E. Topsoil restored to its original location with 36 month of stockpiling   | §322-26.E.1.a Keep disturbed areas small  | 194-8.A.(2) Stockpiles to be revegetated within 40 days                                    |
| Limit clearing, lawn size, require retention or planting of native vegetation/naturalized areas | Not addressed or general qualitative statement not tied to other design standards   | Encourage minimization of clearing/ grubbing   | Require minimization of clearing/grubbing with specific standards   | Clearing of natural vegetation should be limited to that which is necessary for construction, operation, and maintenance (§198-29.1.B.7 Communication Services, §198-29.5.F.5 Wind Energy Facilities) | Not addressed   | Not addressed  |
| Require native vegetation and trees   | Require or recommend invasives  | Not addressed, or mixture of required plantings of native and nonnative                          | Require at least 75% native plantings   | Not addressed   | Not addressed   | Not addressed  |
| GOAL 2: PROMOTE EFFICIENT, COMPACT DEVELOPMENT PATTERNS AND INFILL                              |   |  |   |   |   |  |
| Lot size  | Required minimum lot sizes  | OSRD/NRPZ preferred. Special permit with incentives to utilize                                   | Flexible with OSRD/NRPZ by right, preferred option  | §198-18 Required minimums   | (Not applicable)  | (Not applicable)   |
| Housing density   | Multi-family housing not allowed, or only in/adjacent to commercial and industrial uses   | Multi-family and cluster developments allowed by special permit                                  | Multi-family housing allowed by right in most residential areas; cluster developments encouraged with density bonuses for LID features and no maximum lot coverage  | §198-18 Multifamily permitted or authorized by special to RB, Res D, MU & WRP districts   | (Not applicable)  | (Not applicable)   |
| Setbacks  | Required minimum front, side, and rear setbacks   | Minimize, allow flexibility  | Clear standards that minimize and in some instances eliminate setbacks  | §198-18 Required minimums   | (Not applicable)  | (Not applicable)   |
| Frontage  | Required minimum frontage for each lot/unit   | Minimize especially on curved streets and cul-de-sacs  | No minimums in some instances, tied into other standards like OSRD design and shared driveways.   | §198-18 Required minimums   | (Not applicable)  | (Not applicable)   |
| Common driveways  | Often not allowed, or strict limitations  | Allow for 2-3 residential units  | Allow for up to 4 residential units, preferably constructed with permeable pavers or pavement   | Not addressed   | Not addressed   | (Not applicable)   |
| GOAL 3: SMART DESIGNS THAT REDUCE OVERALL IMPERVIOUSNESS  |   |  |   |   |   |  |
| Impervious cover limits and infiltration rates  | Not usually addressed in zoning and subdivision regs for rural/suburban residential   | Require no net increase in site run-off from pre- to post-development                            | Impervious cover limits tailored to the community and district type (i.e. <10% total impervious cover in rural districts, but higher in urban and redevelopment districts); post-development infiltration should be equal to or greater than pre-development. Following best practice may also help communities comply with MS4 permit requirements | Not addressed   | Not addressed   | §194-9 Must comply with Massachusetts Stormwater Policy and Handbook                       |
| Street location   | Numeric and geometric standards based primarily on vehicular travel and safety, with basic pedestrian requirements e.g. sidewalks | Flexibility in applying standards, to reduce area of impact, grading, avoid key natural features | OSRD design preferred by-right. Require locating streets to minimize grading and road length, avoid important natural features  | (Not applicable)  | §322-16.B Numeric and geometric standards based primarily on vehicular travel and safety, with basic pedestrian requirements e.g. sidewalks | (Not applicable)   |

| Factors   | Conventional   | Better  | Best  | Zoning Chapter 198  | Chapter 322 Subdivision of Land  | Chapter 194 Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control Bylaw |
|---|--|---|---|---|--|--|
| Road width  | Major and minor categories, 24-30'   | Wide, medium, narrow categories. 22-24' max, plus 2' shoulders  | Wide, medium, narrow, and alley categories. 20-24' widest for 2 travel lanes, 18-20' low traffic residential neighborhood, plus 2' shoulders. Allow alleys and other low traffic or secondary emergency access and all shoulders to use alternative, permeable materials. | (Not applicable)  | §322-16.B 16'-32'  | (Not applicable)   |
| Road ROW width  | 50-75', fully cleared and graded   | 40-50', some flexibility in extent of clearing  | 20-50'depending on road type  | Not addressed   | §322-16.b 50'-60'  | (Not applicable)   |
| Access Options  | No common drives allowed, dead end allowed with limit on length and # of units | Allow dead end with limit on length and # of units. Allow common drives up to 2-3 units   | Allow one way loop streets. Allow common drives up to 4 units, and alleys and rear-loading garages where suitable.  | (Not applicable)  | §322-16.B limit on length  | (Not applicable)   |
