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Civil Engineering
Transportation/Traffic
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Geotechnical
Land Surveying
Environmental
Planning

**TOWN OF
MEDFIELD, MASSACHUSETTS**

STORMWATER MANAGEMENT PLAN

*Prepared for:
Town of Medfield*

June 24, 2019

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1. Introduction

1.1 Overview

This document presents the Town of Medfield, Massachusetts Stormwater Management Plan (the Plan). It provides a comprehensive approach that will outline and direct the Town of Medfield Stormwater Management Program (the Program) and its priorities and activities for the period from October 1, 2018 through September 30, 2023 (FY2019 through FY2022). The Plan also includes information to provide readers with a thorough understanding of the Program's history and accomplishments, as well as provisions for formal updates through annual planning.

The Plan was developed by Design Consultants Inc. of Quincy, Massachusetts in order to assist the Town in complying with the 2018 Phase II National Pollutant Discharge Elimination System (NPDES) General Permit requirements. The plan is an update to an earlier version developed for the 2003 NPDES General Permit and that was dated June 23, 2003.

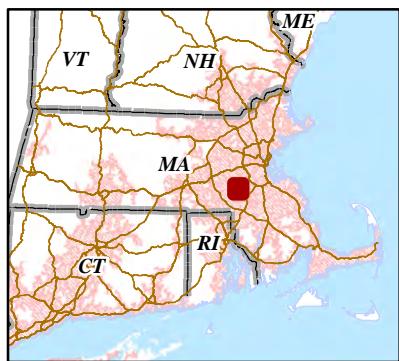
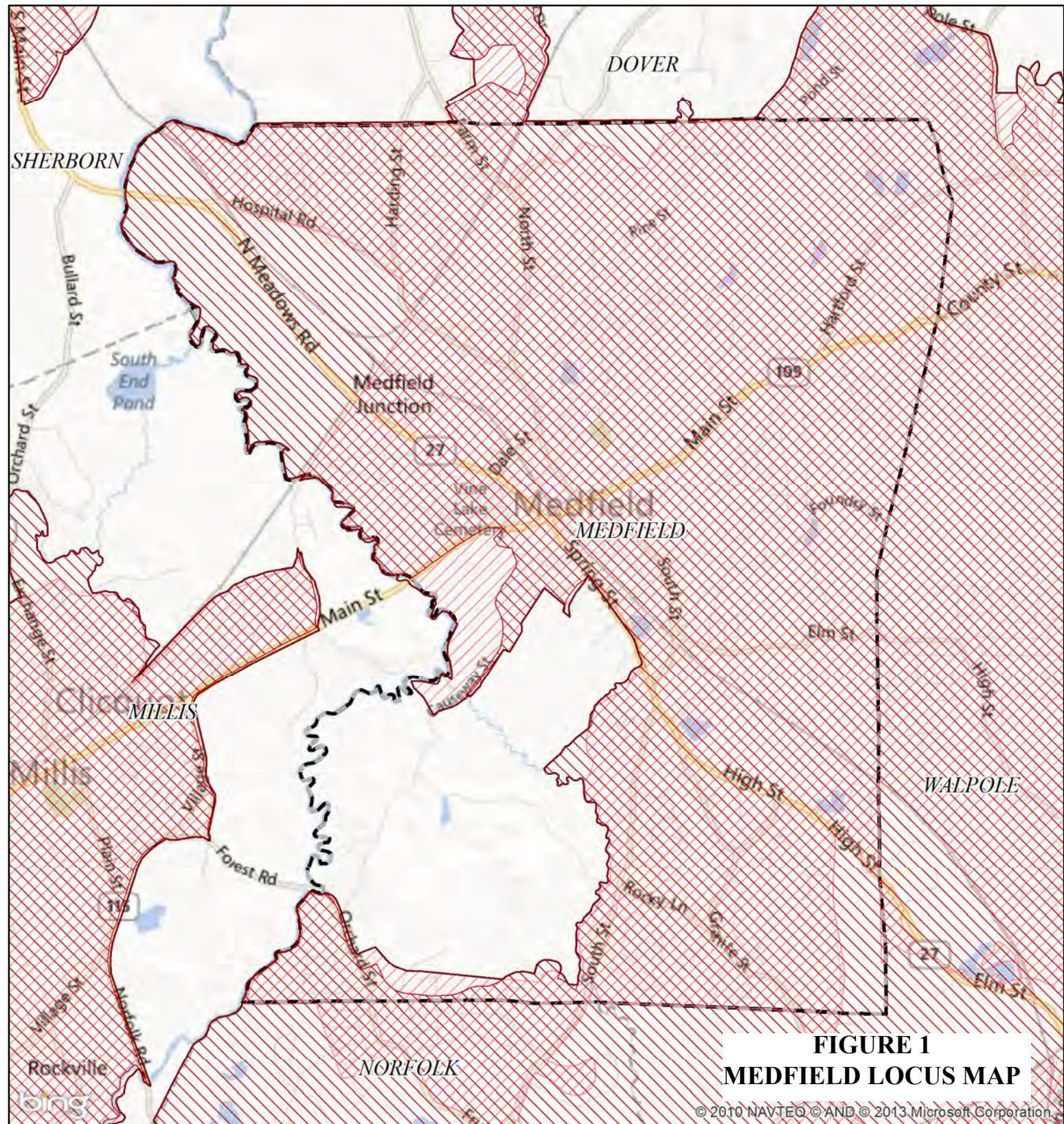
Like many Massachusetts communities, the Town of Medfield maintains a Municipal Separate Storm Sewer System (MS4) and submitted a Notice of Intent (NOI) to comply with a Town-specific MS4 NPDES stormwater permit. The NOI is provided in Appendix A, was submitted to the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) on September 28, 2018 and was accepted on April 12, 2019.

1.2 Town Description

The Town of Medfield is situated in Norfolk County and is located approximately 18 miles northwest of Brockton and 19 miles southwest of Boston. Medfield has a total land area of approximately 14.5 square miles and a population of 12,273 (2000 census). The Town is bordered by Millis on the west; Sherborn on the northwest; Dover on the north and northwest; Walpole on the east and southeast; and Norfolk to the south (Figure 1).

Medfield is located on a rugged upland area of both the Charles River and Neponset River watersheds. Much of the Town is located northeast of the confluence of the Charles River and the Stop River (Figure 2). About seventy-five percent of the Town drains westerly to the Charles River through a number of brooks, including the Stop River. The largest watershed to the Neponset River is located at the southeastern corner of the Town and conveys a majority of runoff to Neponset River in Walpole through the Mine Brook.

The Division of Water Pollution Control has rated the Charles River in Medfield, as a Class B water body with warm water restrictions on dissolved oxygen, temperature, pH, Fecal Coliform Bacteria, solids, color and turbidity, oil and grease, taste and odor. Class B water bodies are suitable for use as a public water supply with appropriate treatment; for fish habitat and other aquatic life; for primary and secondary recreation; for irrigation and other agricultural uses; and for compatible industrial cooling and process uses. The upstream, non-tidal portion of the Neponset River (beyond mile marker 29.5) is also a Class B and a High Quality Water Body with the same warm water restrictions.



NPDES Phase II Stormwater Program Automatically Designated MS4 Areas

Medfield MA

Regulated Area:

UA Based on
2000 Census UA Based on
2010 Census

0 1 2 3 Kilometers
0 1 2 Miles

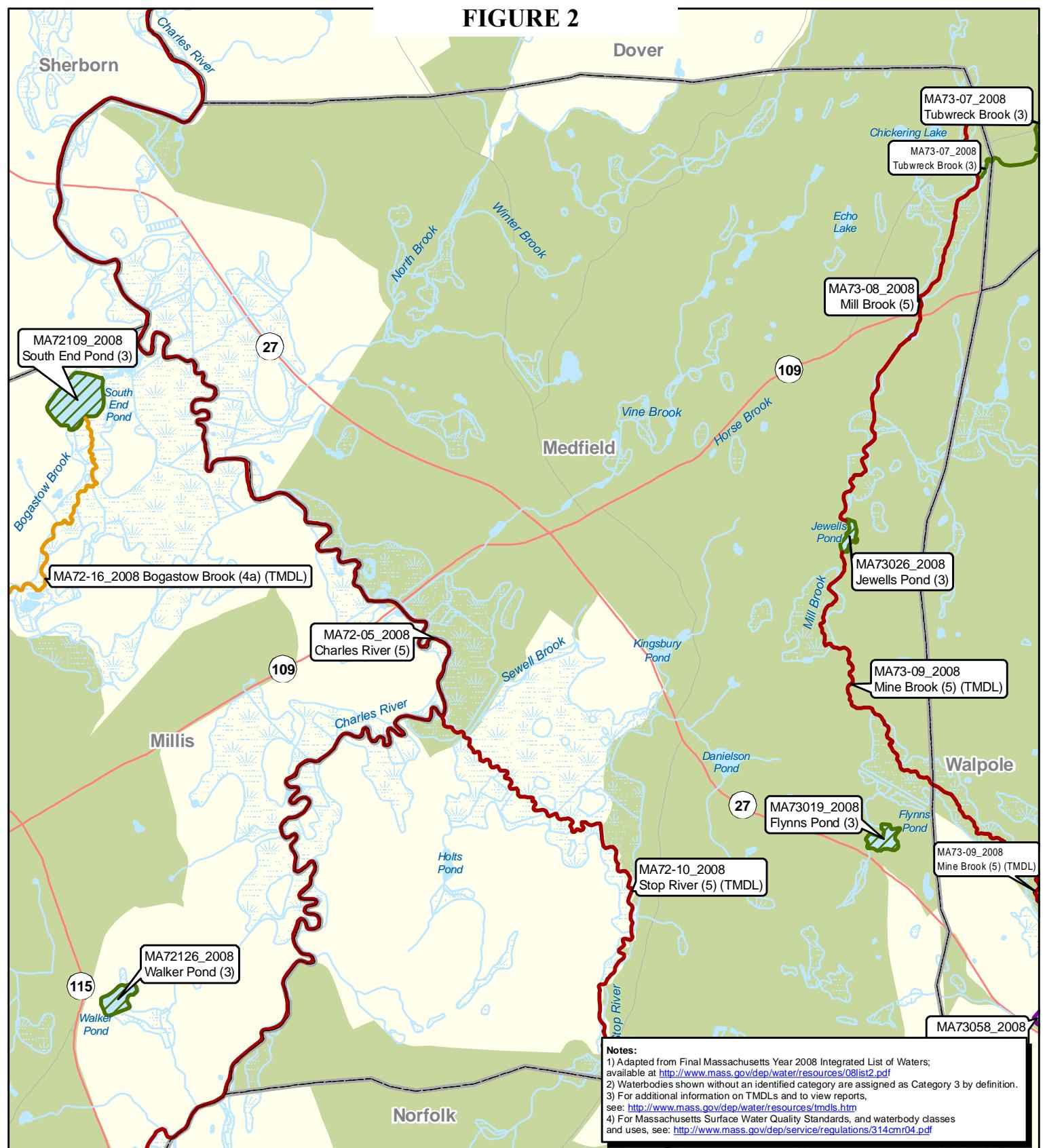
Town Population: 12024
Regulated Population: 11520
(Populations estimated from 2010 Census)



Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2013 Microsoft Corporation
and its data suppliers

US EPA Region 1 GIS Center Map #8824, 8/9/2013

FIGURE 2



Waterbody Label

State ID,
Waterbody Name (Category)
(TMDL(s) approved for this waterbody)

Assessment of Waterbody Segment

- Category 2:** Attaining some uses; other uses not assessed
- Category 3:** Insufficient information to make assessments for any use.

See companion table for a listing of pollutants, non-pollutants, and TMDLs for each waterbody

- Category 4a:** TMDL is completed and approved for one or more pollutants
- Category 4c:** Impairment not caused by a pollutant.
- Category 5:** Impaired or threatened for one or more uses and requiring a TMDL.

- Waterbodies**
- Swamp/Marsh**
- MS4 Urbanized Areas (2000 Census)**
- Municipal Boundaries**

1.2.1 Water Supply

The Town has four active groundwater supply wells: Wells 1, 2, 3 and 6. Well 4 is pumped infrequently and Well 5 was not fully constructed due to high levels of iron and manganese in its water. Each of the Town's well fields is located in an environmentally sensitive area. Wells 1, 2 and 6 are located in the Charles River aquifer while Wells 3 and 4 are located within the Neponset River aquifer.

The current water system includes four pumping facilities for water distribution, two water storage tanks and approximately seventy-five miles of water main.

1.2.2 Wastewater

The Town operates and maintains a sewer collection and treatment system through its Department of Public Works (DPW). The Town has an estimated 45 miles of sewer pipe. All sewage flows to the Charles River Interceptor that conveys wastewater to the Medfield Wastewater Treatment Plant located in the western portion of Town off Bridge Street. The plant was constructed in 1975 and is currently being upgraded. The current NPDES Permit for effluent discharges from the Wastewater Treatment Plant to the Charles River includes Biological Oxygen Demand (15 mg/l), Total Suspended Solids (15 mg/l), pH (6.5 to 8.3), Fecal Coliform (200 per 100 ml), Total Phosphorous (0.2 mg/l), Nitrates (10 mg/l), Total Ammonia (7.6 mg/l) and Dissolved Oxygen (not less than 6.0 mg/l). The Town is also under a consent decree to limit the discharge of phosphorous to a maximum of 0.1 mg/l in summer months and 0.3 mg/l at other times.

The original sewer collection system to convey wastewater in the Town was constructed in the 1930's and consisted of about 14,000 feet of 8-inch-diameter vitrified clay pipe. The wastewater was transported to the Medfield Wastewater Treatment Plant. In the 1970's, the system was extended by about 104,000 feet, including reinforced concrete, asbestos cement, polyvinyl chloride and vitrified clay pipe ranging in diameter from 8 to 42 inches.

In more recent years, the Town has extended the sewers in accordance with the *Supplemental Comprehensive Wastewater Management Plan*, prepared by S E A Consultants and dated November 1998. The planning was initiated to develop solutions for on-site wastewater management system problems and to address the requirements of the Town's NPDES permit relative to flows at the Medfield Wastewater Treatment Plant. As a result, the sewer collection system has been extended by about 5,000 feet in four phases of construction, with 8 to 10-inch PVC pipe. Sewers are now provided to areas located to the east and south of the downtown area near the Charles River Interceptor, and for the northwest section of Town near the Mill Pond Interceptor. In addition, a number of new private developments, primarily in the northern part of Town have also added about 17,300 feet of sewer to the system in recent years.

The Town is considering the use of stormwater to address inter-basin and water balance concerns since it has been estimated by the Massachusetts EOEA that there is gain of surface water discharge to the Charles River even during severe drought periods (1 in 100 years). The

information is provided in the EOEA's *Charles River Basin – Hydrologic Analysis and Recommendations for a Minimum Streamflow Threshold* Report dated October 1989.

1.2.3 Stormwater

The Town operates and maintains a municipal storm drainage system through its DPW, particularly for its 75 miles of paved roads and the three public facilities now covered under Phase II NPDES industrial permitting (the Transfer Station, Highway Garage and Wastewater Treatment Plant). The paved roads include former Massachusetts Highway Department (MHD) roads that are now being maintained and permitted by the Town. These roads include Route 27 and Route 109.

To better understand its local watersheds, the Town has worked with Design Consultants and PeopleGIS to develop a Geographic Information System (GIS) platform. The GIS base map is based on a flyover of the Town conducted on April 15, 2001 and field reconnaissance of drainage structures. The GIS platform indicates that there are 2,331 catch basins, 1,295 drain manholes, 426 drainage outfall locations and numerous detention basins, interconnected through 301,266 linear feet of stormwater collection pipe.

1.3 Program Background

Implementation of the Program began when the Town decided to take a proactive approach to stormwater management as a means of protecting the local aquifer and resource waters, such as the Charles River, the Stop River and Mill Brook.

The Program for managing stormwater has been informally conducted for many years in accordance with the Massachusetts *Stormwater Management Policy*; applicable state, local and federal rules, regulations and policies; and established local procedures. The Town has taken a proactive role in working with the Neponset River Watershed Association (NRWA) and Charles River Watershed Association (CRWA), in accordance with the Massachusetts' Executive Office of Environmental Affairs (EOEA's) Watershed Initiative Program.

The Program formally began in 1999/2000 when Town officials began attending several stormwater management workshops sponsored by the Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (DEP), and others. These led to several meetings among the various Town departments, with each department updating the others on their ongoing stormwater management activities. As part of the formal Program implementation, the Town formed a Stormwater Management Committee with an initial emphasis on develop a process for inter-departmental communication, develop a comprehensive program, secure political support and stable funding, review of local regulations and design of the basic Program structure. Many activities described herein have been implemented since the Program's inception and the Town is committed to following through on all proposed activities.

Following the development of the 2003 stormwater management plan, the Town's activities became more formalized and have been completed under a general permit with the EPA and DEP (EPA Permit number MAR041131). The Town has complied with the EPA permit

requirements and the extensive activities are described in the fifteen annual reports that have been submitted for the period from April 1, 2003 to March 31, 2018. In accordance with EPA requirements, compliance has included the following core control measures:

- Public Participation and Outreach,
- Public Participation/Involvement,
- Illicit Discharge Detection and Elimination,
- Construction Site Runoff Control,
- Post-Construction Runoff Control, and
- Pollution Prevention.

Since 2014, the Town has also been an active member of the Neponset Stormwater Partnership (NSP). The NSP began in 2014 through a Community Innovation Challenge Grant provided by the Massachusetts Executive Office of Energy and Environmental Affairs in collaboration with the Metropolitan Area Planning Council (MAPC). The program was meant to encourage and incentivize regionalization based upon the belief that the most crucial and visible interactions between government and citizens occur locally. The NSP aims to reduce the cost and increase the effectiveness of municipal stormwater management programs through regional cooperation and resource sharing. Other partners include the towns of Canton, Dedham, Foxborough, Milton, Norwood, Quincy, Sharon, Stoughton, and Westwood, along with the MAPC, and the Neponset River Watershed Association (NRWA).

1.4 Plan Organization

This document contains Chapters 1 through 6, with various additional materials provided in the Appendices. This section provides a brief summary of the Plan.

1.4.1 Chapter 1: Introduction

This Chapter contains a brief introduction to the Plan and Program, a Town description, information on Plan organization, and a description of the process for preparing and updating the Plan.

1.4.2 Chapter 2: Overview and History

This chapter provides an overview of local stormwater concerns; Program accomplishments; strategy, direction and organization; and regulatory background and history. It also contains a summary of how the current Plan will be coordinated with other stormwater and aquifer protection programs.

1.4.3 Chapter 3: Program Management

This chapter provides a detailed description of the Program strategy, vision and mission; Program priorities; legal authority; Program structure, staffing and funding; and schedule.

1.4.4 Chapter 4: Program Elements

This chapter is the heart of the Plan. It provides a description of the seven Program Elements: Public Education and Outreach; Public Involvement and Participation; Illegal Discharge Detection and Elimination; Construction Site Stormwater Runoff Control; Post-Construction Stormwater Management; Pollution Prevention and Good Housekeeping; and Water Quality Stewardship. The descriptions include element-specific activities, Best Management Practices (BMPs), effectiveness and performance measures.

1.4.5 Chapter 5: Water Quality Stewardship Monitoring

This chapter provides greater detail on the activities of the 2018 MS4 General Permit water quality sampling. This element provides information that will be used to characterize stormwater discharge, river, and stream quality; sampling quality assurance/quality control; and evaluate the need for both structural and non-structural BMPs, such as areas appropriate for ground water recharge.

1.4.6 Chapter 6: Program Evaluation, Record Keeping and Reporting

This chapter provides the approach for evaluating the Program's effectiveness, for record keeping and reporting the findings, conclusions and recommendations to EPA and DEP. These activities are required and important aspects of the Program. Conducting assessments and obtaining feedback will allow for continued improvement of Program activities, including modification of existing activities and identification of new efforts.

1.4.7 Appendices

The Appendices to the Plan are referenced herein and include the following:

Appendix A – 2018 MS4 NPDES General Permit NOI

Appendix B – Illicit Discharge Detection and Elimination Plan

Appendix C – Other MS4 Work Plans

Appendix D – Medfield Land Use Permitting Guidebook and Stormwater Management
Regulations (Adopted 4-24-2017)

Appendix E – Section 303(D) Listings

Appendix F – Watershed Association Goals

1.5 Plan Update Process

The approved Plan will be in effect until it is replaced or updated at the discretion of the Town and with regulatory approval. Regular updates to the Plan will help in clearly defining the goals, objectives, scope and costs for future permit terms.

The Plan update process and stormwater program have been tailored to meet the specific needs and unique characteristics of the Town. The Plan allows for the Town to effectively initiate a full range of stormwater management measures based on the outcome of the Program Effectiveness Evaluations outlined in Chapter 6. Input from regulators and the public are important to the process of developing an effective Plan. The Town and NSP will be working collaboratively to obtain input for the Program through:

- Conducting meetings with regional, watershed and other interested parties;
- Mailing information to the business community, environmental groups and other interested parties to solicit support;
- Developing a mailing list for specific topical meetings on Plan components;
- Announcing availability of the Plan;
- Posting relevant information on internet sites; and
- Addressing comments and including them into the Town's annual MS4 reports.

The intent of the Town is to have a current, relevant, and dynamic Program. In order to remain proactive and effective, the Program shall reflect the most recent information and needs. The Program will continue to evolve and improve through evaluations and feedback from a variety of applicable sources and ongoing monitoring activities. Therefore, this Plan will be used to ensure that the Program stays on target; receives the input from appropriate stakeholders, including the public; and is revised as needed to adjust to future needs.

As a living document, modifications may be made directly to the Plan or through Annual Work Plans, subject to Town approval. Preliminary work plans will be prepared each fall/winter prior to the intended fiscal year's budget appropriation and spring Town Meeting, in the event that a vote of Town Meeting is required. The Final Approved Annual Work Plan will provide additional specific tasks, priorities and short-term schedules for the Program and will become a part of this Plan. The Final Approved Annual Work Plan will also be submitted to DEP and EPA as part of the annual reporting.

2. OVERVIEW AND HISTORY

2.1 Program Overview

The NPDES Phase II General Permit was first issued in December 2002. Although the permit was initially for five years, its requirements were extended until the new 2018 permit was approved. For the first term of 15 years (2003 through 2018) the Town of Medfield complied with the initial general permit. For the second term the Town submitted the attached NOI for the period from 2019 to 2023, and beyond as needed.

The general purpose of the first term was to document historic activities, to develop core stormwater management program elements; identify and begin to address local water quality runoff problems, to map the existing drainage system through GIS and begin to evaluate the use of groundwater recharge as a useful BMP. The second term expands upon the six core control measure and expands upon the illicit discharge detection and elimination through more extensive water quality testing. The water quality testing, and town specific stewardship, will be dedicated to complying with the Massachusetts Stormwater Regulations for Class B surface waters - Neponset River and Charles River - and the Total Maximum Daily Loads (TMDLs) developed each water body. It is also mindful of the water balance needs associated with the town-specific public water supply needs.

In order to implement the Program, the Town has developed the Illicit Discharge Detection and Elimination Plan (IDDE) Plan provided in Appendix B, and several other standard operating procedures related to construction site control runoff, catch basin cleaning, street sweeping, winter road maintenance and stormwater infrastructure maintenance. The additional operating procedures are provided in Appendix C.

The Town of Medfield Stormwater Management Program is comprehensive and is comprised of seven Program elements and activities intended to reduce stormwater pollution to the maximum extent practicable, in accordance with federal, state and local requirements. The current laws and regulations that are being implemented in accordance with the NPDES Phase II municipal stormwater discharge permits and the stormwater management regulations provided in Appendix D.

The seven Program elements are:

- Public Education and Outreach,
- Public Involvement and Participation,
- Illegal Discharge Detection and Elimination,
- Construction Site Stormwater Runoff Control,
- Post-Construction Stormwater Management,
- Pollution Prevention and Good Housekeeping, and

- Medfield-specific Water Quality Stewardship.

The Water Quality Stewardship element is Medfield-specific and is in conjunction with the 2018 General Permit IDDE requirements. It is proactive and includes a stormwater monitoring program and a target pollutant reduction strategy that recognizes the town-specific public water supply needs. The monitoring program will provide information used to characterize stormwater discharge and receiving water quality and evaluate the performance of BMPs (such as groundwater recharge), and its impact to the Town's public water supply system. The target pollutant reduction strategy work will identify and prioritize pollutants that can cause or contribute to exceedances of water quality criteria and impairment of beneficial uses, while developing strategies to address sources of these pollutants and improve upon the overall water balance.

The Town of Medfield recognizes the importance of effective stormwater management and has allocated resources to administer and implement the Program. Management and implementation of the stormwater program is under the purview of the Town Selectmen, acting through the DPW Director by statute. Since the DPW is also responsible for the Town's water supply, through its Water Department, a close working relationship exists in the Program between the local Water and Sewer Board, the DPW Director, as well as the respective operations and maintenance staffs of the Highway Department and Water Departments.

2.2 Local Watershed Concerns

Drainage facilities include gutters, swales, ditches, culverts, catch basins, storm drainage pipe, and detention basins. Runoff from the Town is collected in a separate storm drain system and conveyed to the watershed areas and surface water bodies shown on Figure 2.

2.2.1 Water Supply Aquifers

The stormwater system is actively maintained by the Town's DPW; however, since the public water supplies are at risk to potential groundwater impacts from stormwater and subsurface contamination, the Town has decided to take a proactive position relative to complying with EPA and DEP regulatory requirements.

Medfield's groundwater sources are all mildly acidic in their natural state, as is typical throughout New England. To prevent the water tendency to corrode and dissolve the metal piping it flows through, the Town's Water Department treats the water with sodium hydroxide to neutralize acidity at all five well sites before the water enters the system and is supplied to customers. The treatment is approved and monitored by the DEP.

As required by the Town's permit with the DEP for Well 6, the Town also initiated a wetlands monitoring program to determine if the well is affecting the surrounding wetlands. The wetlands monitoring program documented changes in the wetland plant community in this area. An initial baseline assessment of the Well 6 wetlands began in October 2000 and annual sampling was

conducted for several years during mid-June to mid-July. The monitoring indicated that Well 6 was not impacting the nearby wetlands.

2.2.2 EOEA Watershed Initiative Program (Section 303 Waters)

In addition to the federal NPDES program, the Massachusetts Watershed Initiative Program is also watershed approach to water quality management throughout the Commonwealth. It stresses working with community officials, industries, environmental groups, and citizens to jointly identify problems in a watershed and develop priorities and actions to address them.

DEP has recognized that improvements have been made to address point source problems. However significant problems still exist in many lakes and river segments, often as a result of “non-point” sources of pollution (i.e. stormwater runoff). These waters are considered “impaired” if they do not meet their designated uses, such as those outlined in Section 1.2. Under Section 303(d) of the Clean Water Act, Massachusetts is required by the federal government to develop a list of impaired waters and estimates of the maximum amount of pollution allowed where existing controls are not stringent enough to attain compliance with the State’s Water Quality Standards. The Clean Water Act also mandates that Massachusetts develop and adopt TMDLs for those waters affected by pollutants.

The Division of Watershed Management submitted their Section 303(d) list, strategy and implementation schedule to EPA in 1999, and updates the list every two years, most recently in 2014 (approved February 23, 2016). A review of the Year 2014 Integrated List (Appendix E) indicates the following concerns in Medfield:

Neponset River Watershed

- Category 3 (No Uses Assessed)
 - Flynn’s Pond (7 acres)
- Category 4c (Impairment Not Caused by a Pollutant – TMDL Not Required)
 - Jewell’s Pond (4 acres), Privately Owned – Non-native Aquatic Plants
- Category 5 (Waters Requiring a TMDL)
 - Mill Brook⁽¹⁾ (headwaters north of Hartford Street to inlet of Jewells Pond over 2.3 miles) for low flow alteration, Aquatic Macroinvertebrate Bioassessments, Dissolved Oxygen – No TMDL developed
 - Mine Brook (Outlet of Jewells Pond to Walpole town line over 3 miles) for Fecal Coliform and Dissolved Oxygen – TMDL Number 2592.

Charles River Watershed

- Category 5 (Waters Requiring a TMDL)
 - Stop River⁽²⁾ (Norfolk-Walpole MCI in Norfolk to the confluence with the Charles River over 4.2 miles) for E-coli – TMDL Number 32372
 - Stop River⁽²⁾ (Norfolk-Walpole MCI in Norfolk to the confluence with the Charles River over 4.2 miles) for Organic Enrichment (Sewage) Biological Indicators and Phosphorous – TMDL Number 40317.

Notes:

- (1) *The Town undertook a fecal bacteria study of Mill Brook (MA73-09) and the wetlands behind Bayberry Road as part of its 1998 Wastewater Management Planning. The laboratory data indicated fecal coliform (FC) levels ranged from non-detect to 40/100 mls and Fecal streptococci (FS) ranged from 340 to 990/100 mls. The FC/FS ratios were all well below 1.0 and indicate that fecal contamination of Mill Brook and the wetlands behind Bayberry Road is probably due to animal, rather than human wastes from on-site waste disposal system failures).*
- (2) *The University of Massachusetts Boston and Charles River Watershed Association conducted biological monitoring along Stop River (MA72-10) in Medfield in 2012 and 2013. The ICI results from 2012 show this site as impacted in comparison to the other sites sampled with very poor performance in certain metrics including Scraper: Filterer, EPT Index, EPT: Chironomidae, and Reference Affinity.*
- (3) *The Charles River proper has also had historic environmental issues with chlorodane, dichlorodiphenyltrichloroethane (DDT), mercury in fish and nutrient/eutrophication. The Section 303d list does not identify these issues for the Charles River in Medfield.*

2.3 Regulatory Background

In order to better understand the impacts of its Qualifying Local Programs (QLPs), the Town has reviewed applicable federal, state and local stormwater and water protection regulations.

2.3.1 Regulatory Interests

The Town of Medfield is already operating under a number of existing regulations and policies that are intended to control public, residential, commercial and industrial activities that may have a negative effect on Medfield's water quality interests, water resources and stormwater management controls. These include but are not limited to the following:

- Groundwater, and related public and private water supplies,
- Surface water bodies and wetlands,

- Erosion and sediment controls,
- Storm damage prevention, and stormwater collection systems,
- Water pollution controls,
- Rare and endangered species habitat,
- Fisheries, shellfish and wildlife habitat,
- Recreational resources, and
- Agriculture.

Collectively, these are the water-related "interests" protected by local, state and federal regulations referenced herein.

2.3.2 EPA Phase II Final Rule

The 1972 amendments to the federal Clean Water Act (CWA) prohibited the discharge of pollutants from point sources to waters of the United States, unless the discharge is authorized by permit(s) issued under the NPDES permit program. The 1987 amendments to the CWA added Section 402(p), which defined stormwater discharges from certain defined municipal and industrial activities as point sources required to be permitted by a NPDES permit. The amendments directed the EPA to adopt regulations establishing permitting requirements for municipal and industrial stormwater discharges.

The EPA promulgated stormwater regulations on November 16, 1990. These regulations, which were to be implemented in two phases, contained permitting application requirements and a schedule for phased implementation and permit issuance for municipalities and industries. Municipalities to be addressed in Phase I were defined in terms of size: (1) large for urbanized areas with population greater than 250,000; (2) medium for urbanized areas with populations greater than 100,000 and less than 250,000; and (3) small for other municipalities with populations less than 100,000 that are designated by the permitting authority.

The Massachusetts MS4s serving populations greater than 100,000 (Boston and Worcester) were required to obtain coverage under Phase I of the national surface water program in the early 1990's. With the issuance of the Phase II Final Rule in October 1999, smaller MS4 communities, such as for the Town of Medfield, were informed that they would be required to meet NPDES stormwater management criteria under a General Permit initially issued in December 2002. These Towns were required submit a NOI in March 2003 and again by October 1, 2018. In Massachusetts, EPA and the Massachusetts DEP will manage the Phase II NPDES permit program jointly.

The Phase II Rule requires small MS4s to design programs to reduce the discharge of pollutants to the "maximum extent practicable"; protect water quality; and satisfy the appropriate water quality requirements of the Clean Water Act. The most recent Phase II milestone events schedule is summarized in Table 2.1.

Table 2.1
2018 General Permit Milestone Events

Completion Date	Requirement	Task	Permit Section
10/1/18	2018 NOI Filing	Operators of Phase II regulated MS4s are required to obtain permit coverage by submitting new NOIs.	Appendix E
6/30/19	Prepare Stormwater Management Plan	Develop/update written SWMP.	1.10.a & 1.10.2
6/30/19	Illicit Discharge Detection and Elimination	Complete written IDDE procedures and rank outfalls for IDDE investigation. Document Sanitary Sewer Overflows to the MS4 during the past 5 years.	2.3.4.6 & 2.3.4.7 2.3.4.4.b
6/30/19	Construction Site Runoff Control	Create written procedures for inspecting construction sites for proper sediment controls and conducting site plan reviews.	2.3.5
6/30/19	Catch Basin Cleaning	Develop and implement a catch basin cleaning schedule with a goal of ensuring no catch basin is more than 50% full. Document catch basins inspected and cleaned, including total mass removed and proper disposal.	2.3.7.a.iii.b
6/30/19	Street Sweeping	Sweep streets (rural and uncurbed exceptions apply) a minimum of once a year in the spring. Each annual report shall include number of miles cleaned and volume or mass of material removed.	2.3.7.a.iii.c
6/30/19	Winter Road Maintenance	Develop and implement winter road maintenance procedures including use and storage of salt and sand, minimize the use of salts, ensure that snow is not disposed into waters.	2.3.7.a.ii.e
6/30/19	Stormwater Infrastructure maintenance	Inspect all stormwater treatment structures (excluding catch basins) at least annually and conduct maintenance as necessary.	2.3.7.1.d.vi.
7/1/19 through 6/31/23	Program Implementation	By the end of the five-year NOI period Operators of MS4s would have to implement their stormwater management programs.	

The Notice of Intent accepted by the EPA on April 12, 2019, requires the Town to follow the MS4 permit requirements in Part II of Appendix H for both the Neponset River and Charles River waterbodies, including the testing for phosphorus. In addition, for any impaired waterbody that has a TMDL, the applicable part in Appendix F will be followed for the testing of outfalls instead of the Appendix H requirements.

2.3.3 Massachusetts Regulatory Requirements

By complying with State regulations and initiatives, and by developing local regulations to protect the interests of the Program, the Town of Medfield has already begun the process of achieving the goals of EPA's Phase II Final Rule. At the State level, the applicable rules and regulations include but are not limited to the following:

- Waterways Regulations (310 CMR 9.00);
- Regulations for the Wetlands Protection Act (MGL Chapter 131, Section 40) and the Rivers Protection Act Amendments (310 CMR 10.00);
- Drinking Water Regulations (310 CMR 22.00);
- Water Pollution Control Regulations (314 CMR 2.00 through 7.00);
 - Permit Procedures (314 CMR 2.00)
 - Surface Water Discharge Permit Program (314 CMR 3.00)
 - Surface Water Quality Standards (314 CMR 4.00)
 - Groundwater Discharge Permit Program (314 CMR 5.00)
 - Groundwater Quality Standards (314 CMR 6.00)
 - Sewer System Extension and Connection Permit Program (314 CMR 7.00)
- 401 Water Quality Certification Regulations (314 CMR 9.00); and
- Prevention and Control of Oil Pollution in the Waters of the Commonwealth (314 CMR 15.00).

In regard to stormwater and aquifer protections, the promulgation of the Massachusetts 401 Water Quality Certification regulations (314 CMR 9.00) represents the culmination of DEP's effort to coordinate its wetlands permitting programs while enhancing environmental protection. More specifically to Medfield, navigable rivers or streams such as the Stop River, are already subject to licensing and permitting by the DEP under 310 CMR 9.00.

The Wetlands Protection Act has governed activities affecting wetlands since the 1960s through local conservation commissions with state oversight. In the 1970s, the federal government became involved in wetlands projects through the Clean Water Act requirement that the Corps issue Section 404 permits for work in wetlands and waterways. As the state agency responsible for Section 401 certification of these federal permits, the DEP has regulatory responsibility for both the Wetlands Protection Act and the 401 Water Quality Certification programs. The revised regulations for the 401 Water Quality Certification Program are designed to avoid duplication with the state Wetlands Protection Act, but to provide added criteria where necessary to ensure

compliance with the Surface Water Quality Standards as mandated by the federal Clean Water Act.

In addition, the Massachusetts *Stormwater Management Policy and Technical Handbook (Volume One and Two, March 1997)* is also considered to an important document in the administration of stormwater management. The policy and handbook were developed by the DEP and the Office of Coastal Zone Management (CZM).

2.3.4 Local Rules and Regulations

At the local level, the Planning Board, the Zoning Board of Appeals, the Conservation Commission, the Board of Health and Board of Public Works all play a role in permitting stormwater related activities and projects that may harm the Town's aquifer. The local requirements are outlined in the *Medfield Land Use Permitting Guidebook* (December 28, 2017) and the Medfield Stormwater Management Regulations (April 24, 2017), both provided in Appendix D.

The Town amended its Stormwater Management Regulations (Municipal Code Chapter 235) by Town Meeting vote on April 24, 2017 (Article 37). The Illicit Discharge Ordinance adopted and amended under the authority granted by the Home Rule Amendment of the Massachusetts Constitution, the Home Rule Procedures Act, and the Clean Water Act Regulations 40 CFR 122.34, and can be found in Section 270-18 through 270-24 of the Medfield Municipal Code. No person shall undertake activities that could potentially harm the water-related interests of the Town or undertake any stormwater management activity regulated by the Town, until the activities are deemed to comply with local rules and regulations. These also include the following:

- *Medfield Board of Health Regulations for Stormwater and Runoff Management;*
- *Medfield Wetlands Bylaw, Rules and Regulations;*
- *Land Subdivision Control Law of the Planning Board;*
- *Zoning Bylaw; and*
- *Policies & Procedures of the Planning Board Site Plan Approval and Special Permit Rules and Regulations* (January 2018).

Copies of the local regulations and their amendment are on file with the Town and are available at Town Hall during regular business hours.

2.4 Stormwater Program History

The Town of Medfield has been implementing an informal stormwater management and aquifer protection program for several years and has also undertaken more formal activities since the passage of the Phase II Final Rule in 1999.

2.4.1 Pre-Phase II Informal Program

The Town's informal stormwater management and aquifer protection program meets the existing rules and regulations in Appendix D. These activities include the following:

1. Permitting of projects for the protection of resource waters, in accordance with the State's Stormwater Management Policy;
2. Working with the Charles River Watershed Association to educate the public and protect the Town's resource waters, particularly the Charles River;
3. Regular maintenance of the drainage system, including annual cleaning of all local catch basins;
4. Regular maintenance of the Town's 75 miles of roadway, including street sweeping on an annual basis;
5. Adoption of the an illegal drain ordinance, and investigation of illegal discharges and connections when visual observations by Town maintenance crews indicate possible impacts to the Town's drainage system and violations of the drainage ordinance;
6. Initiation of new sewer construction to alleviate the impact of on-site septic systems that could harm local water resources and that violate the State's Title V requirements;
7. Maintenance of key water bodies located with the Aquifer Protection Area, including the removal on noxious aquatic plants;
8. Distribution of public education materials describing the Town's aquifer and public water supply and the importance of protecting the supply from harmful pollutant loads; and
9. Regular presentations at Town Meeting to discuss the need to protect the Town's water supply.

2.4.2 Post-Phase II Final Rule Formal Program

Since the passage of the Phase II Final Rule in October 1999, the Town of Medfield has completed many activities. These include:

1. Attending numerous stormwater workshops hosted by EPA and DEP;
2. Establishing an informal Stormwater Management Committee consisting of representatives from the local Conservation Commission, Board of Health, Department of Public Works and Town Administrator's office;
3. Conducting in-house workshops;
4. Hosting regional workshops on stormwater management;
5. Summarizing local, state and federal stormwater management and aquifer protection requirements into a set of consolidated requirements, and passage of new stormwater regulations;
6. Appropriation of significant funds to complete the development of a GIS with completed storm drain system mapping;

7. Working with the NRWA, CRWA to update them on future program elements;
8. Active participation in the NSP;
9. Improved maintenance of the Town's 77 miles of roadway, including the significant reduction of sand on the Town's roads;
10. Improved maintenance of the drainage system; and
11. Increased public education and outreach.

2.5 The Current Plan

In keeping with the Phase II NPDES General Permit requirements the Town of Medfield has developed, and will implement and enforce a program to “reduce the discharge of pollutants from its MS4 to the maximum extent practicable”; protect water quality, and satisfy the water quality requirements of the Clean Water Act and Massachusetts Surface Water Quality Standards (314 CMR 4.00) and Ground Water Quality standards (314 CMR 6.00).

The Program is outlined in Chapter Four and will continue to include the six Minimum Control Measures (MCMs) required by EPA and DEP. In accordance with the General Permit requirements these elements will be implemented by the expiration date of the first permit term (March 10, 2008). Furthermore, in accordance with the Massachusetts Watershed Initiative Program, the Town of Medfield will be taking a more proactive approach to assessing its water resources through a Water Quality Stewardship Program. The immediate focus will be on continued protection of the public water supply and assessing IDDE concerns with the Section 303.d water bodies, followed by evaluating groundwater recharge as an appropriate BMP.

As required by the General Permit, each of the program elements will include evaluation of performance and record keeping.

2.5.1 Other Entity

The Town will continue to work with other entities to advance their goals and objectives over the permit term. The Town has and will be working with the NRWA, CRWA, NSP and MAPC.

The Town understands that the MHD will be responsible for mapping and maintaining its drainage system in accordance with a separate Transportation MS4 permit issued by EPA and DEP. However, since the MHD no longer is responsible for their former roads, Medfield's obligations will also include:

- Route 27; and
- Route 109.

3. PROGRAM MANAGEMENT

3.1 Introduction

Program management provides direction for program activities and administration, ensures that the Town achieves state and federal regulatory compliance; pursues innovative programs and technology; and coordinates efforts among Town departments, as well as other local, regional, statewide, and national programs.

This Chapter presents the Town of Medfield Stormwater Management Program strategy, vision, and mission; priorities and management activities; legal authority; organization; planning and reporting activities; and budget/staff resources.

3.2 Program Strategy, Vision and Mission

The basic strategy of the program is as follows:

Develop and implement programs to locate, reduce or eliminate discharges of pollutants and eliminate prohibited non-stormwater discharges to the Town of Medfield storm drain system to the maximum extent practicable, thereby protecting local receiving waters and complying with local, state and federal laws and regulations.

This strategy reflects the more basic vision and mission statements of the program. These are as follows:

VISION STATEMENT

Firmly establish behaviors and attitudes that contribute to the reduction of urban runoff pollution and help promote community stewardship of local water bodies and resource areas, thus improving the quality of public health and the environment.

MISSION STATEMENT

The mission of the Program is to provide resources and direction toward achieving the following in accordance with the Town of Medfield MS4 Permit:

- Location of stormwater pollution and non-stormwater discharges;**
- Reduction of stormwater pollution to the maximum extent practicable;**
- Elimination of non-stormwater discharges;**
- Promotion of community education and stewardship; and**

- **Ultimately, protection of beneficial uses, including meeting applicable water quality standards and objectives.**

As described in Section 1.5, this Plan is a living document with periodic modifications to ensure that it is effectively carrying out activities to accomplish the Program mission. If it is determined that the Plan is not adequately addressing particular pollutants or sources, minor modifications and additions will be identified in the Annual Work Plans, which will be submitted to the DEP and EPA as part of the annual reporting requirements. Preliminary work plans will be prepared by the Town each fall/winter prior to the intended fiscal year's budget appropriation and spring Town Meeting, in the event that a vote of Town Meeting is required. The Final Approved Annual Work Plan will provide additional specific tasks, priorities and short-term schedules for the Program and will become a part of this Plan.

Modifications to the Plan will generally be made in response to effectiveness evaluations and to incorporate new BMPs. It is important that the Plan reflects current and improved BMPs and includes activities that have been shown to be effective in other stormwater programs. An effective monitoring program is also important to ensure that Program information needs are being met, including evaluation of impacts to receiving waters and BMP performance.

The following factors will be considered in the selection of appropriate activities and BMPs to meet the maximum extent practicable standard:

- **Problem Definition and Source Location:** Will the activity help to better define or locate a source that is contributing to a known water quality problem?
- **Problem Identification:** Will the activity help to better identify a source that is contributing to an unknown water quality problem?
- **Pollutant Removal:** Will the proposed BMP address a target pollutant?
- **Regulatory Compliance:** Is the BMP compatible with environmental regulations?
- **Public Education and Acceptance:** Has the public been adequately educated and does the BMP have public support?
- **Implementation:** Is the BMP compatible with land uses, facilities, or the activity in question?
- **Technical Feasibility:** Is the BMP feasible considering technical factors (e.g. stratigraphy)?
- **Cost Effectiveness:** Is the cost of the BMP commensurate with the environmental benefit?

3.3 Program Priorities and Management Activities

3.3.1 Program Priorities

Program priorities for FY2020-FY2023 include:

1. Achieving regulatory compliance, particularly EPA and DEP Phase II NPDES permit requirements;
2. Incorporating stormwater protection measures into municipal activities;
3. Focusing activities on target pollution reduction (e.g. Section 303.d. waters and protecting the Town's water supply);
4. Ensuring that the Program is current and innovative; and
5. Providing Program administration.

The Water Quality Stewardship element of the program will focus on the protection of the local water supply, addressing the State's Section 303.d waters located within the Town and evaluating groundwater recharge as a BMP. To this end, staff will continue to develop and improve the Program activities to reduce stormwater pollution to the maximum extent practicable and eliminate prohibited non-stormwater discharges, while facilitating understanding and involvement in stormwater management by various Town departments. Program priorities will also focus on increased efforts to reduce target pollutants and restore local water bodies.

The Town is committed to working with local watershed associations to advance their goals and objectives. Another high priority of staff will be to keep abreast of the latest technology and approaches to achieve stormwater management. Program activities will also strive to encourage environmental stewardship and continue to build on partnerships with other agencies, neighboring towns, and the community for active participation in accomplishing the Program mission. Table 3.1 presents a summary of the current term Program Management Priorities.

Table 3.1
Program Management Priorities

Priority	Activities
I	<p>Achieving regulatory compliance</p> <ul style="list-style-type: none"> • Review and recommend changes to bylaws and regulations • Begin implementation of EPA's six-step program, including mapping of the stormwater management system and working with local watershed association • Submit Annual Work Plans, Annual Progress Reports and other documentation as needed • Evaluate Program progress • Modify Plan, as needed • Track regulatory changes and modify program to address
II	<p>Incorporating stormwater protection measures into municipal activities</p> <ul style="list-style-type: none"> • Meet with Town departments to improve knowledge, promote stormwater pollution prevention, and identify training and technical assistance needs • Inventory municipal activities and develop activity-specific procedures for stormwater pollution prevention • Ensure that all municipal activities and facilities utilize applicable stormwater protection BMPs and control measures • Support and initiate Town and local watershed association programs that reduce pollution
III	<p>Focusing Program activities on target pollutant reduction and water supply protection</p> <ul style="list-style-type: none"> • Conduct Water Quality Stewardship; field screening; and as deemed practical, monitoring activities to assess and improve beneficial uses of local water resources • Coordinate the Program with other local monitoring programs and efforts to assess and protect the Town's water supply • Seek and participate in partnerships and cost sharing to conduct studies and implement reduction programs, such as with other municipalities, watershed associations, community groups, universities and regulatory agencies • Aggressively seek new, effective strategies and control measures and incorporate target pollutant reduction efforts into all aspects of Program to obtain reductions in levels of target pollutants discharged in the Town • Promote citizen and bioassessment monitoring

Table 3.1 (continued)
Program Management Priorities

IV	Ensuring that the Program is current and innovative <ul style="list-style-type: none"> • Continue to improve the Program through effectiveness evaluations, consideration of new technology, and input from regulators and other community partners • Review Program progress and identify new activities and BMPs (such as groundwater recharge) • Identify specific problematic activities and discharges, and develop specific control measures to correct them • Continue to make the Program more efficient and cost-effective • Utilizing state-of-the-art management and GIS tools to improve ability to evaluate water quality data and to identify targeted areas for inspection Programs
V	Providing Program administration <ul style="list-style-type: none"> • Prepare annual budgets and five-year budget projections • Ensure adequate staffing and resources to carry out Program activities • Encourage public participation and involvement in the Program • Seek and provide financial assistance, such as grants and loans • Bring in specialized expertise for specific Program evaluation and other activities as needed • Set objectives for document, file and database management

3.4 Legal Authority

Legal authority and responsibility to implement this municipal stormwater management Program is provided in the Federal Clean Water Act (CWA), a variety of Massachusetts' regulations, associated local regulations and in the recently authorized NPDES General Permit, between the Town of Medfield, EPA and DEP. The legislation, regulations and permit, provides sufficient legal authority to implement the Plan. At the local level, the Stormwater Management Regulations (Municipal Code Section 235) and the Illicit Discharge Ordinance (Municipal Code Sections 270-18 through 270-24) grant authority to the DPW Director.