| Dead Ends/Cul-de-sacs   | 120 ft or more minimum turnaround  | Minimize end radii – 35 ft  | Allow hammerhead turnaround   | (Not applicable)  | §322 Appendix C 40 ft radius cul -de-sac §322-16.B Hammerhead may be used for 3 or fewer homes.  | (Not applicable)   |
| Cul-de-sacs   | Full pavement standard   | Encourage center landscaping with bioretention  | Require center landscaping with bioretention  | (Not applicable)  | §322 Appendix C Center landscape island included in residential cul-de-sac   | (Not applicable)   |
| Curbing   | Curbing required full length both sides of road                                | Allow curb breaks or curb flush with pavement to enable water to flow to vegetated LID features   | Open drainage with roadside swales and no curbs preferred   | (Not applicable)  | §322-32 Curbing is required lining both sides of all collector streets, minor streets, and lanes   | Not addressed  |
| Roadside Swales   | Allowed as an option   | Preferred over closed drainage  | Preferred, with criteria for proper design. Adoption of technical specifications and design templates for green infrastructure recommended  | (Not applicable)  | 322 Appendix C Not allowed per typical cross sections  | Not addressed  |
| Utilities   | Off sets required contributing to wide road ROWs                               | Not specified, flexible   | Allow under road, sidewalks or immediately adjacent to roads to enable placement of roadside swales.  | (Not applicable)  | §322-27.D All required utilities exclusive of transformers shall be placed underground at the time of initial construction to every lot to be built upon | (Not applicable)   |
| Sidewalks   | Concrete or bituminous   | Some flexibility in material and design   | Prefer permeable pavement or permeable pavers   | (Not applicable)  | §322-17.A/Appendix C Bituminous pavement   | (Not applicable)   |
| Sidewalk location   | Required both sides of road  | Allow on only 1 side of road especially in low density neighborhoods  | Prefer siting with land contours and for best pedestrian utility (e.g. connect with common areas and shared open spaces) – not necessarily immediately parallel to road.  | (Not applicable)  | Appendix C Required on both sides except 1 side for 3 or fewer homes   | (Not applicable)   |
| Sidewalk drainage   | Drains to road closed drainage system  | Not addressed   | Disconnect drainage from road system – e.g. Adjacent green strips or within vegetated areas that can absorb sheet flow  | (Not applicable)  | Not addressed  | (Not applicable)   |
| GOAL 4: ADOPT GREEN INFRASTRUCTURE STORMWATER MANAGEMENT PROVISIONS |  |   |   |   |  |  |
| Rooftop runoff  | Prohibit directing clean roof runoff into closed municipal drainage systems.   | Allow clean roof runoff to be directed to landscaped or naturally vegetated areas capable of absorbing without erosion, or infiltration | Require directing clean roof runoff to landscaped or naturally vegetated areas capable of absorbing, or infiltration  | §198-31.1.A.(1)(a) No increase in peak rate or volume of runoff allowed | not addressed.   | not addressed.   |



| Factors   | Conventional  | Better  | Best  | Zoning Chapter 198  | Chapter 322 Subdivision of Land  | Chapter 194 Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control Bylaw |
|---|---|---|---|---|--|--|
| Overall stormwater design; piping and surficial retention vs. LID   | Conventional stormwater system design standards   | Encourage LID features and BMPs; design standards often not specified   | LID design standard encouraging infiltration, allowing surficial ponding of retained runoff for up to 72 hours; systems designed for larger volume storms, accounting for future precipitation predictions; credit for green roofs towards stormwater requirements. Following best practice may also help communities comply with MS4 permit requirements   | §198-31.1.A.(1)(a) No increase in peak rate or volume of runoff allowed | §322 Appendix A.A.(2) No increase in peak rate or volume of runoff allowed | Conventional stormwater system design standards  |
| Site Plan/Design Requirements                                       | LID not addressed   | Encourage LID features in site design - such as reduced imperviousness, maintaining natural hydrology, preserving open space, & rainwater reuse | Include bioretention and other vegetated LID features in site landscaping/open space requirements. Following best practice may also help communities comply with MS4 permit requirements. See section 2.3.5 of the MS4 permit for more information  | LID not addressed   | (Not applicable)   | not addressed.   |
| Allow easy siting of LID features (bioretention, swales, etc.)      | Often not addressed, may require waivers from subdivision standards   | Encouraged along road ROW   | Allowed on lots, common open space, or road ROW, easement recorded. For commercial development, allow an increase in floor area ratio or other developmental incentives for green roofs   | Not addressed.  | Siting LID practices not specifically addressed                            | (Not applicable)   |
| Permeable paving  | Often not addressed, may require waivers from subdivision standards   | Allowed on private residential lots for parking, patios, etc.   | Allowed for residential drives, parking stalls, spillover parking spaces, emergency access ways (with proper engineering support for emergency vehicles) Two track design allowed for driveways and secondary emergency access ways (where required)  | Not addressed.  | not addressed.   | not specifically addressed.  |
| Stormwater management O&M plan                                      | Typically only addressed if municipality has a stormwater or LID bylaw, or for areas subject to wetlands permitting | Required  | Required, contents specified in alignment with current MassDEP Stormwater Handbook. Following best practice may also help communities comply with MS4 permit requirements   | §198-31.1.D.(2) Required - contents specified                           | §322 Appendix A. §D.(2) Required - contents specified                      | §194-10 Required and contents not specified  |
| Construction Erosion and Sedimentation Plan, and stormwater control | Basic general requirements  | Required, contents specified - the site design process should include soil erosion and sedimentation control measures                           | Goes beyond minimum NPDES requirements. Requires minimization of site disturbance, reduction of construction waste, control measures not removed until proof of soil stabilization or reestablishment of vegetation. Written procedures for site inspection and enforcement included. Following best practice may also help communities comply with MS4 permit requirements. See section 2.3.5 of the MS4 permit for more information | Not addressed   | §322-26.E.9 Required, contents specified                                   | §194-8 Required and contents not specified   |



| Factors  | Conventional  | Better  | Best  | Zoning Chapter 198   | Chapter 322 Subdivision of Land  | Chapter 194 Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control Bylaw |
|--|---|---|---|--|--|--|
| Stormwater discharge detection & elimination                   | Not addressed   | Discharges and connections noted and/or limits set on quantity and quality  | Illicit discharges and connections are prohibited and enforced.<br>Following best practice may also help communities comply with MS4 permit requirements. Find more information in section 2.3.4.a of the MS4 permit  | Not addressed  | (Not applicable)   | §194-4.B.1 Prohibited and enforced.  |
| Post- construction stormwater management and drainage patterns | Not addressed   | Allow LID   | Resemble pre-existing conditions of volume, velocity, quality and location, as nearly as possible, requiring LID to the max extent feasible. Retain vol of runoff >1in. per sq.ft. of impervious surface and/or remove 90% TSS post-construction & 50% TP generated on the site for new development, or >0.8in. per sq.ft and/or remove 80% TSS and 50% of TP load for redevelopment. | LID not addressed  | LID not addressed  | LID not addressed  |
| As-built surveys   | Not addressed   | Recommended   | Required, with written instructions for process; electronic submittal allowed   | §198-31.1.D As-built required  | §322-26.H. Drainage As-built Certification required                                      | §194.13 Drainage As-built required   |
| Intra-departmental communication and coordination              | Not addressed   | Informally or loosely occurring   | Required for plan review and/or permit approvals  | §198-29 Special Permit requires coordination with DPW, Fire Department & Board of Health | §198-29 Special Permit requires coordination with DPW, Fire Department & Board of Health | Not addressed  |
| Enforcement  | No  | Yes   | Yes with fines. Same entity should oversee permit approvals and enforcement   | §13 Enforcement and penalties described  | §322-45 Enforcement by denial of building permits  | §194-19 Enforced by Board of Public Works  |
| GOAL 5: ENCOURAGE EFFICIENT PARKING                            |   |   |   |  |  |  |
| Parking  | Specific minimums set based on projected maximum use times  | Encourage minimum # needed to serve routine use (e.g. 2/residential unit with any additional/visitors parking behind in driveway or on street). | Establish Maximum Parking spaces allowed. Do not require more than 2/residence. Allow tenants separate, optional lease agreements for parking.  | §198-27.B. Minimums set  | (Not applicable)   | (Not applicable)   |
| Commercial Parking   | Specific minimums set based on projected maximum use times adding all on-site uses together.                              | Some flexibility to reduce minimums based on street or other available nearby parking or transit.   | Allowed shared parking for uses with different peak demand times. Provide model agreements/deed restrictions. Reduce parking requirements near transit. Limit parking stall size (9ftx18ft max), with up to 30% smaller for compact cars  | §198-27.A.(4) Minimum may be reduces by special permit                                   | (Not applicable)   | (Not applicable)   |
| LID in Parking Areas   | Often not addressed, may require waivers e.g. for planting islands to drain down rather than built up surrounded by curbs | Allow LID/bioretenction within parking areas.   | Require landscaping within parking areas, as LID/bioretenction, at a minimum of 10% of the interior area landscaped and a minimum of 25 square feet for island planting areas.  | LID not addressed  | (Not applicable)   | LID not addressed  |