3.5 Program Organization

The Town as a whole, including elected officials, department heads, and Town employees, is responsible for compliance with the General Permit requirements and the Plan. The Program Organization Chart is shown graphically in Figure 3.

The Medfield DPW is responsible for construction, maintenance, and operation of the Town's MS4 as well as the administrative and management functions of the Program. The DPW Director, who reports to the Board of Selectmen, the Water and Sewer Board and the Town Administrator, will provide direct management of the Program. The DPW Director will oversee the activities of both the Highway Department and the Water Department. Staff, contractors and consultants that will be responsible for the Program implementation will report directly to the DPW Director. Implementation of the Program will also require the participation and assistance of several other Town departments (i.e. Conservation Commission).

In order to be most effective and utilize resources most efficiently, it is important for the Program to implement various programs and efforts through other agencies, watershed associations and community stakeholders. Table 3.2 summarizes some of the related efforts that are expected to contribute to the plan.

3.6 Budget and Staff Resources

The Town's budget (not including the maintenance associated with the attached Standard Operating Procedures) for planning and implementation for the first year of the program is estimated to be about \$113,000. The Program will be primarily funded through budgeted line items of the DPW and Water and Sewer Board. Since the final Program scope beyond June 30, 2020 (FY2021 through FY2023) has yet to be determined, the work has not yet been funded.

Table 3.3 provides a detailed breakdown of the estimated staffing and resources needed to accomplish first Annual Work Plan goals and ensure the continued progress of the Program.

Figure 3
Storm Water Management Plan
Program Organization Chart

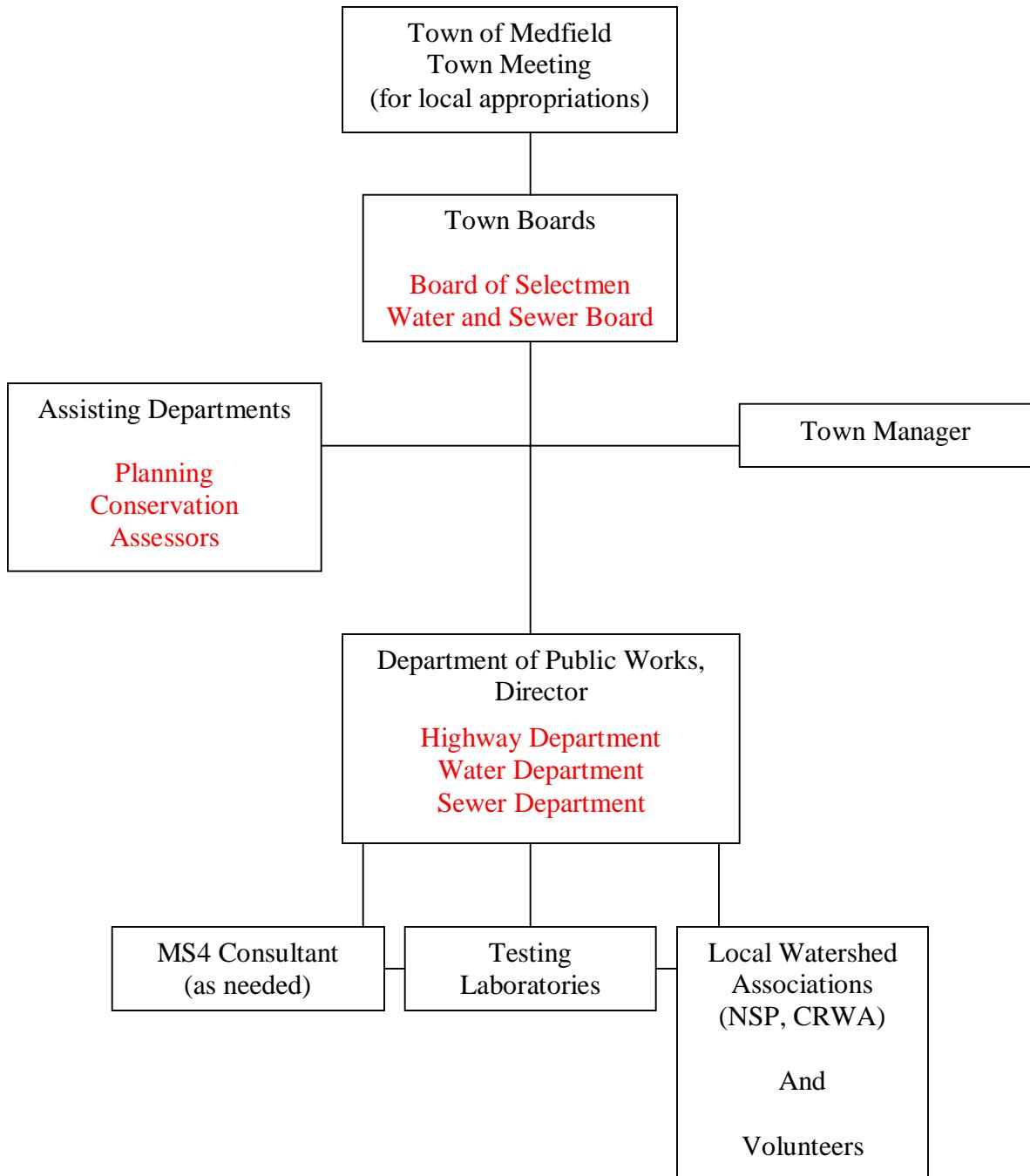


Table 3.2
Program Coordination Effort

Entity	Summary of Activity	Program Element
Town Departments		
Town Counsel	Legal Guidance	All
Town Selectmen	Administration	All
Town Manager	Administration	All
Town Treasurer	Financial Administration; Affirmative Action Officer	All
Fire Department	Hazardous Material Response	Illegal discharges
Police Department	Enforcement; referrals and investigations, as needed	Illegal discharges
Planning Board/Building, Conservation Commission, Board of Health	Project review and permitting; Construction inspections; Brochure and information distribution; BMP implementation; Illicit discharge detection; Water resource protection	All
Public Works	Administration; MS4 mapping, maintenance and monitoring; Street sweeping; Project review and permitting; Construction inspections; Brochure and information distribution; BMP (i.e. groundwater recharge) analysis and implementation; Illicit discharge detection; Solid waste and hazardous waste collection, transportation, recycling and disposal; Spill response; Water supply protection	All
Other Regulatory Agencies		
EPA/ Massachusetts DEP	Guidance; Permitting; Potential Funding Source; Financial Advocacy	All
Local Support		
NSP, NRWA and CRWA	Project review; Construction inspections; Brochure and information distribution; BMP implementation; Illicit discharge detection; Water Quality Stewardship; MS4 mapping, sampling and monitoring; Financial Advocacy	All
Volunteers	Brochure and information distribution; Water Quality Stewardship; MS4 mapping, sampling and monitoring	Public Education and Outreach

Table 3.3
Anticipated FY2020 Resource Allocation

Program Element	Entity	Permit Section Reference	Town's Monetary Resources
Permit Management with NSP Participation	DPW	1.0	\$7,500
Public Education and Outreach,	DPW, NSP, NRWA, CRWA	2.3.2	\$4,000
Public Meeting	DPW	2.3.3	\$3,000
Illicit Discharge Detection and Elimination	DPW	2.3.3	\$50,000
Sewer System Overflow Management	DPW	2.3.4	\$2,000
General GIS Maintenance	IT Department	2.3.4	\$5,000
Catchment Re-assessment and Priority Re-evaluation of Outfall Priority (Data Evaluation)	DPW	2.3.4	\$2,000
Outfall Pipe Inspections (142/year)	DPW	2.3.4	\$15,000
Field Screening and Monitoring Program	DPW	2.3.4	\$4,000
Annual Employee Training	DPW	2.3.4	\$3,000
Regulatory Review and Updates	DPW	2.3.5/2.3.6	\$0
Amendments to Written Procedures	DPW	2.3.5/2.3.6	\$0
Construction Site Stormwater Runoff Control	Planning and ConComm	2.3.5	To be determined
Post Construction Stormwater Management	Planning and ConComm	2.3.6	To be determined
Retrofit Inventory	DPW	2.3.6	To be determined
Inventory Town owned Facilities	DPW	2.3.7	\$10,000

Stormwater Pollution Prevention Planning (SWPPP) at Public Facilities	DPW	2.3.7	\$4,000
Catch Basin Cleaning	DPW	2.3.7	To be determined
Street Sweeping	DPW	2.3.7	To be determined
Winter Road Maintenance	DPW	2.3.7	To be determined
Storm Drain System Inspections	DPW	2.3.7	To be determined
Annual Reporting (by September 31, 2019)	DPW	4.0	\$3,500

3.7 Annual Program Management and Reporting Schedule

In each year of the five-year permit, the schedule of management activities will be similar. Table 3.4 provides the annual schedule of Program management and reporting activities.

Table 3.4
Annual Program Management and Reporting Schedule

Date	Activity
January - May	Obtain funding for next fiscal year's Annual Work Plan, if necessary
June	Incorporate Annual Work Plan for new fiscal year into this Plan, per the 2018 General Permit needs
July 1 st	Begin Implementation of Annual Work Plan for new fiscal year (ending June 30 th)
December/January	Participate in mid-year Progress Review Meeting; provide status of Annual Work Plan; Propose Draft Modifications
July – September	Perform self-assessment of activities; prepare Annual Progress Report and next fiscal year's Work Plan; initiate development of budgets for next year's annual Work Plan
September	Submit Annual Progress Report to EPA and DEP

4. COMPONENTS OF COMPLIANCE

The first six elements of the Program are consistent with the EPA/DEP General Permit requirements outlined in Section 2.3.2 and the General Permit provided in Appendix C. Again, the six MCMs include:

1. Public Education and Outreach;
2. Public Involvement and Participation;
3. Illicit Discharge Detection and Elimination;
4. Construction Site Stormwater Runoff Control;
5. Post Construction Stormwater Management; and
6. Pollution Prevention and Good House Keeping.

The Town of Medfield also recognizes that the Phase II NPDES stems from the Clean Water act. Therefore, the Town will also tackle the most significant local stormwater pollution problems through a seventh element of the program: Water Quality Stewardship. In accordance with the State's Watershed Initiative Program, this element will focus in part on the Section 303.d waters located within Town. The remainder of the focus will be on protecting other water resources, such as the Town's public water supply, and investigating the potential for groundwater recharge.

4.1 Minimum Control Measure 1: Public Education and Outreach

In accordance with 40 CFR 122.34(b)(1) the Town of Medfield will implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and steps the public can take to reduce pollutants in stormwater runoff.

4.1.1 Rationale

The Public Education and Outreach MCM is based on the principle that an informed and knowledgeable community is crucial to the success of a stormwater management program. Not only will an informed public more likely adopt the behavioral changes required to promote improved land use stewardship, but it will create the political will to establish the sustainable revenue mechanism that will support the development and operation of the drainage infrastructure in perpetuity.

The EPA NPDES Stormwater Phase II program recognizes that an understanding of the problems created by non-point source pollution is the single most important element in reducing pollutant loads to local water bodies. This MCM focuses on public understanding of both the causes of and solutions to stormwater pollution, since the support of the members of the

community is crucial to both curtail individual activities contributing to non-point source pollution and to provide community-wide behavioral and financial support to the various approaches implemented to improve management of stormwater discharges. The results of effective public education and outreach are:

- Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. Public support is particularly beneficial as communities move to institute new funding initiatives for the program (see Section 1.5) and/or seek volunteers to help implement the program; and
- Greater compliance with the program as the public becomes aware of the personal responsibilities regarding individual actions they can take to protect or improve the quality of local water bodies.

4.1.2 Targeted Audiences and Key Topics and Messages

The Town's outreach and education program targets four key audiences as specified in the MS4 Permit:

- 1) Residents
- 2) Businesses, Institutions and Commercial Facilities
- 3) The Development and Construction Sector
- 4) Industrial Facilities

The Town has considered the topics listed in Part 2.3.2.d.i-iv of the MS4 Permit for each of the above target audiences. Based on this review, the Town has identified the following topics and messages as priorities for dissemination to each of the target audiences given local conditions.

4.1.2.1 Residents

This audience includes the general residential population of the community including small residential property owners and renters. Because many of the leaders in the business, industrial and construction industries are also local residents, the residential program will help to provide a base of knowledge for these other audiences as well. The key messages to be conveyed and/or behaviors to be encouraged for this audience include:

- Polluted stormwater is created when rain falls on impervious surfaces or unstabilized soils, collects pollutants, and makes its way directly or indirectly to streams and wetlands.
- Residential stormwater pollution is the result of a wide variety of common activities including pet waste management, lawn care, automotive maintenance, disposal of swimming pool water, and failing septic systems, among others.
- We are all responsible for stormwater pollution.
- Stormwater runoff is the largest source of pollution to local waterways.

- Stormwater pollution negatively impacts drinking water, recreation, wildlife habitats, and flooding in our community or neighboring communities.
- Most storm drains lead to streams or wetlands with minimal treatment.
- Keeping impervious surfaces clean, in addition to the storm drain itself, is essential to preventing the discharge of pollutants and reducing maintenance costs.
- Bacteria and nutrients are particular pollutants of concern in our area.
- Bacterial pollution can be reduced by properly disposing of pet waste, properly using/maintaining septic systems, and properly managing garbage.
- Nutrient pollution can be reduced by properly managing landscaping activities and landscape waste materials, properly disposing of pet waste, properly using/maintaining septic systems, preventing erosion, and properly managing garbage.
- Other common household pollutants should be stored and used or disposed of properly including but not limited to oil, pharmaceuticals, car washing chemicals, swimming pool chemicals, swimming pool water, and deicing chemicals.
- There are a variety of simple steps homeowners can implement on their own property to help increase groundwater recharge and reduce pollutant loading.
- Naturally vegetated buffers should be maintained along waterways and wetlands.
- Dumping of yard wastes or other debris into waterways and wetlands is illegal and contributes to water pollution.

4.1.2.2 Businesses, Institutions and Commercial Facilities

This audience includes all non-residential property owners and lessors with the exception of industrial property. In addition, the owners/managers of large residential properties (apartment complexes) are included in this group. This is a very diverse audience category. The key messages to be conveyed and/or behaviors to be encouraged for this audience include:

- Polluted stormwater is created when rain falls on impervious surfaces or unstabilized soils, collects pollutants, and makes its way directly or indirectly to streams and wetlands.
- Commercial stormwater pollution is the result of a wide variety of common activities including lawn care, construction activities, management of liquid and solid wastes and dumpsters, building maintenance, fleet maintenance, parking lot maintenance, de-icing activities, septic system management, disposal of swimming pool water, and pet waste management, among others.
- We are all responsible for stormwater pollution.
- Stormwater runoff is the largest source of pollution to local waterways.

- Stormwater pollution negatively impacts drinking water, recreation, wildlife habitats, and flooding in our community or neighboring communities.
- Most storm drains (both public and private) lead to streams or wetlands with minimal treatment.
- Keeping impervious surfaces clean, in addition to the storm drain itself, is essential to preventing the discharge of pollutants, and reducing maintenance costs.
- Bacteria and nutrients are particular pollutants of concern in our area.
- Bacterial pollution can be reduced by properly disposing of pet waste, properly using/maintaining septic systems, properly managing garbage, and preventing illicit discharges.
- Nutrient pollution can be reduced by properly managing landscaping activities and landscape waste materials, properly disposing of pet waste, properly using/maintaining septic systems, properly managing garbage, and preventing illicit discharges.
- Other common pollutants should be stored and used or disposed of properly including but not limited to oil, vehicle/building/pavement washing chemicals, pool water, and deicing chemicals.
- Proper training of employees and/or customers is essential to preventing pollution.
- Many private properties have stormwater permit requirements through the wetlands act and/or local wetlands/stormwater bylaws which require ongoing operation and maintenance activities and/or reporting.
- New development and redevelopment may trigger the need for a permit and upgrading of stormwater BMPs.
- There are a variety of simple pollution prevention and green infrastructure measures property owners can implement to help increase groundwater recharge and reduce pollutant loading.
- Naturally vegetated buffers should be maintained along waterways and wetlands.
- Dumping of yard wastes, snow or other debris into waterways and wetlands is illegal and contributes to water pollution.

4.1.2.3 Development and Construction Sectors

The development and construction sector includes private developers, construction contractors, and the engineers, attorneys and others who assist them. The key messages to be conveyed and/or behaviors to be encouraged for this audience include:

- Polluted stormwater is created when rain falls on impervious surfaces or unstabilized soils, collects pollutants, and makes its way directly or indirectly to streams and wetlands.

- Stormwater runoff is the largest source of pollution to local waterways.
- Stormwater pollution negatively impacts drinking water, recreation, wildlife habitats, and flooding in our community or neighboring communities.
- Construction site sedimentation and erosion is a significant water quality problem.
- Construction site sedimentation and erosion controls need to be properly designed, maintained and installed to protect waterways and avoid the cost of enforcement actions by local regulators.
- Local and federal stormwater and/or wetlands permit applications are required for most development and redevelopment projects.
- Construction and post-construction stormwater controls will be required of most permit applicants under the MA Wetlands Protection Act, local bylaws and/or the EPA Construction General Permit.
- TMDLs for bacteria, nutrients and/or phosphorous apply to projects in Medfield and permit applicants must propose BMPs that are consistent with or optimized for TMDL requirements.
- Permit applicants are encouraged to propose Low Impact Development and/or Green Infrastructure techniques which offer a variety of environmental benefits as well as potential cost savings.
- Sediment management, pollution prevention, and compliance with wetlands act resource area protections is also critical at construction equipment and material storage yards.
- Permitting standards are changing or have changed with the revision of the MS4 permit, MA Stormwater Handbook and the Town's stormwater bylaws, and construction industry representatives need to understand and comply with these changes.

4.1.2.4 Industrial Facilities

For purposes of the outreach and education SWMP industrial facilities are considered to include all properties which are engaged in the manufacture, processing, and storage of manufactured goods and materials. Some facilities in this category may be regulated by the EPA Multi-Sector General Permit. The key messages to be conveyed and/or behaviors to be encouraged for this audience include:

- Polluted stormwater is created when rain falls on impervious surfaces or unstabilized soils, collects pollutants, and makes its way directly or indirectly to streams and wetlands.
- Industrial stormwater pollution is the result of a wide variety of common activities including lawn care, construction activities, management of liquid and solid wastes and dumpsters, storage of raw materials, building maintenance, fleet maintenance, parking lot maintenance, and septic system management, among others.

- We are all responsible for stormwater pollution.
- Stormwater runoff is the largest source of pollution to local waterways.
- Stormwater pollution negatively impacts drinking water, recreation, wildlife habitats, and flooding in our community or neighboring communities.
- Most storm drains (both public and private) lead to streams or wetlands with minimal treatment.
- Keeping impervious surfaces clean, in addition to the storm drain itself, is essential to preventing the discharge of pollutants, and reducing maintenance costs.
- Bacteria and nutrients are particular pollutants of concern in our area.
- Bacterial pollution can be reduced by properly disposing of pet waste, properly using/maintaining septic systems, properly managing garbage, and preventing illicit discharges.
- Nutrient pollution can be reduced by properly managing landscaping activities and landscape waste materials, properly disposing of pet waste, properly using/maintaining septic systems, properly managing garbage, and preventing illicit discharges.
- Other common pollutants should be stored and used or disposed of properly including but not limited to oil, material stockpiles, vehicle/building/pavement washing chemicals, and deicing chemicals.
- Proper training of employees and/or customers is essential to preventing pollution.
- Many properties have stormwater permit requirements through the wetlands act, local wetlands/stormwater bylaws or the MSGP which require ongoing operation and maintenance activities and reporting.
- New development and redevelopment may trigger the need for a permit and upgrading of stormwater BMPs.
- There are a variety of simple green infrastructure measures property owners can implement to help increase groundwater recharge and reduce pollutant loading.
- Naturally vegetated buffers should be maintained along waterways and wetlands and dumping of yard wastes, snow or other debris into waterways and wetlands is illegal.
- Many industrial properties have specific permitting and compliance requirements under the EPA Multi-Sector General Permit.

4.1.3 General Approach

Responsible Agency/Person: Department of Public Works/DPW Director

Goals for the MCM: Development and dissemination of required targeted messages; measure of effectiveness defaults to 100% execution of message dissemination.

The Town will implement a public outreach and education program that complements and supports other activities planned under its SWMP. The goals of the Town's public outreach and education program are to:

- Achieve compliance with public outreach and education requirements contained in the MS4 permit, including TMDL and impaired waters requirements for bacteria and nutrients.
- Increase awareness of the impact of stormwater pollution on water bodies in the Town, especially impaired and priority waters.
- Increase public awareness of the work being done by the Town to maintain and improve stormwater infrastructure, and the economic, recreational, water supply, and ecological benefits of that work.
- Increase awareness of how the public can support and assist the Town in implementing an effective stormwater management program.
- Encourage individuals and organizations to adopt habits and engage in voluntary actions that increase groundwater recharge, decrease pollutant loading, and decrease peak discharge rates, thereby reducing the burden placed on public stormwater infrastructure and the environment.
- For sites regulated by the Town under the Wetlands Act and/or the Town's stormwater bylaw, increase the quality of stormwater permit applications and the level of voluntary compliance with permit conditions and ongoing O&M requirements, while reducing the need for municipal regulators to take enforcement action.

In general, the focus of this MCM under the 2018 General Permit is to distribute educational materials and to conduct outreach activities regarding stormwater impacts and ways the public can help mitigate them. Emphasis is placed on providing pertinent information to specific audiences related to the types of pollutants typical for the land uses and material storage/use protocols that audience is likely to encounter or practice. The Town of Medfield has successfully implemented elements of the MCM over the course of the past permit term. The Department of Public Works has been the lead agency responsible for MCM implementation, and is anticipated to continue that role under subsequent permit terms. Any changes to the assigned responsible party will be reported under appropriate reporting protocols. The DPW Director recognizes the importance of this MCM in the overall success of the stormwater management program. Specifically, he recognizes that the tangible and direct benefits to residents are not as transparent (nor the costs so neatly quantified) as the benefits of improved potable water or wastewater infrastructure to which the residents relate as "consumers." To successfully maintain the public education and outreach program, and advance the mission to better inform residents of program costs and benefits, three action areas are recommended. These are to:

1. *Continue to Engage Private Partnerships:* Medfield has been working with the NSP successfully over the past several years. Most recently, the Town partnered with NSP (<https://yourcleanwater.org/>) to map priority catchments, review existing stormwater

regulations. The NSP plans implement a water resource lesson plan in Medfield elementary schools. Non-governmental organizations (e.g., environmental, civic, and industrial organizations) have been and continue to be invited to participate with the Town in the development and dissemination of educational materials and/or are performing outreach activities.

One or more designated representatives from the Town participate in the meetings of the NSP to supervise the development, implementation, evaluation and revisions to the NSP regional public outreach and education program. The NSP Outreach Sub-committee develops an outreach and education work plan and budget each year, the implementation of which is funded by the Town in conjunction with other participating communities. The goal of this regional approach is to increase the effectiveness and reduce the cost of the public outreach and education program, relative to what could be achieved through a program implemented by the Town working on its own.

In 2019, the key contacts with the NSP responsible for day to day planning, management and implementation of the NSP Outreach and Education Program include:

- Taylor Walter, Water Resources Engineer, NRWA
- Nancy Fyler, Outreach Director, NRWA
- Ian Cooke, Executive Director, NRWA

The above named individuals are responsible for ensuring that the NSP outreach and education program is implemented in accordance with this SWMP.

Compliance Status: Implementation of this strategy established compliance with existing permit terms; continuation of this strategy will maintain compliance under anticipated future permit conditions.

2. ***Leverage Existing Educational Materials and Strategies:*** The Town has independently created as well as adopted stormwater educational information already created by the State, EPA, or environmental, public interest, or trade organizations. The NSP, the NRWA (<https://www.neponset.org/>) and the CRWA (<https://www.crwa.org/>) have websites that provide useful educational materials. The materials and activities are relevant to local situations and issues and have incorporated a variety of strategies to ensure maximum coverage. Water users in particular have been targeted through landscaping and outdoor water use brochures included as part of Spring water bills. Appropriate alternative strategies will be considered as specific audiences are targeted over time.

Based on the 2018 General Permit, the Town will be required to focus their message to residential audiences due to the existing bacteria and nutrient TMDLs for the Neponset River and Charles River basins, and residential and business/commercial/institutional audiences due to discharges to the Charles River for phosphorus impairment (with an approved TMDL). The messages to residents must address lawn care (responsible use of fertilizers and pesticides); benefits of on-site infiltration of stormwater; potential

deleterious effects of car washing on water quality, proper disposal of pool water and pet waste management. Phosphorus message content must address proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorous-free fertilizers. In addition, the Town is required to provide educational material to dog owners at the time of issuance or renewal of dog licenses, or other appropriate times as determined and documented by the Town. Downloadable and publicly available free materials addressing these topics specifically can be found at the links above. In addition, a repository of materials is provided in the Stormwater Master Plan Reference Library included as a subfolder to the electronic version of this document.

Compliance Status: *Implementation of this strategy established compliance with existing permit terms; continuation of this strategy will maintain compliance under anticipated future permit conditions.*

3. ***Reach Diverse Audiences:*** The public education program must include outreach efforts to four specific audiences described in Section 4.1.2. Based on anticipated permit conditions, the Town will be required to distribute a minimum of two educational messages over the permit term to each audience. This is equivalent to eight messages over the 5-year permit term. The material already developed may be re-purposed as content for the targeted audiences. In addition, the agencies and organizations cited above have created messages appropriate to other audiences. Please visit the referenced websites for further information on available content.

The manner in which the content is conveyed should demonstrably be appropriate for the audience intended. The effort can include printed material, electronic material such as websites, mass media such as newspaper articles or public service announcements are presentations at audience-specific events. As an example, developers can be provided educational material as an insert with planning board site plan review applications (hard copy) or a link can be provided on the Planning Board web page from which applications might be downloaded. This activity would constitute one message to the intended audience (developers). Goals to be achieved, the metrics to determine if the goals are met, and the extent to which they are demonstrating effectiveness of the message must be identified and reported upon. Documentation should be maintained regarding message type, audience, message content, and date of implementation and basis for measuring progress to meet defined goals. Ultimately, it is the Town's intent to integrate documentation of tasks (demand, activity, resolution) for elements of the SWMP into the work order module of their Asset Management program software platform. Documentation of required activities and report-out templates for statutory reporting will be part of the final program deliverables.

A final component of this effort is not related to the permit, per se, but rather a recognition that additional outreach must be extended to political agencies and leaders within the community in order to achieve political consensus around the value of this program and the benefits accrued to the community. These efforts are generally more effect in face-to-face meetings or workshops where greater detail can be provided and technical depth explored.

Compliance Status: Current practices comply with existing permit conditions; implementation of the proposed strategy will establish compliance with anticipated future permit conditions.

4.1.4 Current Program and Specific Recommendations

A variety of delivery methods will be used to reach each audience over the course of the permit period, as shown in Table 4.1. Each year, working through the NSP Outreach Committee, the town and NSP will develop an annual work plan that specifies the final mix of activities that will be implemented that year. Each year's work plan will be revised or adjusted in response to the ongoing evaluation activities. The sections below outline the delivery methods that will be utilized, at a minimum, to reach each of the target audiences and the expected timing of each method.

4.1.4.1 Residential Audiences

The delivery methods and schedule for residents include:

- Develop and maintain a comprehensive regional stormwater website that covers key messages for the residential audience and maintain a prominent link to the site on the Town's homepage and or DPW homepage.
- Establish a regional stormwater telephone hotline and web form through which members of the public can report stormwater problems or ask questions.
- Inclusion of pet waste management information annually when completed dog licenses or renewal confirmations are mailed out by town clerks.
- Three annual messages (spring, summer and fall) covering grass clippings/fertilizer, pet waste, and leaf disposal distributed via a mixture of direct mailings, social media posts, town newsletters, bill stuffers, press releases, email marketing or signage campaigns.
- Distribution of at least two additional messages over the permit term via direct mail, social media, town newsletters, bill stuffers, press releases, email marketing or signage campaigns.
- One targeted mailing to septic system owners during the permit term.
- Deliver one to two hour 5th Grade interactive stormwater education classroom programs to all classes annually including take-home information.
- The Town may use an alternate delivery method for one or more of the messages outlined above where such alternate format is deemed more effective.

Table 4.1
Public Education and Outreach Milestone Events

Audience	YR 1 (2018-2019)	YR 2 (2019-2020)	YR 3 (2020-2021)	YR 4 (2021-2022)	YR 5 (2022-2023)
Residential	<ul style="list-style-type: none"> • Implement school outreach program • Fall leaf litter outreach • Dog license renewal outreach • Spring fertilizer outreach • Summer dog waste outreach • Educational website • Stormwater hotline 	<ul style="list-style-type: none"> • MCM message to residential audience • Assemble contact info for septic system owners • Implement school outreach program • Fall leaf litter outreach • Dog license renewal outreach • Spring fertilizer outreach • Summer dog waste outreach • Educational website • Stormwater hotline 	<ul style="list-style-type: none"> • Targeted message to septic system owners • Implement school outreach program • Fall leaf litter outreach • Dog license renewal outreach • Spring fertilizer outreach • Summer dog waste outreach • Educational website • Stormwater hotline 	<ul style="list-style-type: none"> • MCM message to residential audience • Implement school outreach program • Fall leaf litter outreach • Dog license renewal outreach • Spring fertilizer outreach • Summer dog waste outreach • Educational website • Stormwater hotline 	<ul style="list-style-type: none"> • Implement school outreach program • Fall leaf litter outreach • Dog license renewal outreach • Spring fertilizer outreach • Summer dog waste outreach • Educational website • Stormwater hotline
Business/ Industry/ Commercial Facilities	<ul style="list-style-type: none"> • Begin identifying 10 key private impervious owners per town and O&M plan status • Fall leaf litter outreach • Spring fertilizer outreach • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Pilot project to contact largest private impervious owners • Assemble contact info for septic system owners • Fall leaf litter outreach • Spring fertilizer outreach • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Targeted message to septic system owners • Fall leaf litter outreach • Spring fertilizer outreach • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • MCM message to business audience • Fall leaf litter outreach • Spring fertilizer outreach • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Fall leaf litter outreach • Spring fertilizer outreach • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request
Developer/ Construction	<ul style="list-style-type: none"> • Begin identifying key members of developer / construction industry in each community 	<ul style="list-style-type: none"> • Prepare and distribute information on new bylaws / stormwater standards, and low impact development 	-	-	<ul style="list-style-type: none"> • Distribute information on erosion and sediment control and EPA construction general permit
Industrial facilities	<ul style="list-style-type: none"> • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Begin developing list of key industrial property owners • Assemble contact info for septic system owners • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Contact key industrial property owners regarding outdoor maintenance practices • Targeted message to septic system owners • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request 	<ul style="list-style-type: none"> • Contact key industrial property owners regarding outdoor maintenance practices • Educational website • Stormwater hotline • Green infrastructure tech. assist. on request

4.1.4.2 Businesses, Institutions and Commercial Facilities

The delivery methods and schedule for businesses, institutions and commercial facilities include:

- Develop and maintain a comprehensive regional stormwater website that covers key messages for the residential audience and maintain a prominent link to the site on the Town's homepage and or DPW homepage.
- Establish a regional stormwater telephone hotline and web form through which members of the public can report stormwater problems or ask questions.
- Two annual messages (spring and fall) covering grass clippings/fertilizer and leaf disposal distributed via a mixture of direct mailings, social media posts, town newsletters, bill stuffers, press releases, email marketing or signage campaigns.
- Distribution of at least two additional messages over the permit term via direct mail, social media, town newsletters, bill stuffers, press releases, email marketing, presentations to industry groups or signage campaigns.
- One targeted mailing to septic system owners (if any) during the permit term.
- A pilot project targeting the ten largest private impervious cover owners with a program of direct outreach via phone, personal mail and/or face to face to and based on the status of compliance with O&M requirements in local permits.
- Free technical assistance and property evaluation for green infrastructure retrofits.
- Distribute educational materials and/or signage that businesses can use to educate their employees and/or customers.
- The Town may use an alternate delivery method for one or more of the messages outlined above where such alternate format is deemed more effective.

4.1.4.3 Development and Construction Sectors

The delivery methods and schedule for the development and construction sectors include:

- Develop and maintain a comprehensive regional stormwater website that covers key messages for the Development/Construction audience and a prominent link to the Development/Construction section of the educational website will be placed on the on the town website where stormwater and/or wetland permit application forms can be downloaded.
- Establish a regional stormwater telephone hotline and web form through which members of the public can report stormwater problems or ask questions.
- Two messages distributed to a targeted list of local developers / and construction industry representatives via printed materials, mailings, presentations to industry groups, or personal communication that emphasize sediment and erosion control, changes to the Town's stormwater bylaw, anticipated changes to the MA Stormwater Handbook and/or the EPA Construction General Permit.

- The Town may use an alternate delivery method for one or more of the messages outlined above where such alternate format is deemed more effective.

4.1.4.4 Industrial Facilities

The delivery methods and schedule for industrial facilities include:

- Develop and maintain a comprehensive regional stormwater website that covers key messages for the Industrial audience.
- Establish a regional stormwater telephone hotline and web form through which members of the public can report stormwater problems or ask questions.
- Distribution of at least two additional messages over the permit term via direct mail, social media, town newsletters, bill stuffers, press releases, email marketing, presentations to industry groups, or signage campaigns.
- One targeted mailing to septic system owners (if any) during the permit term.
- A pilot project targeting the key large private impervious cover owners with a program of direct outreach via phone, personal mail and/or face to face to and/or based on status of compliance with O&M requirements in local permits or EPA MSGP.
- Free technical assistance and property evaluation for green infrastructure retrofits.
- Distribute educational materials and/or signage that industrial firms can use to educate their employees and/or customers.
- The Town may use an alternate delivery method for one or more of the messages outlined above where such alternate format is deemed more effective.

4.2 Minimum Control Measure 2: Public Involvement and Participation

4.2.1 Rationale

MCM 2, Public Participation and Involvement, is based on EPA's experience that the public can provide valuable input and assistance to a regulated small MS4's municipal stormwater management program and that the public must therefore be given opportunities to play active roles in program development and implementation. An active and involved community offers the following benefits to the success of a stormwater management program:

- Broader public support since citizens who participate in the development and decision-making process are partially responsible for the program and therefore are typically less likely to raise legal challenges to the program and more likely to take an active role in its implementation;

- Shorter implementation schedules due to fewer public and legal challenges and increased citizen volunteerism;
- Broader base of expertise and economic benefits since community input offers valuable (and free) intellectual resources; and
- Conduit to other programs as citizens involved in the stormwater program development process provide important cross-connections to and relationships with other community and government programs. This benefit is particularly valuable when implementing stormwater management programs at regional or watershed levels.

4.2.2 General Approach

Responsible Agency/Person: Department of Public Works/Director

Goals for the MCM: Meet threshold criteria for frequency of notifications and provision for access to stormwater program development and implementation by Town stakeholders; measure of effectiveness defaults to 100% execution of public notification requirements. More specifically, the goals of the Town's public involvement and participation program are to:

- Provide opportunities for the public to participate in the review and implementation of the Town's SWMP.
- Achieve compliance with public involvement and participation requirements contained in section 2.3.3 of the MS4 permit.
- Increase awareness of the impact of stormwater pollution on water bodies in the Town, especially impaired and priority waters.
- Increase public awareness of the work being done by the Town to maintain and improve stormwater infrastructure, and the economic, recreational, water supply, and ecological benefits of that work.
- Increase awareness of how the public can support and assist the Town in implementing an effective stormwater management program.
- Encourage individuals and organizations to adopt habits and engage in voluntary actions that increase groundwater recharge, decrease pollutant loading, and decrease peak discharge rates, thereby reducing the burden placed on public stormwater infrastructure and the environment.

By means of careful compliance with public notification procedures, the public must be invited to participate in development, implementation and review of the stormwater management program. Though it has generally been the experience of land and water managers that significant challenges can be associated with public involvement, it has also been shown that these challenges can be mitigated through an aggressive and inclusive program. The Town of Medfield has successfully implemented elements of the MCM over the course of the past permit term. The Department of Public Works has been the lead agency responsible for MCM

implementation, and is anticipated to continue that role under subsequent permit terms. Any changes to the assigned responsible party will be reported under appropriate reporting protocols. To successfully maintain the public participation and involvement program, three action areas are recommended. These are:

1. *Comply with applicable State and local public notice requirements:* Medfield complies with state public notice requirements (MGL Chapter 39 Section 23B) and makes the SWMP and all annual reports available to the public. This updated SWMP will be available at the DPW for review by all interested parties; annual reports are submitted to EPA and DEP and provided for viewing and download via the EPA website (here).

Compliance Status: *Implementation of this strategy established compliance with existing permit terms; continuation of this strategy will maintain compliance under anticipated future permit conditions.*

2. *Annually provide the public an opportunity to participate in the review and implementation of the stormwater management program:* Medfield provides information about the stormwater program in a variety of forums, including continued activity with the NSP through shared program initiatives. In addition, the Town aggressively pursues grant funding when available, and most recently partnered with NSP to hold a public meeting to discuss the Sustainable Water Management Initiative, aspects of which relate to the stormwater program. In order to ensure future compliance with this obligation, we recommend that upon submittal of the required Annual Report to EPA (by September 30th) the Town plan to present results of the year's activity and anticipate activities for the upcoming year at a regularly scheduled DPW meeting (or other appropriate venue) to solicit public input.

Again, one or more designated representatives from the Town will participate in the NSP meetings to develop, implement, evaluate and revise its public involvement and participation program. The NSP Outreach Committee develops a public involvement and participation work plan and budget each year, the implementation of which is funded by the Town in conjunction with other participating communities. Key contacts with the NSP responsible for day to day planning, management and implementation of the NSP Outreach and Education Program include:

- Taylor Walter, Water Resources Engineer, NRWA
- Nancy Fyler, Outreach Director, NRWA
- Ian Cooke, Executive Director, NRWA

Compliance Status: *Implementation of this strategy established compliance with existing permit terms; continuation of this strategy and adoption of an annual public report-out as described above will maintain compliance under anticipated future permit conditions.*

3. *Report on activities undertaken to provide public participation opportunities:* Medfield reports all, or a representative sample, of activities undertaken to meet this obligation in annual reports to EPA and DEP about the SWMP program implementation.

Compliance Status: *Implementation of this strategy established compliance with existing permit terms; continuation of this strategy will maintain compliance under anticipated future permit conditions.*

Goals to be achieved and the metrics to determine if the goals are met must be identified and reported upon. Documentation should be maintained regarding activity, date(s) of implementation and basis for measuring progress to meet defined goals. The MS4 SWMP Compliance Tracking Log can be used by the DPW to create the necessary documentation. As with MCM No. 1, the Town intends to integrate documentation of compliance with a finalized asset management program.

4.2.3 Current Program and Specific Recommendations

The MS4 Permit requires that the Town:

- Make the SWMP and all annual reports available to the public.
- Annually provide the public an opportunity to participate in the review and implementation of the SWMP.
- Ensure that all public involvement and participation activities be posted in accordance with state public notice requirements (MGL Chapter 30A, Sections 18 – 25 – effective 7/10/2010).

The Town's public involvement and participation program shall consist of the following activities:

Activities implemented by the Town's Public Participation and Involvement Coordinator:

- Promptly post the SWMP (and any future revisions to the SWMP) including the Town's annual reports on the Town website.
- Post a legal notice once per year inviting the public to review and submit comments on the SWMP in accordance with state public notice requirements.
- Allow the public to inspect the SWMP in person during regular business hours.
- Annually compile any comments received on the SWMP along with the corresponding response from the Town (if any).
- Post a link on the Town's website to the public participation area of the regional website.

Activities implemented by the NSP on behalf of the town

- Establish a regional stormwater telephone hotline and web form through which members of the public can report stormwater problems or ask questions.

- Conduct an annual volunteer-based water quality monitoring program to directly involve and educate local residents, to provide data to be used to educate the public at large inform the Town’s ongoing IDDE and public education efforts.
- Hold a regional public meeting annually to discuss water quality data and issues of stormwater concern for the NSP region.
- Invite volunteers to install storm drain markers and other educational signage.
- Invite businesses to install or circulate materials to educate their customers and/or employees about preventing stormwater pollution.
- Other participation activities that may be identified as circumstances arise.

4.3 Minimum Control Measure 3: Illicit Discharge Detection and Elimination

4.3.1 Rationale

Discharges from stormwater management systems throughout urbanized areas have often included wastes and wastewater from non-stormwater sources. Illicit discharges can encompass those that are unlawful, prohibited, unauthorized, or improper. These flows are designated as “Illicit Discharges” because they consist of or contain materials the stormwater drainage system is not designed to treat, transport or discharge. Illicit Discharges are therefore considered by Federal regulations to be “...any discharge to an MS4 that is not composed entirely of stormwater...” There are particular exceptions to this definition, such as discharges from NPDES-permitted industrial sources and discharges from fire-fighting activities.

Illicit discharges enter stormwater systems through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The untreated discharges then contribute high levels of pollutants to receiving water bodies (for example, heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria). Specific examples of illicit discharges include sanitary wastewater, effluent from septic tanks, car wash wastewaters, improper oil disposal, radiator flushing, laundry wastewaters, spills from roadway accidents, and improper disposal of auto and household toxics. Pollutant levels from these illicit discharges have been shown to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

4.3.2 General Approach

Responsible Agency/Person: Department of Public Works/Director

Goals for the MCM: Execute upon the Plan detailed in the Town’s Illicit Discharge Detection and Elimination (IDDE) Plan (Appendix A) within the timelines, and employing the strategies,

described therein. Metrics employed to evaluate program progress and success in achieving plan goals for water quality protection are outlined in Section 7 of the IDDE Plan.

The general approach of this MCM entails development of a comprehensive understanding of the extent and operating conditions of the storm sewer system. This MCM also helps public and private entities as well as the general public to become aware of the system and their role in keeping its discharges clean. The illicit discharge detection and elimination program must therefore include inventory and mapping of the storm sewer system, inspection and detection activities, regulatory protection and enforcement, public education (part of MCM 1), and public involvement in reporting illicit discharges (contributes to MCM 2). More specifically, the program currently administered by the Town includes:

- **A storm sewer system map** showing the location of all outfalls and the names and location of all waters of the United States receiving discharges from those outfalls, and which includes a large percentage of the manholes and catch basins within the system, and a moderate percentage of piping throughout the system;
- **An Illicit Discharge Detection and Elimination (IDDE) plan to detect and address non-stormwater discharges** into the stormwater management system, including illegal dumping;
- **A bylaw prohibiting non-stormwater discharges** into the storm sewer system, including appropriate enforcement procedures and actions; and
- **Education of public employees, businesses, and the general public** about the hazards associated with illegal discharges and improper disposal of waste.

It is important to note that not all illicit discharges must be addressed, unless the discharges are specifically identified as significant pollutant sources. The following categories of discharges do not need to be addressed:

Exempt Non-Stormwater Discharges:

Water line flushing	Landscape irrigation	Diverted stream flows
Rising ground waters	Uncontaminated groundwater infiltration	Uncontaminated pumped ground water
Discharges from potable water sources	Foundations drains	Air conditioning condensation
Irrigation water	Springs	Water from crawl space pumps
Footing drains	Lawn watering	Individual residential car washing
Flows from riparian habitats and wetlands	Dechlorinated swimming pool discharges	Street wash water

4.3.3 Current Program and Specific Recommendations

4.3.3.1 Mapping

The Town of Medfield has developed a GIS-based storm sewer map that identifies all known outfalls and receiving water bodies associated with the Town's MS4 system. In addition, the map includes a percentage of catch basins and manholes in addition to some piping. Some of the piping is interpolated based on surface features such as manholes, etc., and some portion of the piping is based on existing record drawings. The Town continues to improve their mapping on an incremental basis. The IDDE program includes recommendations for capturing data and updating GIS databases appropriately.

Compliance Status: The existing mapping complies with the current 2018 General Permit. Under the permit, the entire system, including all catch basins, manholes, piping, connections to adjacent towns and other components of the system must be mapped within 2 years of the effective date of the permit. Under the field activity (mapping, condition assessment and illicit discharge detection activities) proposed for future phases of the IWRMP, this mapping requirement can be achieved. Implementation Years 2 and 3 of the Asset Management Program should include scope items that ensure permit timelines for this requirement are met.

4.3.3.2 Illicit Discharge Detection and Elimination Program

The Town has developed an IDDE Program (Appendix B) encapsulated in their IDDE Plan which is appended to, and a part of, this SWMP. The IDDE plan is based on EPA guidance documents, recognized best management practices and stipulations in the existing and proposed draft MS4 general permit. The IDDE plan describes the legal authority, program protocols, and the delineation and prioritization of catchments. It provides a description of the systematic procedure conducted by the Town to identify and eliminate illicit discharges and details indicators of program progress. Achievements of the program are detailed in annual reports.

Compliance Status: The Town's previous program was based in large part on protocols that met industry standard of care and are compliant with the 2003 MS4 General Permit. The Town's recently completed IDDE Plan meets that standard and additionally incorporates requirements outlined in the 2018 permit. Prioritization of catchments for investigation is a dynamic process, and based either on findings from field investigations or changing regulatory requirements, the IDDE plan will be updated and executed upon in conformance with best practices. A Compliance Tracking Log for tracking the completion of requirements of the IDDE Plan.

4.3.3.3 Enforcement

The local General By-Laws, Land Planning Regulations and Stormwater Management Regulations provide the necessary enforcement authority for the Town to administer their responsibilities under the MS4 General Permit with specific reference to location and elimination of illicit discharges. The By-Laws are provided as in Appendix D.

Compliance Status: The by-law under which the Town is currently enforcing prohibition of non-stormwater discharges complies with requirements under the existing MS4 general permit. Although the by-law does not explicitly include the timelines for correction of identified illicit discharges, the language of the by-law, which requires “immediate” termination of the illicit connection or discontinuance of illicit discharges, is more restrictive than the language of the permit. No further modifications of the existing by-law are anticipated to be required.

4.3.3.4 Sanitary Sewer Overflow (SSO) Inventory

Although not technically part of the IDDE program, under the MS4 permit, Medfield is required to develop and maintain a sanitary sewer overflow (SSO) inventory. Discharges from SSOs to the MS4 are prohibited and constitute a violation of the permit. The inventory must include all known locations where SSOs have discharged to the MS4 within the previous 5 years. The inventory must be maintained as part of the SWMP. The Asset Management Work Order Module, when implemented, can be used to track identification, resolution and documentation of this activity in the future.

4.4 Minimum Control Measure 4: Construction Site Runoff Control

4.4.1 Rationale

MCM 4 requires the Town of Medfield to develop, implement, and enforce a program to reduce pollutants in stormwater runoff to their MS4 from construction activities that result in land disturbance of greater than or equal to one acre. In general, sediment is the main pollutant of concern. Polluted stormwater runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Sediment runoff rates from construction sites have been shown to be typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During the relatively brief construction period, construction sites can therefore contribute more sediment to streams than can be deposited naturally over several decades. Sediment also tends to be a carrier of other pollutants, including oils, various construction activity fluids, and a wide variety of other pollutants. Uncontrolled siltation from construction sites causes physical, chemical, and biological harm to receiving waters.

Even though all construction sites that disturb more than one acre are covered nationally by an NPDES Stormwater Permit, MCM 4 is needed to induce more localized site regulation and

enforcement efforts, and to enable operators of regulated small MS4s to more effectively control construction site discharges into their MS4s.

4.4.2 General Approach

Responsible Agency/Persons: Medfield Conservation Commission/Conservation Agent
Medfield Planning Department

Goals for the MCM: There are two primary goals for this measure: (1) to minimize or eliminate erosion and maintain sediment on construction sites in order to preclude conveyance and discharge of sediments through the MS4; and (2) establish site plan review procedures that encourage the use of low impact design and green infrastructure. The latter goal is integral to post-construction stormwater management controls as well. The goal for the Town's program is to achieve these objectives through existing regulatory mechanisms (discussed below) and education of the development community through outreach efforts detailed in MCM No. 1. Metrics to establish effectiveness of program goal (1) will be based on total number of developers/contractors contacted, percentage of new construction sites (within by-law jurisdiction) visited and number of violations noted. Program goal (2) effectiveness will be evaluated on the basis of percentage of approved plans that incorporate LID or green infrastructure components.

The Medfield General By-Laws (Soil Erosion and Sediment Control) provides the basis for the Town's construction phase stormwater controls. A summary of the by-law is provided in Appendix D of this SWMP. The by-law creates jurisdiction over land disturbing activity that equals or exceeds 5,000 square feet. The limited permit covers activity that disturbs from 5,000 – 20,000 square feet. A full permit covers activity for land disturbance of greater than 20,000 square feet. Permit application requirements include detailed information regarding erosion and sediment controls and a certificate of compliance upon satisfactory completion of permitted activities. The by-law additionally requires that the Conservation Commission and Planning Board provide the public with information, through workshops and seminars, about the value of sedimentation and erosion controls, which satisfies a component of the existing and proposed MS4 permit regarding engagement with the public.

Written procedures for site plan review are provided for in the Town's Zoning By-Law. Larger-scale development is regulated by the Planning Board Rules & Regulations for subdivision development. The development process for the Town is generally described in the Town of Land Use Planning Guidance in Appendix D.

4.4.3 Current Program and Specific Recommendations

4.4.3.1 Regulatory Mechanism (By-Law)

The Town's current by-law addresses the primary requirements of the existing MS4 general permit. The by-law as written allows significant discretion by the Conservation Commission to determine "if any structural soil erosion and sediment control is deemed necessary" without reference to established design standards. This may prove problematic for applicants unfamiliar

with the Town's site control preferences. Since the by-law establishes the necessary legal authority to enforce the erosion and sediment controls required under the MS4 General permit, it would be easier for the Town to promulgate design standards or administrative matters through associated implementing rules and regulations. This will allow the Town to modify regulations rather than go through the more administratively rigorous by-law amendment process.

Compliance Status: The Town's current by-law adequately addresses existing and proposed MCM requirements.

4.4.3.2 Inspection Procedures

The MS4 permit requires the Town to have written procedures for site inspections and enforcement of the existing by-law. The by-law does include an inspection provision and enforcement authority to enter subject sites. The Conservation Commission and Planning Board are the enforcement authority under the by-law.

Compliance Status: The existing by-law meets the minimum requirements of the MS4 general permit, although without significant detail regarding inspection procedures. As suggested above, the Town may choose to promulgate rules and regulations pursuant to the by-law in which these details are outlined. The Town should adopt a mechanism to allow for tracking and reporting on inspections so that MCM goals can be met. It is recommended that the Town use an SOP and Inspection Reporting Form such as the one developed by the Central Massachusetts Stormwater Coalition. Ultimately, as with other tracking mechanisms, the Town intends to incorporate tracking metrics via the PeopleGIS work order module to be incorporated into the Town's Asset Management system.

4.4.3.3 BMP Selection

The 2018 MS4 general permits includes a requirement that an erosion and sediment control plan "shall be required" of subject construction site operators and it "may" include references to BMPs appropriate for the conditions at the site. The Town's by-law does include sections, wherein some specific stabilization measures are cited. In accordance with suggestions above, the Town may choose to include further guidance or design-related documentation in rules and regulations rather than the by-law itself.

Compliance Status: The program as it stands is compliant; however, if and when the Town chooses to promulgate rules and regulations pursuant to the by-law, BMP design standards should be included.

4.4.3.4 Control of Construction Wastes

The Town's by-law does not explicitly require construction site operators to control wastes resulting from development activity. Although this is a standard part of a Stormwater Pollution Prevention Plan, it is not included as part of the Town's erosion and sediment control program. We suggest that the Town include such language in future rules and regulations pursuant to the

by-law. The draft permit does not provide for a timeframe in which this must be achieved, but simply states it must be part of the program. Consequently, we suggest that this modification (and development of the rules and regulations in general), be undertaken in 2020.

Compliance Status: The construction site run-off controls program must include requirements for site operators to control waste. This is not specifically cited in the current by-law language.

4.4.3.5 Site Plan Review Written Procedures

The 2018 MS4 general permit requires that the Town have written procedures for site plan review and specific criteria relating to protection of water quality through construction and into post-construction management. The Town does have such written procedures which are detailed in Stormwater Regulations promulgated in 2017 (Appendix D).

Currently the Town tracks site reviews through records maintained by the Conservation Commission and Planning Board, the enforcement authority for the respective by-laws related to stormwater controls. Ultimately, these records will be incorporated into the PeopleGIS asset management database.

Compliance Status: The Town's regulations detail procedures for site plan review as required by the MS4 program.

4.5 Minimum Control Measure 5: Post Construction Runoff Control

4.5.1 Rationale

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in post-construction runoff to their MS4 from new development and redevelopment projects that result in land disturbance of greater than or equal to one acre. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction stormwater discharges is the most cost effective approach to stormwater quality management. This is best accomplished through combined good municipal planning with thorough project review during the proposal and permitting stages. Note that most construction projects will also pass through review under the criteria already established by the DEP's Stormwater Management Standards, within which an Operations and Maintenance Plan addressing ongoing stormwater management is required. However, this MCM will provide protection of the Town's waters both in the contexts of additional layers of attention through this and other MCMs, and through review of projects proposed outside areas under jurisdiction of the Massachusetts Wetlands Protection Act.

Post-construction runoff can generate two principal types of pollutants. The first is an increase in the type and quantity of pollutants in stormwater runoff. As runoff flows over areas altered by development, it can pick up harmful sediment and chemicals such as oil and grease, pesticides,

heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. The second occurs by increasing the rate of runoff delivered to the water body during storms. Instead of rainfall absorption into the soil via the natural cycle of gradual percolation, stormwater is quickly shed by paved surfaces and compacted soils and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include streambank scouring and downstream flooding, often leading to degradation of aquatic ecosystems and damage to property.

4.5.2 General Approach

Responsible Agency/Person: Conservation Commission/Commission Agent
Planning Board Administrator

Goals for the MCM: In order to achieve objectives of the MCM, the Town will endeavor to modify policies, regulations or guidance to allow new development to employ low impact development techniques and/or green infrastructure prior to the end of the permit term.

4.5.3 Current Program and Specific Recommendations

4.5.3.1 Regulatory Mechanism (By-Law)

The Town's current Stormwater Management by-law meets the obligations of the 2003 MA MS4 General Permit and substantially meets requirements of the 2018 MS4 General Permit (analysis template as referenced previously). Procedures include ensuring that any stormwater controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality. These procedures include requirements to avoid disturbance of areas susceptible to erosion and sediment loss; requirements to preserve areas in Medfield that provide important water quality benefits; requirements to implement measures for flood control; and requirements to protect the integrity of natural resources. The only stipulated requirement not included under the current by-law and implementing regulations is the submittal of as-built drawings to the Town upon completion of structural BMPs at development sites.

Compliance Status: Currently compliant; language to require as-builts should be included in modified implementing regulations. It is the Town's intent to require that as-built drawings be provided in electronic format as AutoCAD or ArcGIS files, and to develop specific technical standards for those submittals. This practice will allow the data contained in the drawings to be captured and added to the Town's GIS and PeopleGIS asset management system in a vastly more cost effective way.

4.5.3.2 Existing Local Regulations

Procedures to ensure long-term operation and maintenance of stormwater management practices remaining in place after construction are included in the Town's existing Stormwater Regulations promulgated to support administration of the Town's Stormwater Management By-Law (Appendix D). These are part of the Operation and Maintenance Plan required as part of the Stormwater Management Permit application submittal. With the exception of language stipulating submittal of as-built drawings, no further recommendations are proposed to meet this obligation, as the Town's current regulations are adequate.

Open Space Plans, and zoning regulations can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth to areas that can support it without compromising water quality. In 2015, the NSP undertook an analysis of the Town's existing zoning by-laws and review standards to determine if they are consistent with sound stormwater management practices, as defined by the Metropolitan Area Planning Commission. Their findings were provided to the Town of Medfield and their recommendations were incorporated into the attached revised bylaws that were promulgated in 2017.

Since that time, no further guidance from regulators has been provided, and the recommendations above stand as proposed. Based on Draft permit terms, the Town is not necessarily required to implement any of the recommendations regarding modification of existing regulation or subdivision rules and regulations. Within three (3) years from the effective date of the permit, the Town must develop a report assessing existing local regulations as has been completed and cited here. The review is intended to address zoning and construction codes to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist. The existing analysis meets the minimum requirements of that analysis. Ideally, the recommended practices would be integrated into the Town's design standards within a reasonably short period of time, although no implementation schedule is included in the permit. EPA has developed some guidance regarding overcoming barriers to implementing low impact development (LID) and green infrastructure techniques in a community. The guidance can be found at <http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/AddressingBarrier2LID.pdf>.

Future MS4 Annual Reports must include description of steps taken and progress achieved towards implementing the proposed changes. In the case of Medfield, some of these design standards, such as reduction in street widths and cul de sac radii, intended to minimize impervious surfaces, are opposed by certain agencies in the community (such as the Fire Department) for perceived public safety reasons. Further engagement to discuss potential compromises will be required.

Within two (2) years of the effective date of the final MS4 permit, Medfield must develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover. The assessment above performed by NSP partially covered requirements for content of this assessment. As it currently stands, the Town's standards typically do not allow reduction of impervious surface created through parking requirements for

new commercial development. The NSP assessment recommended changes be made, with reference to potential model standards from NSP member communities, where modifications have already been incorporated allowing reduced impervious surface. The assessment must include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover attributable to parking areas and street designs. Medfield will have to report in each annual report on the status of this assessment including any planned or completed changes to local regulations and guidelines.

Compliance Status: The Town is currently in compliance with the former 2003 Permit, and well along in terms of required components for assessment of opportunities for introduction of green infrastructure and LID techniques in future development. Once the Final Permit is issued Medfield will need to incorporate these changes into its rules and regulations.

4.5.3.3 Directly Connected Impervious Area

The 2018 General Permit requires permittees to estimate the annual increase or decrease in the number of acres of impervious area (IA) and directly connected impervious area (DCIA) draining to its MS4 and report those estimates in each annual report. The Town is supposed to tabulate its estimates by sub-basins. The procedure for tracking the annual decrease or increase in IA and DCIA will utilize GIS and will depend on the Town adopting electronic as-built submittal requirements in a proper format. This will greatly reduce the effort required to determine the changes. The electronic standards could also require plan submittals to include calculations of IA and DCIA.

Compliance Status: The Town has a good baseline calculation of existing DCIA. In the future, annual reports will have to estimate the total area of increase or decrease in DCIA for that reporting term. Information to inform that calculation will be derived from site plans and subdivisions submitted to the Planning Board for which as-built drawings will be required.

4.5.3.4 Municipal Property Inventory for Suitable BMP Retrofit Locations

Based on the current 2018 General Permit, two (2) years from the permit effective date Medfield must complete an inventory and priority ranking of Town-owned property and existing infrastructure that could be retrofitted with BMPs designed to reduce the frequency, volume and pollutant loads of stormwater discharges to its MS4 through the mitigation of impervious area. Properties and infrastructure for consideration are to include those with the potential for mitigation of on-site impervious area and DCIA, as well as those that could provide mitigation of off-site IA and DCIA. At a minimum, permittees are supposed to consider municipal property with significant impervious cover (including parking lots, buildings, and maintenance yards) that could be mitigated and open space and undeveloped land available to mitigate impervious cover and associated stormwater from proximate offsite properties. MS4 infrastructure to be considered includes existing street right-of-ways, outfalls and conventional stormwater conveyances and controls (including swales and detention practices) that could be readily modified to provide

reduction in frequency, volume or pollutant loads of such discharges through the mitigation of impervious cover.

In 2014, the NSP assessed priority sub-catchment areas and undertook an inventory and analysis of stormwater BMP retrofit opportunities within the Town of Medfield. The NSP identified municipally owned property and existing infrastructure that can be retrofitted with BMPs to reduce frequency, volume and pollutant loads of stormwater discharges. The project approach will allow the Town to look broadly across the community for suitable opportunities, and eventually prioritize both the types of BMPs and the locations with specificity. This effort will include conceptual design of BMPs and fully meets the Town's obligations under this permit requirement.

Compliance Status: The Town's 2014 assessment and screening will serve as the basis to meet the requirements of this permit term.

4.6 Minimum Control Measure 6: Pollution Prevention and Good Housekeeping

4.6.1 Rationale

Pollution Prevention/Good Housekeeping for municipal operations minimum control measures will likely improve or protect receiving water quality through alteration of municipal operations. This measure can generate cost savings for the Town over the long term, since appropriate maintenance of storm sewer systems can avoid damage caused by age and neglect.

Compliance with this MCM results in reductions in pollution that falls on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is carried by stormwater into local waterways, and improvement of management approaches to avoid environmentally destructive development and stormwater management practices or poor maintenance of storm sewer systems.

2.2.6.2 General Approach

Responsible Agency/Person: Department of Public Works/Director

Goals for the MCM: Medfield will execute on the written Medfield Facility BMPs Manual for stormwater management plan.

In general, the purpose behind this MCM is to improve existing municipal operations to the point that they minimize pollution of stormwater discharges into local waters. The following components were considered when developing the pollution prevention/good housekeeping program for the Town of Medfield:

1. **Maintenance activities, maintenance schedules, and long-term inspection procedures** for structural and non-structural controls to capture floatables and other pollutants and prevent discharge into local waters from the storm sewers;
2. **Identification and implementation of controls for eliminating discharge of pollutants** from Town-controlled areas including roads, parking lots, maintenance and storage yards, and waste transfer station; and
3. **Procedures for the proper disposal of waste** including dredge spoil, accumulated sediments, floatables, and other debris removed from catch basins and other accumulators as well as areas listed above.

To implement the pollution prevention/good housekeeping program, the Town was required to:

- Develop a training program for municipal employees on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance;
- Develop and implement an Operations and Maintenance Plan with the ultimate goal of preventing polluted runoff from entering the storm sewer system;
- Determine appropriate Measurable Goals and Best Management Practices (BMPs) for the pollution prevention/good housekeeping program.

4.6.2 Current Programs Status

The Town has developed the attached Standard Operating Procedures for their facilities Best Management Practices Manual and Operations and Maintenance Plan. The written plan will be used to support budget needs instead of reflecting budget constraints. The Town will also generate an inventory of municipally-owned facilities for which these BMP's are appropriate.

4.7 Control Measure 7: Water Quality Stewardship

In general, stewardship involves a process of stakeholder participation, problem identification, and development of appropriate strategies and solutions. Stakeholders can provide a variety of experience and expertise required to identify problems and develop solutions. Furthermore, since many watershed areas cross both public and private property, stewardship promotes public support and community involvement as keys to achieving comprehensive, long-term improvements in the local environment.

The overall goal of the Water Quality Stewardship element is to maintain, improve and promote the health and quality of the Town of Medfield surface waters, particularly those that have been identified as Section 303.d waters and those that are located in the Town's aquifer protection

area(s). This is consistent with the Massachusetts Watershed Initiative Program and may assist the Town in procuring state and/or federal funding.

The specific goals of the Water Quality Stewardship element are to:

- 1) Initiate and support efforts to assess the quantity and quality of stormwater discharges to Section 303.d waters and to the Town of Medfield aquifer protection area(s);
- 2) Take proactive steps to map the connectivity between discharge points (e.g. outfall pipes) and the remainder of the MS4 that is located within suspected polluting watershed areas;
- 3) Promote, engineer, and construct cost-effective BMPs to address documented pollutant loads that impair beneficial uses of the Town's water resources;
- 4) When feasible, the Town shall consider opportunities for ground water recharge and infiltration in the implementation of control measures, to the maximum extent practicable; and
- 5) Support and utilize citizen monitoring and other community partnerships to identify problems and implement solutions.

Problem identification will focus on the physical, chemical, biological health of local waterways. It is important to note that for any given watershed area, problems will vary and may involve stormwater to a lesser or greater degree. Although the program will focus on stormwater impacts, it will also identify potential non-stormwater impacts as well (e.g. septic systems).

4.7.1 Rationale

The primary FY2004 goal and objective includes the mapping of significant MS4 discharge points located in the vicinity of Section 303.d waters and that are located within the Town's aquifer protection areas. In each year of the permit term, the goal will be to field screen about 20% of the discharge points during wet and dry seasons. If deemed necessary from the field screening, analytical testing will be conducted to identify the pollutant of concern and assist in the location of pollutant sources. Therefore, at the end of the first permit term, all of the significant discharge points that impact either Section 303.d waters or the Town's aquifer will have been tested. The field screening and monitoring is outlined in Chapter 5.

A secondary goal of the water quality stewardship element will be to quantify the volume of stormwater and pollutant loadings. The quantity calculations will assist in the determination of appropriate BMPs that may be implemented later in the term of the permit, or in subsequent terms, depending on the extent of contamination, environmental impact(s) and available resources. This will initially include the assessment of groundwater recharge potential. In any event, the water quality stewardship findings and recommendations will be submitted to EPA and DEP in the Annual Reports. Data will also be provided when requested by the permitting authority.

4.7.2 General Approach

Responsible Agency/Person: Department of Public Works/Director

Goals for the MCM: Medfield will assess the ongoing water quality results and determine their impact upon the public water supply system. The Town will also assess BMPs and on-site recharge systems that contribute to the overall water balance of the Town.

The general approach for the water quality stewardship is provided in Section 5.

4.8 Program Element Summary and Interrelationships

The program elements are summarized in Table 4.2 and are interrelated to ensure coordination and best use of the Town's limited resources. Many BMPs will involve the same or similar efforts that achieve the goals of two or more Program Elements. For example, the use of volunteers to assist with catch basin stenciling, accomplishes the goals of Public Involvement and Water Quality Stewardship.

Table 4.2
Program Element Summary

Permit Term Year	Element	Activity
July 1, 2019 to June 30, 2020	Public Education and Outreach Public Involvement and Participation Illicit Discharge Detection and Elimination Construction Site Stormwater Runoff Control Post Construction Stormwater Management Pollution Prevention and Good House Keeping Water Quality Stewardship	Continue partnerships with the NSP, local watershed associations, environmental groups or other civic associations, in order to develop plan; identify measurable goals and BMPs for achieving these goals. Look to have volunteers assist in the collection of water quality samples. Confirm the mapping of the storm sewer system outfalls and continue camera work, and possible lining; start water quality stewardship and dry weather testing; continue the tracking and repair of SSOs; inventory Town-owned facilities. Town officials will meet to discuss the need for any new Construction Site Runoff ordinances, based on the change in the NPDES program from five acres to one acre. Town officials will meet to discuss the need for any new Post Construction Stormwater Management ordinances, based on the change in the NPDES program from five acres to one acre. Incorporate changes from new written plans on construction runoff, street sweeping, catch basin cleaning, winter street maintenance, drain system maintenance into regular operations; assess the need for any new ordinances or new policies. Begin field screening about 33% of the discharge points during dry seasons; analytical testing, as necessary; begin assessment of groundwater recharge.
July 1, 2020 to June 30, 2023	Public Education and Outreach Public Involvement and Participation Illicit Discharge Detection and Elimination Construction Site Stormwater Runoff Control Post Construction Stormwater Management Pollution Prevention and Good House Keeping Water Quality Stewardship	Implement Plan (i.e. Brochures, informational meetings and presentations, public service announcements, telephone hotlines, and storm drain stenciling) As problem areas are identified, additional public participation examples include additional water quality monitoring, community cleanup days, and adopt a drain/stream program. Implement a plan to detect and address known non-stormwater discharges; retrofit Town-owned facilities, where possible; support the mechanism for citizens to report illicit discharges. Regulatory changes may be proposed in the second year of the permit term and implemented thereafter. Regulatory changes may be proposed in the second year of the permit term and implemented thereafter. Regulatory changes may be proposed in the second or third year of the permit term and implemented thereafter; assess operations and maintenance plan to implement the Good Housekeeping measure and make revisions annually as needed. Continue field screening of discharge points during dry seasons and wet as needed; analytical testing, as necessary; identify pollutants of concern and location of pollutant sources; quantify the volume of stormwater and pollutant loadings; identify appropriate BMPs (i.e. groundwater recharge) that may be implemented in the permit term, or in subsequent terms.

5. WATER QUALITY STEWARDSHIP

5.1 *Introduction and Purpose*

In order to implement the Water Quality Stewardship Element outlined in Section 4.7, the Town of Medfield has developed a proactive water quality field screening and monitoring program. The initial purpose of the program will be to field screen discharge points that may impact either the Town's public water supply or Section 303.d waters.

Based on a review of the field screening data, the Town may then send selected samples to an analytical laboratory for further testing. The data review will focus on the physical, chemical, biological impacts to local waterways and the potential impacts on the water resources intended use. Although the program will focus on stormwater impacts, it will also identify potential non-stormwater impacts as well (e.g. septic systems).

5.2 *Scope of Sampling*

In the 2018 General Permit second, third and fourth years, the goal will be to field screen about 33% of the discharge points during dry seasons. Analytical testing will be conducted when significant exceedances of thresholds deemed necessary.

Field screening will initially focus on discharges to Category 5 Section 303.d waters with TMDLs and located within the Town's aquifer protection area. For the Town of Medfield these include:

- Neponset River Watershed: Mine Brook (Outlet of Jewells Pond to Walpole town line over 3 miles) for Fecal Coliform, Dissolved Oxygen – TMDL Number 2592 - and MS4 Part II Appendix H criteria for phosphorous.
- Charles River Watershed: Stop River (Norfolk-Walpole MCI in Norfolk to the confluence with the Charles River over 4.2 miles) for E-coli – TMDL Number 32372.
- Charles River Watershed: Stop River (Norfolk-Walpole MCI in Norfolk to the confluence with the Charles River over 4.2 miles) for Organic Enrichment (Sewage) Biological Indicators and Phosphorous – TMDL Number 40317.

Thereafter, the field screening and analytical testing will include the non-TMDL Category 5 Section 303.d waters inside the aquifer protection area. This includes:

- Neponset Watershed: Mill Brook (headwaters north of Hartford Street to inlet of Jewells Pond over 2.3 miles) for low flow alteration, Aquatic Macroinvertebrate Bioassessments, Dissolved Oxygen – No TMDL developed - and MS4 Part II Appendix H criteria for phosphorous.

Then followed by the Category 3 (No Uses Assessed) waterbody:

- Neponset River Watershed: Flynn's Pond (7 acres)

It is noted that •Jewell's Pond (4 acres) is privately owned and has been flagged as a Category 4c water for non-native aquatic plants.

In the final years of the FY2018 General Permit, the field screening and testing will target the remaining discharges to the Town's aquifer protection area.

5.3 Field Screening

In FY2020, 2021 and FY2022, it is anticipated that the Town will inspect all 426 outfalls (142/year). It is anticipates that the Town will collect field screening data from about 150 of the Town's estimated 426 outfall pipes during dry (summer) seasons. The sampling locations will be developed from the Town's GIS mapping of outfall pipe locations, and the locations and sample designation will be shown on plan to be developed by the Town.

Field samples will be tested for the following using EPA approved methods:

1. pH;
2. Temperature (SM-2550);
3. Specific Conductance;
4. Dissolved Oxygen (EPA 360.1, 360.2); and
5. Turbidity (EPA 180.1).

Field notes shall be summarized in bound field books and data will be compiled into Excel spreadsheets.

5.4 Analytical Testing

The Town anticipates that it may be deemed necessary from the field screening, to conduct 40 analytical tests to identify the pollutant of concern and assist in the location of pollutant sources. Under this task, a limited number of water samples, will be sent to a laboratory or analyzed from field test kits for some or all of the following constituents:

Test kits or laboratory testing:

1. Ammonia;
2. Chlorine;
3. Salinity, and
4. Surfactants.

Laboratory Testing:

1. Total Phosphorous (EPA 365.1, 365.2, 365.3), in both watersheds,
2. Total Suspended Solids (EPA 160.2),
3. Fecal Coliform (EPA 1680, 1681), and/or
4. Escherichia coli (EPA 1160.1, 1600) or Enterococci (EPA 12.22).

If needed in the Charles River Watershed, the following may only be sampled to address very specific historic concerns, if indicators are present:

- Chlorodane;
- Dichlorodiphenyltrichloroethane (DDT); and
- Mercury.

The field notes shall be summarized in bound field books and data shall be compiled onto Excel spreadsheets.

5.5 Quality Assurance/Quality Control (QA/QC)

5.5.1 Surface Water Sampling

The following QA/QC procedures shall apply to the surface water sampling.

Water Sample Collection

Upgradient surface water locations will be sampled first to minimize cross-contamination potential.

Water Sample Collection Equipment

Surface water samples will be collected directly into the laboratory jars.

Field Analyses

Calibration - All field equipment will be calibrated, at a minimum, at the beginning of each day of use. Standard equipment, which must be calibrated, includes the Specific Conductivity Meter, the pH Meter, the Dissolved Oxygen Meter, and the Turbidity Meter. During any field event, one of the field personnel must be familiar with calibration techniques outlined in respective operation manuals.

Field Personnel Qualifications - All field personnel will become familiar with equipment use and the operation manuals for each piece of equipment used for a given project, before entering the field.

Sample Containers and Preservatives

Containers - Sample containers cleaned according to accepted methods will be obtained from a laboratory. Sample bottles may not be reused.

Volatile Sampling – Samples for volatiles will be collected as to avoid entrapment of air in the container. After filling, the jar will be inverted and tapped to discern whether air bubbles are entrapped within the sample.

Preservatives - If preservatives are necessary, they will be put into sample bottles by the laboratory and marked accordingly for field personnel. All samples will be kept in an ice chest until delivery to the laboratory. Preservatives for samples collected for specific analysis are to comply with guidelines taken from applicable references (40 CFR Part 141, SW-846, Standard Methods).

Sample Holding Times - The time between sample collection and initiation of laboratory analyses will be determined by the specific test analysis and applicable EPA reference (40 CFR part 141, SW-846, standard methods). Any analysis of samples after the prescribed holding time should be considered invalid.

Quality Assurance Blanks – As necessary, equipment and trip blanks shall be run for every analytical sampling round.

1. An *Equipment Blank* is collected during each sampling round to check for potential contamination due to sample equipment construction or improper decontamination procedures. Deionized water is run through all sample equipment, including disposable equipment, and the rinsate is collected as a field equipment blank. The equipment blank must be analyzed for all the parameters for which samples are collected.
2. The purpose of a *Trip Blank* is to check for potential sample contamination during transport. The trip blank shall be only analyzed in cases for VOCs and consists of a vial of deionized water, provided by the laboratory, which is put into the cooler with other samples during transport.

Sample Labeling - Indelible ink pens and gummed paper labels will be used to label sample containers. All samples will be labeled with at least the information listed below:

1. Project name
2. Sample point designation
3. Date
4. Time
5. Name of person collecting sample
6. Analysis to be performed
7. Preservative

5.5.2 Decontamination

The following decontamination procedures shall apply to the surface water sampling.

Decontamination Materials

The standard cleaning materials used for decontamination include the following:

- Detergent
- Cleaning Solvents
- Tap Water
- Deionized Water

The detergent used must be a phosphate-free lab detergent, such as Alquinox or Liquinox. This should be prepared with deionized water obtained from a laboratory or, when de-ionized water is unavailable, with tap water from a treated municipal drinking water system.

The standard cleaning solvents are pesticide-grade isopropanol or methanol. Solvents may be diluted with deionized water.

Tap water may be used from any municipal water treatment system. Water from an untreated water supply is not acceptable.

Deionized water is tap water, which has been passed through a standard deionizing resin column. Deionized water is obtained from the laboratory.

Decontamination Procedures

Equipment used to measure field parameters will be cleaned between sample points by rinsing with pesticide grade methanol followed by a deionized water rinse. The standard decontamination procedure before transport to the field and in the field, when necessary, is as follows:

1. Rinse with tap water;
2. Clean with Alquinox soap and tap water mixture, using a brush when necessary;
3. Rinse with deionized water;
4. Rinse with pesticide grade isopropanol; and
5. Rinse with deionized water.

Efforts will be made to use either dedicated field sampling equipment or disposable equipment so that field decontamination is unnecessary. If pump tubing, bailers, or any other sampling equipment is used more than once in the field, it must be decontaminated between every sample point.

Disposal of Waste Decontamination Liquid

Waste decontamination liquid will be disposed of on-site and allowed to percolate into the ground.

5.5.3 Document Control

Field notes will be kept in bound logbooks and written in indelible ink. The logbook will be used to record a permanent record of all field activities. Information recorded in the log book includes, but is not limited to, the following:

1. Date
2. Weather
3. Individuals on-site during field operations
4. Sample location
5. Field analysis calibrations and results
6. Sampling information and observations
 - Sample interval
 - Odor
 - Visual observations (i.e., sheen, suspended sediment etc.)
7. Field analysis readings

5.5.4 Chain-of-Custody Procedures

Adherence to chain-of-custody procedures is required for all sampling events. A sample is considered to be under a person's custody if it is in a person's physical possession, in view of the person after taking possession, and secured by that person so that no one can tamper with it, or secured by that person in an area that is restricted to authorized personnel. As few individuals as possible will handle each sample to reduce the possibility of error, confusion, and/or damage.

To establish documentation necessary to trace sample possession from time of collection, a chain-of-custody record shall be completed and accompany all samples.

When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the chain-of-custody record. This record documents transfer of custody of samples from the sampler to another person or to the laboratory.

5.6 Threshold Evaluation and BMP Recommendations

The field screening and testing results will be compared to the threshold levels are provided in Table 5.1.

Table 5.1
Field Screening and Testing Evaluation Levels

Parameter	Threshold Level	Source
Surfactants	≥ 0.25 mg/l	EPA New England Bacterial Source Tracking Protocol
Ammonia	≥ 0.5 mg/l	EPA New England Bacterial Source Tracking Protocol
Chlorine	≥ 0.02 mg/l	EPA 2018 General Permit
pH	< 5	Center for Watershed Protection
Conductivity	> 2,000 μ S/cm	Center for Watershed Protection
Dissolved Oxygen	< 5.0 mg/l	314 CMR 4.00 for Class B Warm Water
Temperature	> 83°F	314 CMR 4.00 for Class B Warm Water

Once problem areas have been identified from the field screening and testing program, additional field activities may be conducted (i.e. dye testing and smoke testing) to identify the source of pollution and engineering analysis may be conducted to evaluate the volume of stormwater and pollutant loadings. The quantity calculations will assist in the determination of appropriate BMPs that may be implemented later in the term of the permit, or in subsequent terms, depending on the extent of contamination, environmental impact(s) and available resources.

Recommendations to improve water quality may include any or a combination of a variety of EPA- and/or DEP-approved structural BMPs or non-structural BMPs. The Town may also suggest the use of innovative BMPs that have yet to be approved by EPA/DEP. In the latter case, the Town will provide regulatory agencies with pertinent data and justification supporting the innovative use, or will propose pilot studies (i.e. for groundwater recharge).

6. PROGRAM EVALUATION, RECORD KEEPING AND REPORTING

6.1 Introduction

In accordance with General Permit requirements, the Town of Medfield will continually monitor the Program elements, keep accurate records and report its findings, conclusions, recommendations and changes to the Program to both EPA and DEP. Raw data will be provided when requested by the permitting authority.

6.2 Evaluation Strategy

In accordance with 40 CFR 122.34(g)(1), the Town will evaluate the program for the following:

1. Compliance with the General Permit terms;
2. Appropriateness of the identified BMPs; and
3. Progress toward achieving measurable goals.

It is understood that the Town may need to change its stormwater management program based on this evaluation process or to address water quality impacts. This may include more stringent requirements to comply with Federal or State law, or to include conditions necessary to comply with the goals of the Clean Water Act.

6.3 Record Keeping

In accordance with 40 CFR 122.34(g)(2), the Town shall collect and maintain accurate records throughout the term of the permit and for a period of five years thereafter. The records will include applicable communications, field books, survey notes, laboratory data, data summaries, engineering analysis, and all other pertinent information. Records need to be submitted only when requested by the permitting authority.

The stormwater management program will also be made available to the general public through the DPW offices.

6.4 Reporting

In accordance with 40 CFR 122.34(g)(3), the Town of Medfield will submit annual reports to EPA and DEP, to the addresses provided in the attached General Permit. The reporting period will be a one year period commencing on the permit effective date, and subsequent anniversaries thereof, except that the first annual report under this permit shall also cover the period from May 1, [year of final permit effective date] to the permit effective date. The annual report is due ninety days from the close of each reporting period.

The annual reports shall contain the following information:

- i. A self-assessment review of compliance with the permit terms and conditions.
- ii. An assessment of the appropriateness of the selected BMPs.
- iii. The status of any plans or activities required by part 2.1 and/ or part 2.2, including:
 - Identification of all discharges determined to be causing or contributing to an exceedance of water quality standards and description of response including all items required by part 2.1.1;
 - For discharges subject to TMDL related requirements, identification of specific BMPs used to address the pollutant identified as the cause of impairment and assessment of the BMPs effectiveness at controlling the pollutant (part 2.2.1. and Appendix F) and any deliverables required by Appendix F;
 - For discharges to water quality limited waters a description of each BMP required by Appendix H and any deliverables required by Appendix H.
- iv. An assessment of the progress towards achieving the measurable goals and objectives of each control measure in part 2.3 including:
 - Evaluation of the public education program including a description of the targeted messages for each audience; method of distribution and dates of distribution; methods used to evaluate the program; and any changes to the program.
 - Description of the activities used to promote public participation including documentation of compliance with state public notice regulations.
 - Description of the activities related to implementation of the IDDE program including: status of the map; status and results of the illicit discharge potential ranking and assessment; identification of problem catchments; status of all protocols described in part 2.3.4.(program responsibilities and systematic procedure); number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located; number of illicit discharges removed; gallons of flow removed; identification of tracking indicators and measures of progress based on those indicators; and employee training.
 - Evaluation of the construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.
 - Evaluation of stormwater management for new development and redevelopment including status of ordinance development (2.3.6.a.ii.), review and status of the street design assessment(2.3.6.b.), assessments to barriers to green infrastructure (2.3.6.c), and retrofit inventory status (2.3.6.d.)
 - Status of the O&M Programs required by part 2.3.7.a.

- Status of SWPPP required by part 2.3.7.b. including inspection results.
- Any additional reporting requirements in part 3.0.

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

vi. Description of activities for the next reporting cycle.

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

viii. Description of activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.

Reports shall be submitted to EPA at the following address:

United State Environmental Protection Agency
Stormwater and Construction Permits Section (OEP06-1)
Five Post Office Square, Suite 100
Boston, MA 02109

Massachusetts Department of Environmental Protection
One Winter Street – 5th Floor
Boston, MA 02108

APPENDICES

APPENDIX A – 2018 MS4 NPDES GENERAL PERMIT NOI

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

Page 1 of 19

Part I: General Conditions

General Information

Name of Municipality or Organization: **TOWN OF MEDFIELD** State: **MA**

EPA NPDES Permit Number (if applicable): **MAR041131**

Primary MS4 Program Manager Contact Information

Name: **MAURICE GOULET** Title: **PUBLIC WORKS SUPERINTENDENT**

Street Address Line 1: **55 NORTH MEADOWS ROAD**

Street Address Line 2:

City: **MEDFIELD** State: **MA** Zip Code: **02052**

Email: **MGOULET@MEDFIELD.NET** Phone Number: **(508) 906-3002**

Fax Number: **(508) 359-6182**

Other Information

Stormwater Management Program (SWMP) Location **55 NORTH MEADOWS ROAD, MEDFIELD, MA 02052**

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes

Eligibility Criteria
(check all that apply): A B C

National Historic Preservation Act (NHPA) Determination Complete? Yes

Eligibility Criteria
(check all that apply): A B C

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

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete?
(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit) **100%** If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY): **01/30/16**

Web address where MS4 map is published:

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

OUTFALL MAP IS ATTACHED

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted?
(Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit) **Yes** Effective Date or Estimated Date of Adoption (MM/DD/YY): **04/24/17**

Construction/Erosion and Sediment Control (ESC) Authority Adopted?
(Part II, III, IV or V, Subpart B.4.(a.) of 2003 permit) **Yes** Effective Date or Estimated Date of Adoption (MM/DD/YY): **04/24/17**

Post- Construction Stormwater Management Adopted?
(Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit) **Yes** Effective Date or Estimated Date of Adoption (MM/DD/YY): **04/24/17**

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

Part II: Summary of Receiving Waters

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

Massachusetts list of impaired waters: Massachusetts 2014 List of Impaired Waters- <http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf>

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with part 2.2.2.a of the permit. List any other pollutants in the last column, if applicable.

Waterbody segment that receives flow from the MS4	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/DO Saturation	Nitrogen	Oil & Grease/PAH	Phosphorus	Solids/TSS/Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
MA72-05 (Charles, Charles River)	207	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chlorodane, DDT, Mercury in Fish Tissue, Nutrient/Eutrophication
MA72-10 (Charles, Stop River)	86	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Organic Enrichment (Sewage) Biological Indicators
MA73-08 (Boston Harbor: Neponset, Mill Brook)	99	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MA73-09 (Boston Harbor: Neponset, Mine Brook)	29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fecal Coliform
MA73019 (Boston Harbor: Neponset, Flynn's Pond)	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MA73026 (Boston Harbor: Neponset, Jewells Pond)	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TOTAL	426	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Note: 1. See the outfall location map that is on-line, and
2. The outfalls include upland locations.)

Click to lengthen table

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

Part III: Stormwater Management Program Summary

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

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	BMP Description	Targeted Audience (enter your own text to override the drop down menu)	Responsible Department/Parties (enter your own text to override the drop down menu)	Measurable Goal	Beginning Year of BMP Implementation
Outreach Message	Mailing, website, event, school program, press coverage and/or other means	Residents	Medfield Department of Public Works working with the NSP.	Raise awareness and modify behaviors to reduce pollutant loading	FY'22
Outreach Message	Mailing, website, event, school program, press coverage and/or other means	Businesses, Institutions and Commercial Facilities	Medfield Department of Public Works working with the NSP.	Raise awareness and modify behaviors to reduce pollutant loading	FY'22
Outreach Message	Mailing, website, event, school program, press coverage and/or other means	Developers (construction)	Medfield Department of Public Works working with the NSP.	Raise awareness and modify behaviors to reduce pollutant loading	FY'22
Outreach Message	Mailing, website, event, school program, press coverage and/or other means	Industrial Facilities	Medfield Department of Public Works working with the NSP.	Raise awareness and modify behaviors to reduce pollutant loading	FY'22
Outreach Message	Mailing, website, event, school program, press coverage and/or other means	Residents	Neponset Stormwater Partnership (NSP)	Raise awareness and modify behaviors to reduce pollutant loading	FY'23

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

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

BMP Categorization	Brief BMP Description (enter your own text to override the drop down menu)	Responsible Department/Parties (enter your own text to override the drop down menu)	Additional Description/ Measurable Goal	Beginning Year of BMP Imple- mentation	FY'19			
Public Review	SWMP Review	Medfield Department of Public Works working with the NSP.	SWMP posted and public comments requested annually					
Public Participation	Annual event or activity such as hh haz waste day, water testing, catch	Citizens will learn about and help implement MS4 program through a hands on activity annually						

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

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP Categorization (enter your own text to override the drop down menu)	BMP Description (enter your own text to override the drop down menu)	Responsible Department/Parties (all text can be overwritten)	Measurable Goal (all text can be overwritten)	Beginning Year of BMP Implementation FY19
SSO inventory	Develop SSO inventory in accordance of permit conditions	Medfield Department of Public Works.	Complete within 1 year of effective date of permit	FY19
Storm sewer system map	Create map and update during IDDE program completion	Medfield Department of Public Works.	Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit	FY'20
Written IDDE program	Create written IDDE program	Medfield Department of Public Works working with the NSP.	Complete within 1 year of the effective date of permit and update as required	FY'19
Implement IDDE program	Implement catchment investigations according to program and permit conditions	Medfield Department of Public Works working with the NSP.	Complete 7 to 10 years after effective date of permit. Begin problem catchments within 2 years.	FY'20
Employee training	Train employees on IDDE implementation	Medfield Department of Public Works working with the NSP.	Train annually	FY'19
Conduct dry weather screening	Conduct in accordance with outfall screening procedure and permit conditions		Complete 3 years after effective date of permit	FY'21
Conduct wet weather screening	Conduct in accordance with outfall screening procedure	Medfield Department of Public Works working with the NSP.	Complete 7 to 10 years after effective date of permit	FY'22
Ongoing screening	Conduct dry weather and wet weather screening (as necessary)	Medfield Department of Public Works working with the NSP.	Complete ongoing outfall screening every five years upon completion of IDDE program	FY'30

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

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

BMP Categorization (enter your own text to override the drop down menu or entered text)	BMP Description Complete written procedures of site inspections and enforcement procedures	Responsible Department/Parties (enter your own text to override the drop down menu)	Measurable Goal (all text can be overwritten)	Beginning Year of BMP Implementation
Site inspection and enforcement of Erosion and Sediment Control (ESC) measures	Complete written procedures of site plan review and begin implementation	Medfield Department of Public Works and Conservation Commission.	Complete within 1 year of the effective date of permit	FY'19
Site plan review	Adoption of requirements for construction operators to implement a sediment and erosion control program	Medfield Department of Public Works and Conservation Commission.	Complete within 1 year of the effective date of permit	FY'19
Erosion and Sediment Control	Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes	Medfield Department of Public Works.	Complete within 1 year of the effective date of permit	FY'19
Waste Control				
</				

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

Part III: Stormwater Management Program Summary (continued)

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

BMP Categorization (enter your own text to override the drop down menu or entered text)	BMP Description The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP	Responsible Department/Parties (enter your own text to override the drop down menu) Medfield Department of Public Works, and Planning Board.	Measurable Goal (all text can be overwritten) Require submission of as-built plans for completed projects	Beginning Year of BMP Implementation FY'20
As-built plans for on-site stormwater control	Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually	Medfield Department of Public Works, Planning & Conservation Commission.	Complete 4 years after effective date of permit and report annually on retrofitted properties	FY'22
Target properties to reduce impervious areas	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Medfield Department of Public Works, Planning & Conservation Commission.	Complete 4 years after effective date of permit and implement recommendations of report	FY'22
Allow green infrastructure	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.	Medfield Department of Public Works, Planning Board and ZBA.	Complete 4 years after effective date of permit and implement recommendations of report	FY'22
Street design and parking lot guidelines				

Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook	Adoption, amendment, or modification of a regulatory mechanism to meet permit requirements	Medfield Department of Public Works, Planning & Conservation Commission.	Complete 2 years after effective date of permit	FY'20

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

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP Categorization (enter your own text to override the drop down menu or entered text)	BMP Description Create written O&M procedures including all requirements contained in 2.3.7.a.ii for parks and open spaces, buildings and facilities, and vehicles and equipment	Responsible Department/Parties (enter your own text to override the drop down menu) Medfield Department of Public Works working with the NSP.	Measurable Goal (all text can be overwritten) Complete and implement 2 years after effective date of permit	Beginning Year of BMP Implementation FY'20
O&M procedures	Create inventory	Medfield Department of Public Works working with the NSP.	Complete 2 years after effective date of permit and implement annually	FY'20
Infrastructure O&M	Establish and implement program for repair and rehabilitation of MS4 infrastructure	Medfield Department of Public Works working with the NSP.	Complete 2 years after effective date of permit	FY'20
Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment	Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities	Medfield Department of Public Works working with the NSP.	Complete and implement 2 years after effective date of permit	FY'20
Stormwater Pollution Prevention Plan (SWPPP)	Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule	Medfield Department of Public Works.	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually	FY'19
Catch basin cleaning	Sweep all streets and permittee-owned parking lots in accordance with permit conditions	Medfield Department of Public Works.	Sweep all streets and permittee-owned parking lots once per year in the spring	FY'19
Street sweeping program	Establish and implement a program to minimize the use of road salt	Medfield Department of Public Works.	Implement salt use optimization during deicing season	FY'19
Road salt use optimization program				

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

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

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

Applicable TMDL	Action Description (enter your own text to override the drop down menu)	Responsible Department/Parties
Upper/Middle Charles River (Phosphorus)	Adhere to requirements in part A.I of Appendix F	DPW Operations
Charles River Watershed (Bacteria/Pathogen)	Adhere to requirements in part A.III of Appendix F	DPW Operations
Neponset River (Bacteria/Pathogen)	Adhere to requirements in part A.III of Appendix F	DPW Operations
Neponset River Addendum (Bacteria/Pathogen)	Adhere to requirements in part A.III of Appendix F	DPW Operations

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

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, enter your own text to override dropdown menus.

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.1 and 2.2.2 that you have identified as not applicable to your MS4 because you do not discharge to the impaired water body or a tributary to an impaired water body due to nitrogen or phosphorus. Provide all supporting documentation below or attach additional documents if necessary. Also, provide any additional information about your MS4 program below.

- 1) Where a "beginning year" is requested, we have listed the applicable fiscal year. Fiscal years run from July 1 to June 30 and correspond to permit years (i.e. permit year 1 is FY'19)
- 2) Part II Summary of Receiving Waters: A number of waterways into which we discharge do not have a defined MassDEP waterbody segment as indicated in the MassGIS datalayer. In these cases, outfalls have been attributed to the first segment downstream.
- 3) BMPs identified in the 2003 General Permit NOI have been modified or replaced over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the proposed 2018 General Permit BMPs that will be included in the updated Stormwater Management Plan. The plan will describe how the BMPs under the 2003 permit fit into the new program, particularly where BMPs and/or measurable goals that are outdated or no longer appropriate have been replaced or updated.
- 4) The National Endangered Species Eligibility Determination screening process has been completed and the Town of Medfield meets Criterion C. The Town's stormwater discharges and discharge related activities will have no affect on listed species or critical habitat. The Town will continue to consult with U.S. Fish and Wildlife as needed during the permit term.
- 5) The National Historic Preservation Act Eligibility Determination screening process has been completed and the Town of Medfield meets Criterion A. The Town's stormwater discharges and discharge related activities will have no affect on historic properties. The Town will continue to consult with the Massachusetts Historic Preservation Officer as needed during the permit term.
- 6) Detailed explanations of the above notes will be included in Medfield's updated Stormwater Management Plan.

Part V: Certification

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

Name: **MICHAEL SULLIVAN**Title: **MEDFIELD TOWN ADMINISTRATOR**Signature: Date: **9-18-18***[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]*

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

NOI Submission

Please submit the form electronically via email using the "Submit by Email" button below or send in a CD with your completed NOI. You may also print and submit via mail using the address below if you choose not to submit electronically. The outfall map required in Part I of the NOI (if applicable) can be submitted electronically as an email attachment OR as a paper copy.

Permittees that choose to submit their NOI electronically by email or by mailing a CD with the completed NOI form to EPA, will be able to download a partially filled Year 1 Annual Report at a later date from EPA.

Submit by email using this button. Or, send an email with attachments to: stormwater.reports@epa.gov

Save NOI for your records

EPA Submittal Address:

United States Environmental Protection Agency
5 Post Office Square - Suite 100
Mail Code - OEP06-1
Boston, Massachusetts 02109-3912
ATTN: Newton Tedder

State Submittal Address:

Massachusetts Department of Environmental Protection
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**APPENDIX B – ILLICIT DISCHARGE DETECTION
AND ELIMINATION PLAN**

APPENDIX C – STANDARD OPERATING PROCEDURES

Town of Medfield, MA

Department of Public Works

NPDES Phase II Permit MAR041131

Standard Operating Procedures
(SOP)

**for the
Medfield Drainage System Area
(MDSA)**

Effective Dates:

July 1, 2019 through September 30, 2023

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RESOURCE NEEDS

DEFINITIONS:

Catch basins are subsurface concrete structures that receive water through a grate, curb opening, or inlet pipe. These structures can contain flow control and/or water quality devices. The catch basin's function is to collect and convey flow and in low flow conditions, collect debris and sediment to prevent these items from transferring into and obstructing the downstream piped collection system.

PERMIT REFERENCES:

Street Maintenance performs annual inspection and cleaning of catch basins and inlet control measures to meet permit requirements (2.3.5 & 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

A detailed inspection is completed for each inlet/catch basin and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. The mapping, inspection and maintenance of stormwater inlets/catch basins require accurate and specific record keeping. This task is completed by using MEDFIELD's computerized Geographic Information System (GIS) to inventory all drainage structure locations, track maintenance costs, maintenance histories, and condition assessments. The computerized GIS stores and manages this data providing annual reports as well as formulates work order set-up and preventative maintenance (PM) schedules. During the summer season Street Maintenance prepares grid maps identifying all the catch basin/inlet structures within the grids and assigns necessary personnel to inspect the subject structures within the grids. Each structure is visually inspected for sediment accumulation and signs of cracks, breaks, displacement, infiltration, or deterioration. The data collected during the inspection effort is then uploaded into the computerized GIS and a work order is created listing the inlet/catch basins that require maintenance. Crews are assigned and begin by inspecting and preparing the vehicle fleet and equipment, including vactor trucks, to perform maintenance duties. If sediment accumulation reaches a certain level (see maintenance criteria below), vactor trucks remove the sediment and clean the catch basins. If repairs are required, the location and condition is recorded. The Supervisor collects reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. Structures requiring repairs or rebuilding are inventoried and prioritized over the winter season and assigned for repair or additional work when weather permits. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the daily field crew.

INSPECTION CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. If sediment depth is within 1" of the lowest pipe invert elevation then maintenance is required.
3. The structure is inspected from the surface to the fullest extent possible (catch basins are not designed for entry, **ENTRY IS NOT PERMITTED**) for structural integrity and/or damage for the following items:
 - Inlet condition is flowing and free from any blockages
 - Evidence of infiltration including drips or water flowing into structure at joints and/or grouting and evidence of discoloration above the sump indicating former water intrusion.
 - Evidence of cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout.

MAINTENANCE CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. Catch basins are confined spaces containing potentially hazardous atmospheres. All maintenance personnel will be trained and properly equipped to work in hazardous confined spaces before entering any type of catch basin structure.
3. Remove sediment using vactor truck. Dispose of sediment from the vactor truck at the sedimentation basin at the Medfield Highway Garage. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance computerized asset management system for prioritization and scheduling.
4. If repairs and/or maintenance are required or suspected, record the condition and transfer to the Street Maintenance computerized asset management system for prioritization and scheduling.

Inlets and Catch Basins

<ul style="list-style-type: none"><input type="checkbox"/> Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement.<input type="checkbox"/> Evidence of abrasion and/or corrosion and deterioration of pipes.<input type="checkbox"/> Evidence of any other unusual condition that may impede or impair the function of the structure. <p>4. If the structure cannot be inspected the inspection record will indicate one or more of the following;</p> <ul style="list-style-type: none">• Could not locate.• Defective or non-compliant construction.• Obstructed access.• Grate or cover could not be removed.• Unsafe conditions.• Structure has been declared a hazard to life and limb and may not be disturbed for any reason.• Unit not properly raised to grade preventing maintenance access	<p>management system for prioritization and scheduling.</p> <ul style="list-style-type: none">i. Remove inlet blockageii. Record and/or photograph infiltration condition for Street Maintenance asset management system.iii. Record and/or photograph cracks and deterioration for Street Maintenance asset management system.iv. Record and/or photograph structural integrity for Street Maintenance asset management system.v. Record and/or photograph corrosion or abrasion for Street Maintenance asset management system.vi. Record and/or photograph any other condition that may impede or impair the function of the structure for Street Maintenance asset management system.
<p>INSPECTION SCHEDULE:</p> <p>Routine inspection is completed on an annual basis for each catch basin and inlet.</p>	<p>MAINTENANCE SCHEDULE:</p> <p>Maintenance will be scheduled and performed based on the outcome of the annual inspection effort... Maintenance requirements are logged after inspection, noted, and prioritized in the Street Maintenance computerized asset management database. Maintenance activities are completed as warranted by the priority assigned.</p>
POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES	
<p>Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.</p> <p>Keep training records that include attendees, date, and description of training.</p> <p>Check all vehicles, including vector trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:</p> <ul style="list-style-type: none"><input type="checkbox"/> Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.<input type="checkbox"/> Clean up all drips and leaks immediately<input type="checkbox"/> Empty fuel and oil filters where drips cannot reach stormwater<input type="checkbox"/> Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains	

Inlets and Catch Basins

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.

Transfer sediment and debris collected in the vactor truck to the vactor wash-out/sediment basin located at the Medfield Highway Garage. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

RESOURCE NEEDS

DEFINITIONS:

Manholes allow surface access to underground storm water piping conveyances for inspection and maintenance operations. Pipes within the storm water system convey storm water flow to receiving bodies of water. Weirs installed within manholes provide flow control.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

The inspection and maintenance of manholes, weirs, and pipes require accurate and specific record keeping. This task is completed by using MEDFIELD's GIS enhanced computerized GIS to inventory all drainage structure locations, track maintenance costs, maintenance histories, and condition assessments. The computerized GIS stores and manages this data providing annual reports as well as formulates work order set-up and preventative maintenance (PM) schedules. During the summer season Street Maintenance prepares grid maps identifying all the manholes, weirs, and pipes within the grids and assigns necessary personnel to inspect the subject structures within the grids. Each structure is visually inspected for sediment accumulation and signs of cracks, breaks, displacement, infiltration, or deterioration. Inspections include weirs and/or adjacent pipe within the manhole. The data collected during the inspection effort is then uploaded into the computerized GIS and a work order is created listing the manholes, weirs, and pipes that require maintenance. Crews are assigned and begin by inspecting and preparing the vehicle fleet and equipment, including vactor trucks, to perform maintenance duties. If sediment accumulation reaches a certain level (see maintenance criteria below), vactor trucks remove the sediment and clean the manholes, weirs, and pipes. If repairs are required, the location and condition is recorded. The Supervisor collects the reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. Manholes, weirs, and pipes requiring repairs or rebuilding are inventoried and prioritized over the winter season and assigned for repair or additional work when weather permits. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the day crew

INSPECTION CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. Storm drain manholes, weirs, and pipes are confined spaces containing potentially hazardous atmospheres. All inspection and maintenance personnel will be trained and properly equipped to work in hazardous confined spaces before entering manhole structures.
3. If the depth of sediment accumulation in the manhole catchment is within 6" of the lowest invert then maintenance is required.
4. The structure is checked for structural integrity and/or damage for the following items:
 - Evidence of infiltration including drips or water flowing into structure at joints and/or grouting, and evidence of discoloration above the sump indicating former water intrusion.
 - Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural

MAINTENANCE CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures
2. Storm drain manholes, weirs, and pipes are confined spaces containing potentially hazardous atmospheres. All inspection and maintenance personnel will be trained and properly equipped to work in hazardous confined spaces before entering manhole structures.
3. Remove sediment using vactor truck. Dispose of sediment from the vactor truck at the sedimentation basin at the Medfield Highway Garage.
4. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance computerized asset management system for prioritization and scheduling.
 - i. Record and/or photograph infiltration condition for Street Maintenance asset management system
 - ii. Record and/or photograph cracks and deterioration for Street Maintenance asset management system.

Manhole Inspection of Pipes and Weirs

<p>matting, discontinuous sections in the grout.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement. <input type="checkbox"/> Signs of abrasion and/or corrosion and deterioration of pipes <input type="checkbox"/> Evidence of any other unusual condition that may impede or impair the function of the structure(s). <p>5. Measure the depth of sediment accumulation in the upstream and downstream pipes. If the sediment level in pipes is more than 25% of the pipe diameter, schedule the pipes to be jetted and cleaned. Please see Pipe Jetting/Cleaning SOP for detail.</p> <p>6. If the structure cannot be inspected the inspection record will indicate one or more of the following;</p> <ul style="list-style-type: none"> • Could not locate. • Defective or non-compliant construction. • Obstructed access. • Grate or cover could not be removed. • Unsafe conditions. • Structure has been declared a hazard to life and limb and may not be disturbed or entered for any reason. 	<ul style="list-style-type: none"> iii. Record and/or photograph structural integrity for Street Maintenance asset management system. iv. Record and/or photograph corrosion or abrasion for Street Maintenance asset management system. v. vi. Record and/or photograph any other condition that may impede or impair the function of the structure for Street Maintenance asset management system.
<p>INSPECTION SCHEDULE:</p> <p>Manholes and associated weirs and pipes are inspected on a three year rotation.</p>	<p>MAINTENANCE SCHEDULE:</p> <p>Maintenance is performed as identified during inspections or as predicated by the preventative maintenance schedule in the asset management system. .</p>
<p>POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES</p>	
<p>Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.</p> <p>Keep training records that include attendees, date, and description of training.</p> <p>Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full. <input type="checkbox"/> Clean up all drips and leaks immediately <input type="checkbox"/> Empty fuel and oil filters where drips cannot reach stormwater <input type="checkbox"/> Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains <p>Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.</p> <p>Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage. Transfer sediment and debris collected in the vactor truck to the vactor wash-out/sediment basin located at the Medfield Highway Garage. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.</p>	

RESOURCE NEEDS

DEFINITIONS:

Pipe jetting and cleaning is the process of threading a high pressure water nozzle through a pipe to break up and remove debris and sediment from the pipe. Sediment and debris are collected and removed through an access point using a vactor truck.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

Stormwater pipes are inspected during routine manhole inspections in compliance with the SOP for Manholes/Pipe Inspection/Weirs. If a significant blockage is observed or if sediment and debris levels exceed those established in the SOP for Manholes/Pipe Inspection/Weirs, the condition is recorded in the Street Maintenance computerized asset management system and a work order is created. When work orders for pipe jetting and cleaning are assigned, crews inspect and prepare the equipment fleet, including vactor trucks and water pumps as needed. At the site the pipes are cleaned or blockages removed by use of a properly sized jetting nozzle attached to a high pressure water pump. The high pressure nozzle transfers energy from the pressure of the nozzle to velocity, pulling the hose behind it. A hydraulic reel controls the pressure and distance the nozzle travels through the pipe, cleaning and removing debris. A downstream bladder collects water, sediment, and debris to ensure that sediment plumes are not released into the receiving waters. . The Supervisor collects the reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. . If the field notes indicate repairs need immediate attention, the Street Maintenance Supervisor assigns this repair via work order to daily field crews.

Pipe Jetting and Cleaning

INSPECTION CRITERIA: <p>1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.</p> <p>2. Storm drain manholes and pipes are confined spaces containing potentially hazardous atmospheres. All inspection personnel will be trained and properly equipped to work in hazardous confined spaces before entering manhole or catch basin structures.</p> <p>3. The depth of sediment accumulation is noted in the field notes. If sediment depths are greater than 25% of the pipe diameter the pipe is cleaned by jetting.</p> <p>4. The structure is checked for structural integrity and/or damage for the following items:</p> <ul style="list-style-type: none">• Evidence of infiltration including drips or water flowing into structure at joints.• Cracks and deterioration of the structure.• Structural integrity is in good alignment, with no evidence of shifting, shearing, cracking, lifting, or movement.• Signs of abrasion and/or corrosion.• Evidence of any other unusual condition that may impede or impair the function of the structure(s). <p>5. If the structure(s) cannot be inspected the maintenance record will indicate one or more of the following;</p> <ul style="list-style-type: none">• Could not locate.• Defective or non-compliant construction.• Obstructed access.• Grate or cover could not be removed.• Unsafe conditions.• Structure has been declared a hazard to life and limb and may not be disturbed or entered for any reason.	MAINTENANCE CRITERIA: <p>1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures</p> <p>2. Storm drain manholes and pipes are confined spaces containing potentially hazardous atmospheres. All maintenance personnel will be trained and properly equipped to work in hazardous confined spaces before entering manhole or catch basin structures.</p> <p>3. Remove sediment using vactor truck. Place a downstream bladder to collect water and sediment to ensure sediment plumes are not released into receiving water. Dispose of sediment from the vactor truck at the sedimentation basin at the Medfield Highway Garage.</p> <p>4. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance asset management system for prioritization and scheduling.</p> <ul style="list-style-type: none">i. Record and/or photograph infiltration condition for Street Maintenance asset management systemii. Record and/or photograph cracks and deterioration for Street Maintenance asset management system.iii. Record and/or photograph structural integrity for Street Maintenance asset management system.iv. Record and/or photograph corrosion or abrasion for Street Maintenance asset management system.v. Record and/or photograph any other condition that may impede or impair the function of the structure for Street Maintenance asset management system.
INSPECTION SCHEDULE: <p>Pipes are inspected during routine manhole inspections (see SOP for Manholes/Pipe Inspection/Weirs).</p>	MAINTENANCE SCHEDULE: <p>Maintenance is performed as identified during inspections</p>
POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES	
Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.	

Pipe Jetting and Cleaning

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips cannot reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.

Transfer sediment and debris collected in the vactor truck to the vactor wash-out/sediment basin located at the Medfield Highway Garage. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

RESOURCE NEEDS**DEFINITIONS:**

Check dams are used to slow the velocity of concentrated stormwater to prevent erosion. In an unlined channel or vegetative swale. Check dams catch sediment from the channel and are typically constructed of rock but can also be constructed from gravel, sandbags, logs, or treated lumber.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

A detailed inspection is completed of each check dam and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. Check dams are visually inspected for sediment accumulation and signs of deterioration, or evidence of previous overtopping or flooding. The check dam condition is recorded in the Street Maintenance computerized asset management system and a work order is created where necessary. When work orders are assigned, crews inspect and prepare the equipment as needed. The Supervisor collects the reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. If the field inspection reveals that immediate repairs are necessary, the Street Maintenance Supervisor assigns this repair via work order to daily field crews.

INSPECTION CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. The depth of sediment accumulation at the check dam is noted in the field notes. If sediment depths are greater than 1/3 the height of the check dam maintenance is needed. The accumulation of sediment and evidence of previous flooding or channel overtopping is checked to ensure functionality of the check dam.
3. The condition of the check dam structure is inspected for the following:
 - Check for signs of structural deterioration including loss of rock structure, and/or crumbling.
 - Check for signs of scour on the downstream side of the check dam.
 - Evidence of any other unusual condition that may impede or impair the function of the check dam.

MAINTENANCE CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. If the sediment and debris level behind the check dam is greater than 1/3 the height of the dam, remove sediment to restore capacity. Dispose of sediment at the sedimentation basin at the Medfield Highway Garage. To keep it functioning properly, the sediment and/or debris is removed to restore functionality.
3. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance asset management system for prioritization and scheduling.
 - i. Record and/or photograph structural condition for Street Maintenance asset management system.
 - ii. Record and/or photograph scour condition for Street Maintenance asset management system.
 - iii. Record and/or photograph any other condition that may impede or impair the function of the check dam for Street Maintenance asset management system

Check Dams

INSPECTION SCHEDULE: Check dams are inspected during other routine work, as needed, or as evidence of improper functioning is noticed or reported.	MAINTENANCE SCHEDULE: Maintenance is performed as identified during inspections.
POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES	
<p>Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.</p> <p>Keep training records that include attendees, date, and description of training.</p> <p>Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:</p> <ul style="list-style-type: none"><input type="checkbox"/> Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.<input type="checkbox"/> Clean up all drips and leaks immediately<input type="checkbox"/> Empty fuel and oil filters where drips cannot reach stormwater<input type="checkbox"/> Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains <p>Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.</p> <p>Transfer sediment and debris collected in the vactor truck to the vactor wash-out/sediment basin located at the Medfield Highway Garage. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.</p> <p>If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:</p> <ul style="list-style-type: none"><input type="checkbox"/> Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal Storm Water Treatment Plan Review Guidance Manual (SWTPRGM).<input type="checkbox"/> If more than 500 square feet are disturbed, the project may require a Stormwater Pollution Prevention Plan (SWPPP). Follow the requirements set forth in the SWTPRGM.<input type="checkbox"/> Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch side slopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.	

RESOURCE NEEDS

DEFINITIONS:

Oil and grit separators (OGS) are structural Best Management Practice designed to remove hydrocarbons and sediment from runoff. Runoff passes through these compartments to separate grit, oil and sediment before continuing in the downstream conveyance system.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

A detailed inspection and maintenance regiment is simultaneously completed on each OGS structure. Sediment and debris removal, litter pick-up, and evacuating the collection chamber(s) is completed as part of this regiment. The inspection and maintenance of OGSs require accurate record keeping. This task is completed by using MEDFIELD's GIS enhanced computerized GIS to inventory all drainage structure locations, track maintenance costs, maintenance histories, and condition assessments. During the summer season Street Maintenance prepares grid maps identifying all the OGS structures within the grids and assigns necessary personnel and equipment to inspect and provide maintenance on the subject structures within the grids. Crews begin by inspecting and preparing the vehicle fleet and equipment, including vactor trucks, to perform maintenance duties. Prior to performing maintenance the OGS is inspected for signs of cracks, breaks, displacement, infiltration, or deterioration. If repairs are required, the location and condition is recorded for upload into the computerized asset management system to schedule repairs. Vactor trucks are used to remove the sediment and clean the OGSs. The Supervisor collects reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. Structures requiring repairs or rebuilding are inventoried and prioritized over the winter season and assigned for repair or additional work when weather permits. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the daily field crew.

<p>INSPECTION CRITERIA:</p> <ol style="list-style-type: none"> Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures. OGS structures are confined spaces containing potentially hazardous atmospheres. All personnel will be trained and properly equipped to work in hazardous confined spaces. The depth of sediment accumulation is noted in the field notes. The structural components of the OGSs are checked to ensure proper flow conveyance. <ul style="list-style-type: none"> <input type="checkbox"/> Evidence of infiltration including drips or water flowing into structure at joints and/or grouting, and evidence of discoloration above the sump indicating former water intrusion. <input type="checkbox"/> Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout. <input type="checkbox"/> Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement. <input type="checkbox"/> Signs of abrasion and/or corrosion are inspected <input type="checkbox"/> Accessibility issues If the OGS cannot be inspected or maintained the record will indicate one or more of the following: <ul style="list-style-type: none"> <input type="checkbox"/> Could not locate. <input type="checkbox"/> Defective or non-compliant construction. <input type="checkbox"/> Obstructed access to structure. <input type="checkbox"/> Grate or cover could not be removed. <input type="checkbox"/> Unsafe conditions. <input type="checkbox"/> Structure has been declared a hazard to life and limb and may not be disturbed or entered for any reason. <input type="checkbox"/> Unit not properly raised to grade preventing maintenance access. <input type="checkbox"/> Maintenance access points not properly aligned on the OGS. 	<p>MAINTENANCE CRITERIA:</p> <ol style="list-style-type: none"> Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures. OGS structures are confined spaces containing potentially hazardous atmospheres. All personnel will be trained and properly equipped to work in hazardous confined. All Sediment and debris in the OGS are removed via vactor truck. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance asset management system for prioritization and scheduling. <ol style="list-style-type: none"> Record and/or photograph infiltration condition for Street Maintenance asset management system Record and/or photograph cracks and deterioration for Street Maintenance asset management system. Record and/or photograph structural integrity for Street Maintenance asset management system. Record and/or photograph corrosion or abrasion for Street Maintenance asset management system. Record and/or photograph accessibility issues for the Street Maintenance asset management system Record and/or photograph any other condition that may impede or impair the function of the OGS for Street Maintenance asset management system
<p>INSPECTION SCHEDULE: Each OGS is inspected annually.</p>	<p>MAINTENANCE SCHEDULE: Sediment and debris are removed on an annual basis. Other maintenance needs are performed as identified during inspection.</p>

Oil and Grit Separators

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips cannot reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.

Collect liquid and floatable contaminants in the vactor truck and decant to the sanitary sewer system at Medfield Water and Wastewater Utility (AWWU) receiving stations. AWWU has permitted this discharge to the sanitary sewer system. Solids that remain are delivered to the Medfield Highway Garage. Permitting discussions are on-going to potentially use a field filtration unit and field decanting to the sanitary sewer.

RESOURCE NEEDS

DEFINITIONS:

Outfalls are the discharge points where storm water enters the receiving body of water at the end of a storm water conveyance system.

PERMIT REFERENCES:

Street Maintenance performs inspection and cleaning of outfalls to meet permits requirements (2.3.5 and 2.3.7.a.iii)

ACTIVITY DESCRIPTION:

A detailed inspection is completed of each outfall and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. Outfall inspection is performed between June 1st and August 30th as part of the dry weather screening program. The inspection and maintenance of outfalls requires accurate record keeping. This task is completed by using MEDFIELD's GIS enhanced computerized GIS to inventory all drainage structure locations, track maintenance costs, maintenance histories, and condition assessments. During the summer season Street Maintenance prepares grid maps identifying all the outfall structures within the grids and assigns maintenance crews to inspect the structures within the grids. Crews inspect and prepare the equipment fleet needed to perform the inspection of the assigned structures. Each outfall is visually inspected for functionality, erosion or deterioration at the discharge location, and illicit discharges. The site is also photographed to document conditions during the inspection. The Supervisor collects reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. Outfalls requiring repairs or rebuilding are inventoried and prioritized over the winter season and assigned for repair or additional work when weather permits. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the daily field crew.

INSPECTION CRITERIA: <p>1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.</p> <p>2. Check for litter, rubbish, and debris around the outfall area.</p> <p>3. The structural components of the outfalls are inspected to ensure flow conveyance and functionality. The outfall site is inspected for signs of:</p> <ul style="list-style-type: none"><input type="checkbox"/> Sediment accumulation and localized erosion.<input type="checkbox"/> Exposed soil material with no vegetative cover. <p>4. Evidence of illicit discharges should be checked during dry weather conditions and may include the following items:</p> <ul style="list-style-type: none"><input type="checkbox"/> Odor<input type="checkbox"/> Color<input type="checkbox"/> Clarity<input type="checkbox"/> Floatables<input type="checkbox"/> Deposits/stains<input type="checkbox"/> Vegetation condition<input type="checkbox"/> Structural condition<input type="checkbox"/> Biology <p>5. If the Outfall cannot be inspected or maintained the record will indicate one or more of the following;</p> <ul style="list-style-type: none"><input type="checkbox"/> Could not locate.<input type="checkbox"/> Defective or non-compliant construction.<input type="checkbox"/> Obstructed or no access to outfall.<input type="checkbox"/> Unsafe conditions.	MAINTENANCE CRITERIA: <p>1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.</p> <p>2. Remove litter, rubbish, accumulated sediment, and debris in and around the outfall.</p> <p>3. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance asset management system for prioritization and scheduling.</p> <p>4. Repair rock or rip rap used for energy dissipation at outfall. Vegetate to re-establish cover.</p>
INSPECTION SCHEDULE: <p>Each outfall is inspected annually.</p>	MAINTENANCE SCHEDULE: <p>Maintenance is performed as identified during inspections.</p>
POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES	
<p>Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:</p> <ul style="list-style-type: none"><input type="checkbox"/> Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.<input type="checkbox"/> Clean up all drips and leaks immediately<input type="checkbox"/> Empty fuel and oil filters where drips cannot reach stormwater<input type="checkbox"/> Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains <p>Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.</p>	

Outfalls

Obtain appropriate local, state and federal permits, as applicable or necessary for the associated receiving water.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal Storm Water Treatment Plan Review Guidance Manual.
- If more than 500 square feet are disturbed, the project may require a SWPPP. Follow the requirements set forth in the SWTPRGM.
- Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sideslopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

RESOURCE NEEDS

DEFINITIONS:

Drywells are facilities that collect and infiltrate storm water runoff into the ground.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

A detailed inspection is completed for each inlet/catch basin and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. The mapping, inspection and maintenance of stormwater drywells requires accurate and specific record keeping. This task is completed by using MEDFIELD's GIS enhanced computerized GIS to inventory all drainage structure locations, track maintenance costs, maintenance histories, and condition assessments. The computerized GIS stores and manages this data providing annual reports as well as formulates work order set-up and preventative maintenance (PM) schedules. During the summer season Street Maintenance prepares grid maps identifying all the drywell structures within the grids and assigns necessary personnel to inspect the subject structures within the grids. Each structure is visually inspected for sediment accumulation and signs of cracks, breaks, displacement, infiltration, or deterioration. The data collected during the inspection effort is then uploaded into the computerized GIS and a work order is created listing the drywells that require maintenance. Crews are assigned and begin by inspecting and preparing the vehicle fleet and equipment, including vactor trucks, to perform maintenance duties. If sediment accumulation reaches a certain level (see maintenance criteria below), vactor trucks remove the sediment and clean the drywells. If repairs are required, the location and condition is recorded. The Supervisor collects reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. Structures requiring repairs or rebuilding are inventoried and prioritized over the winter season and assigned for repair or additional work when weather permits. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the daily field crew.

INSPECTION CRITERIA:	MAINTENANCE CRITERIA:
<p>1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.</p> <p>2. Drywells are confined spaces containing potentially hazardous atmospheres. All personnel will be trained and properly equipped to work in hazardous confined spaces.</p> <p>5. If sediment depths are greater than 2" or if evidence of failed infiltration capacity is observed then maintenance is required.</p> <p>6. The structure is inspected from the surface to the fullest extent possible for structural integrity and/or damage for the following items:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inlet condition is flowing and free from any blockages <input type="checkbox"/> Evidence of infiltration including drips or water flowing into structure at joints and/or grouting and evidence of discoloration above the sump indicating former water intrusion. <input type="checkbox"/> Evidence of cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout. <input type="checkbox"/> Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement. <input type="checkbox"/> Evidence of abrasion and/or corrosion and deterioration of pipes. <input type="checkbox"/> Evidence of overflowing occurring, including erosion or formation of a channel. <input type="checkbox"/> Ponding or other evidence of failed infiltration. <input type="checkbox"/> Evidence of any other unusual condition that may impede or impair the function of the structure. <p>7. If the structure cannot be inspected the inspection record will indicate one or more of the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Could not locate. <input type="checkbox"/> Defective or non-compliant construction. <input type="checkbox"/> Obstructed access. <input type="checkbox"/> Grate or cover could not be removed. <input type="checkbox"/> Unsafe conditions. <input type="checkbox"/> Structure has been declared a hazard to life and limb and may not be disturbed for any reason. <input type="checkbox"/> Unit not properly raised to grade preventing maintenance access 	<p>1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.</p> <p>2. Drywells are confined spaces containing potentially hazardous atmospheres. All personnel will be trained and properly equipped to work in hazardous confined spaces.</p> <p>3. Remove sediment using vactor truck. Dispose of sediment from the vactor truck at the sedimentation basin at the Medfield Highway Garage.</p> <p>4. If repairs and/or maintenance are required, record the condition and transfer to the Street Maintenance asset management system for prioritization and scheduling.</p> <ul style="list-style-type: none"> i. Record and/or photograph erosion condition for Street Maintenance asset management system ii. Record and/or photograph ponding for Street Maintenance asset management system. iii. Record and/or photograph structural integrity for Street Maintenance asset management system.

Drywells

INSPECTION SCHEDULE: Drywell inspection is performed on an annual basis.	MAINTENANCE SCHEDULE: Drywell maintenance is performed as identified through inspections.
POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES	
Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.	
Keep training records that include attendees, date, and description of training.	
Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:	
<ul style="list-style-type: none"><input type="checkbox"/> Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.<input type="checkbox"/> Clean up all drips and leaks immediately<input type="checkbox"/> Empty fuel and oil filters where drips cannot reach stormwater<input type="checkbox"/> Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains	
Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.	
Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.	
Transfer sediment and debris collected in the vactor truck to the vactor wash-out/sediment basin located at the Medfield Highway Garage. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.	

Vegetated Swales

RESOURCE NEEDS

DEFINITIONS:

Vegetated swales are gently sloping depressions planted with vegetation that allow stormwater runoff to be treated before entering the flow conveyance system. The vegetation slows the runoff flow, allowing the water to be filtered and, in some cases, infiltrated into the ground.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

Vegetated swales are periodically inspected, and maintained, when improper functioning becomes evident. Crews inspect and prepare the equipment fleet needed to perform the inspection. The swale is visually inspected for sediment accumulation, vegetation that inhibits drainage conveyance, signs of erosion, channeling, or signs of flooding. If repairs are required, the location and condition is recorded. The Supervisor collects reports describing the outcome of the assigned maintenance activities and enters this data into the computerized GIS. Structures requiring repairs or rebuilding are inventoried and prioritized over the winter season and assigned for repair or additional work when weather permits. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the daily field crew.

INSPECTION CRITERIA:

1. Look for trash, debris, or large objects that could obstruct water flow.
2. Look for vegetation impeding drainage, laying over, or matted down,
3. Inspect for signs of channeling, erosion, and previous flooding to assess the functionality of the swale.
4. If damage to private property is evident, schedule emergency repairs.

MAINTENANCE CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. Remove trash or debris from swale. Dispose of at the Medfield Highway Garage.
3. Remove sediment and debris in and around the swale if drainage is blocked.
4. Conduct mulch-mowing (see Mowing SOP). Set mulching blade to 3 to 6-inches for mowing operations.
5. If signs of channeling, erosion, or flooding are present indicating sediment transfer through the swale, record and transfer to the Street Maintenance asset management system for prioritization and scheduling for repairs.
 - i. Record and/or photograph condition for Street Maintenance asset management system
 - ii. Consider adding energy dissipation rock, check dams, or stabilizing vegetation to minimize sediment transfer and slow water velocity within the swale

INSPECTION SCHEDULE:

Vegetative swales are inspected during other routine work, as needed, or if improper functioning is noticed or reported.

MAINTENANCE SCHEDULE:

Maintenance is performed based on inspection results.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips cannot reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.

Pick up and dispose of clippings, leaves, sticks, branches, mulching, or other collected vegetation from all impermeable surfaces (driveways, sidewalks, trails, roadsides, etc.) that could runoff into storm drain collection systems.

Do not dispose of vegetation into waterways or storm drainage systems.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal SWTPRGM.
- If more than 500 square feet are disturbed, the project may require a SWPPP. Follow the requirements set forth in the SWTPRGM.
- Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sideslopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

RESOURCE NEEDS**DEFINITIONS:**

Infiltration devices and constructed wetlands are areas designed to treat stormwater runoff and reduce the amount of water entering a receiving water body.

PERMIT REFERENCES:

This SOP was prepared according to the permit requirements (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

Infiltration devices and constructed wetlands are periodically inspected and maintained as needed basis, when improper functioning is observed. Crews inspect and prepare the equipment fleet needed to perform the inspection. Upon arriving at the site crews visually inspect for sediment accumulation, vegetation overgrowth that inhibits drainage, conveyance, and signs of erosion. If repairs are required, the location and condition is recorded. The Supervisor collects reports describing the outcome of the assigned inspection activities and enters this data into the computerized GIS. Structures requiring repairs or rebuilding are inventoried and prioritized and a work order is created and repair crews are assigned. If damage to private property, the right-of-way, or roadway is evident and a hazard, emergency repairs are assigned to the daily field crew.

INSPECTION CRITERIA:

1. Look for sediment accumulation, trash, debris, or large objects that could obstruct water flow.
2. Look for vegetation impeding drainage, laying over, or matted down,
3. Inspect for signs of channeling, erosion, and previous flooding to assess the functionality of the wetland.
4. If damage to private property is evident, schedule emergency repairs.

MAINTENANCE CRITERIA:

1. Provide appropriate traffic control where necessary and all other required safety equipment. Insure personnel are properly trained on the use of equipment and safety procedures.
2. Remove sediment and debris if drainage is blocked. Remove trash or litter and dispose of at the Medfield Highway Garage.
3. Remove vegetative overgrowth by hand (when practical) to reduce damage to wetland feature.
4. If signs of channeling, erosion, or flooding are present indicating sediment transfer through the wetland, record and transfer to the Street Maintenance asset management system for prioritization and scheduling for repairs.
 - i. Record and/or photograph condition for Street Maintenance asset management system

INSPECTION SCHEDULE:

Inspection is performed on an as needed basis, as evidence of improper functioning is noticed or reported.

MAINTENANCE SCHEDULE:

Maintenance is performed based on inspection results.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Infiltration Devices and Constructed Wetlands

Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips cannot reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the Medfield Highway Garage.

Do not dispose of vegetation into waterways or storm drainage systems.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal SWTPRGM.
- If more than 500 square feet are disturbed, the project may require a SWPPP. Follow the requirements set forth in the SWTPRGM.
- Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sideslopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

Contaminated Materials

RESOURCE NEEDS
<p>PERMIT REFERENCE: Street Maintenance has written this standard operating procedure to meet the permit requirement of section (2.3.5 and 2.3.7.a.iii).</p> <p>ACTIVITY DESCRIPTION: Release of contaminated materials or spills within the MDSA are responded to by the Medfield Fire Department. Any contaminated materials found in the Medfield Highway Garage are reported immediately to the Street Maintenance Supervisor. Response will be handled in accordance with the agency's hazardous materials operating policy.</p>

INSPECTION CRITERIA: Inspection of contaminated material is performed by appropriate personnel with proper training.	MAINTENANCE CRITERIA: Maintenance is performed in accordance with the agency's hazardous materials operating policy.
INSPECTION SCHEDULE: Inspection is performed on an as needed or reported basis.	MAINTENANCE SCHEDULE: Maintenance is performed as needed.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Prepare spill plans for all areas where chemicals are stored (including fuels).
Keep chemicals stored in doors within secondary containment.
Clean up small spills or drips immediately.
Provide and post notification procedures with contact information and phone numbers.
Train all personnel on response procedures. Keep training record

Sedimentation Basin Maintenance

RESOURCE NEEDS

DEFINITIONS:

A settling basin is a device used to treat for settleable solids. Water from the storm drain system enters the basin. The basin design slows the water velocity, allowing particles in the water to settle from solution by gravity.

PERMIT REFERENCE:

Street Maintenance has prepared this standard operating procedure to meet the permit requirement of section (2.3.5 and 2.3.7.a.iii).

ACTIVITY DESCRIPTION:

The sedimentation basin is inspected and cleaned to remove accumulation of debris and sediment so that design flows can be maintained and capacity is sufficient for treatment. The sedimentation basin is located at the Medfield Highway Garage facilities. Street Maintenance staff inspect the basin, remove trash collected on the trash screen, dredge settled material to maintain capacity, and remove any floatable hydrocarbons with booms.

INSPECTION CRITERIA:	MAINTENANCE CRITERIA:
<ol style="list-style-type: none">1. Basins are inspected for debris accumulation.2. Sediment accumulation levels are checked to maintain treatment capacity and flow conveyance.3. Surface water is inspected for any evidence of sheen or floating hydrocarbons.	<ol style="list-style-type: none">1. Trash is removed, transferred, and disposed of at the landfill.2. Sediment is dredged daily using a front-end loader. Sediment is transferred and recycled as grading material or disposed of at the landfill.3. Floating, sheen, and oils are removed from the basin by a boom and disposed of at the landfill.
INSPECTION SCHEDULE:	MAINTENANCE SCHEDULE:
Sedimentation basins are inspected on daily basis when runoff events cause flow through them.	Maintenance is performed as needed.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Keep training records that include attendees, date, and description of training.

Check all vehicles used for thawing are checked for operational condition, leaks, and deficiencies prior to leaving the Medfield Highway Garage. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips cannot reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains
- Pick up litter found during inspection and dispose of collected litter in solid waste containers.

RESOURCE NEEDS	
PERMIT REFERENCE: Street Maintenance has written this standard operating procedure to meet the permit requirement of section (2.3.5 and 2.3.7.a.iii). ACTIVITY DESCRIPTION: Litter is collected as part of good housekeeping procedures set forth for the inspection and maintenance activities performed by street maintenance personnel. Litter along the road system is also collected by volunteer groups and agencies. Litter is collected in trash bags and then set in the right-of-way. Bags are situated in the right-of-way away from drainage structures and flow paths. Appropriate personnel collect the trash bags and dispose of the bags in solid waste containers.	

INSPECTION CRITERIA: 1. Litter is monitored by Street Maintenance personnel who determine when maintenance activities are performed. 2. Volunteer groups choose areas within the service area to collect litter.	MAINTENANCE CRITERIA: 1. Where litter is found during routine inspections, personnel collect and dispose of it in trash bags. Trash bags are disposed of at the Medfield Highway Garage. 2. Volunteer groups collect litter along roadsides in trash bags. Bags of litter are set in the right-of-way, away from areas of drainage conveyance. The bags of litter are picked up and disposed of properly in solid waste containers.
INSPECTION SCHEDULE: Litter control is part of the good housekeeping procedures set forth in the inspection and maintenance activities performed by Street Maintenance personnel. Volunteer groups pick-up litter within the designated service area three times during the year.	MAINTENANCE SCHEDULE: Litter is collected when encountered during routine inspections and other street maintenance work activities. Volunteer groups schedule litter pick-up throughout the spring and summer season.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Pick up litter collected in trash bags in a timely manner.
Do not place trash bags within 10 feet of streams or stormwater inlets.

Medfield Department of Public Works

Winter Maintenance Plan & Policy

I. Purpose

The Medfield Department of Public Works hereby establishes this Winter Operations Plan and Policy to clearly state priorities for the clearing, maintenance, and repair of Town-owned roads by the Medfield Department of Public Works' 35-person winter road maintenance workforce to ensure the safe and efficient passage of vehicles and goods through the town during the period of time between November 1 and April 30 of each year.

The Town of Medfield has 77.6 miles of accepted road, 5 miles of private road, 2.6 miles of unaccepted road and 0.6 mile of State owned road. There are 85.9 miles of road in total, of which the Town is responsible for plowing 77.6 miles of accepted roads.

In most cases, there will be no winter maintenance between the hours of 8:00 p.m. and 4:00 a.m., with the exception of a major snowstorm or ice. This is at the discretion of the Highway Foreman.

II. Plowing

1. First priority for plowing will be to open the major traffic and school bus routes. This includes the following Town roads:

Plan A-(with all Tandems running)

Truck #4— Main Street Hartford Street, Nebo Street, Philip Street,

Truck # 15—Northmeadows, West Street, Pine Street

Truck #28—South Street, South Street Ext, Indian Hill Road

Truck #7— North Street, Farm Street, Harding Street

Truck # 6— Spring Street, High Street, Granite Street, Rocky Lane, Plain Street

Truck #3— Schools and Public Buildings

Plan B- (if only Partial Tandems running)

Truck # 7 North End of the Town

Truck # 28 South End of Town

Truck # 4 East End of Town

2. After those routes are cleared, the second priority for plowing will be the major routes at the discretion of the Highway Foreman.
3. The Town will enforce the No Parking restrictions, including places where plow trucks or school buses turn around during all winter weather events when the plows are on the roads.
4. The Town of Medfield Highway Department has only 12 full time employees to do winter maintenance on approximately 77.6 miles of Town Highways. Each employee has a specific route, which takes approximately 4 hours or less to complete. These routes may vary for emergency situations (e.g. fire, ambulance). These employees are on standby 7 days a week, 24 hours a day as necessary. Evenings and weekend decisions to mobilize are at the Highway Foreman's discretion.
5. The Town does not plow private roads, private driveways or State roads.

III. Use of Salt and Sand

1. The Town of Medfield does not have a black (bare) road policy. Travelers who use Town roads should exercise due care and reasonable caution during changing winter weather conditions.
2. Salt will be applied to most paved roads with a minimum amount of sand added as necessary. Salt is not effective when road temperatures are below 20 degrees.
3. Sand will be applied to the gravel roads. With the use of sand in winter maintenance material, some particles may be as large as ½-inch in size and may cause windshield damage. Travelers should use caution and avoid following other vehicles or Town trucks too closely. The Town will not pay for any vehicle repair, such as replacement of windshields.

IV. General Provisions

1. The Town of Medfield does not maintain Class 4 Roads. For the purpose of emergency vehicles Class 4 roads will have the snow winged back by the grader at such time as the Highway Foreman decides, as long as there are no limbs, stumps or rocks impeding the traveled roadway.

There must be an adequate turn around area for the grader.

2. Normal winter hours are 7 a.m. to 3:30 p.m., 5 days a week. Maintenance operations during winter storm events shall begin at approximately 4:00 a.m. and continue until routes are cleared. After 16 hours on the job, Road Department personnel are required to stop operations and take a minimum of six (6) hours of rest. Weekend hours may start later at the discretion of the Highway Foreman.

3. Under local bylaw, Streets Sidewalks and Public Places Section 240-15 "Prohibits Encroachments of the Towns Right-of-Way Without Approval," objects in the Towns right-of-way are placed at the owners' risk and the Town assumes no responsibility for any damage to objects placed in violation of the state statutes. Common items are trees, fences, flowers, stone walls etc. placed in the Town's Right-of-Way.
4. The Town cannot take responsibility for damage to mailboxes.
5. State law prohibits plowing, blowing, or shoveling of snow across or onto a Town or State highway. Violators may be subject to a fine or penalty and may also be liable for damage to property, vehicles, and any undue cost to the Town for removal of this snow. In addition, the actual cost for the specific equipment and manpower used to remove this snow may be charged to the private property owner, with a minimum charge of one hour per Road Department personnel and equipment.

DATED at Medfield, Massachusetts, this day of June 24, 2019.

MEDFIELD DEPARTMENT OF PUBLIC WORKS

55 North Meadows Rd
Medfield MA, 02052

Contacts

Maurice Goulet, Director of Public Works

Phone: ((508-906-3003)
E-mail: mgoulet@medfield.net

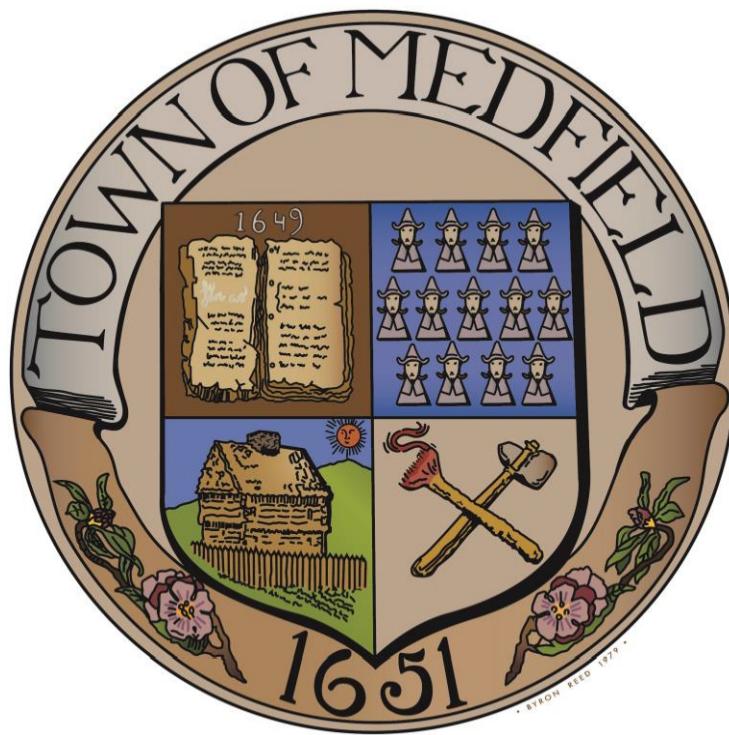
Robert Kennedy, Highway Superintendent

Phone: (508-906-3003)
E-mail: rkennedy@medfield.net

**APPENDIX D – MEDFIELD LAND USE PERMITTING GUIDEBOOK
AND STORMWATER REGULATIONS**

2017

TOWN OF MEDFIELD



Land Use Permitting Guidebook

The information contained in this guide, is not a substitute for the detailed information contained in the individual by-laws which should be consulted prior to the submission of any application for land development. In addition, this guide addresses local approvals and procedures only. Many land use developments also require state and federal permits. The appropriate agencies at these levels of government should also be consulted.

Purpose

In recognition of the need to protect the health, welfare, safety, environmental concerns, and aesthetics of our community, Medfield has adopted and implemented zoning bylaws, subdivision rules and regulations, site plan rules and regulations, public and environmental health rules and regulations, and various licensing regulations. The local rules and regulations are based on state laws that generally set parameters or minimums and then allow individual cities and towns the discretion to vary these to suit local conditions and objectives. One exception is the [Building Code](#), which is the same throughout the State, but local governments are required to administer and enforce it. Some of the boards, commissions and departments charged with adopting and/or enforcing these rules and regulations are the Planning Board, Conservation Commission, Board of Health, Building Department, Historical Commission, Historic District Commission, Department of Public Works, Board of Selectmen and Zoning Board of Appeals.

This handout is intended to generally identify the permits that the Town of Medfield uses to review and approve projects. It is an attempt to highlight the planning necessary, the permitting required and the options available to individuals and developers who wish to consider a project within the Town. Proper planning and coordination will increase the likelihood that your project and design will be accepted, and reduce the risk of having to make significant, expensive, and time-consuming changes. The goal and purpose of this handout is to familiarize you with the processes and permits required to build or develop property in the Medfield so that the timeline for project development can be understood and streamlined. It is not intended to replace the more specific rules and regulations that each board, commission or department is charged with promulgating and enforcing.



It is extremely important that you become familiar with the by-laws, rules and regulations, and methodologies pertinent to your building or development project at the outset. The best way to expedite project approval is to know the requirements and understand the process.

Introduction/Initial Contacts

In general, if your project involves a new building or addition on an existing lot, or a new or expanded commercial facility or a change of use, then the building department should be your first point of contact. If your project includes the subdivision of land, you should contact the Town Planner first. In most cases, one or more other boards, commissions or departments, including Board of Health, Conservation Commission, Board of Appeals, Historical Commission, and Board of Selectmen will also need to be involved. If you wish to research the rules and regulations on your own prior to beginning the permitting process, documents that you may find useful include the [Zoning Bylaws](#) and [Zoning Map](#), Planning Board [Subdivision Rules and Regulations](#), Board of Health [Regulations](#), the [Wetlands Protection Act](#) and [local regulations](#), and General [Town By-laws](#).

Some of the factors you will need to consider include the existing zoning (which regulates the allowed uses, locations of buildings and other matters); impacts on wetlands, aquifers, watersheds, floodplains or streams; water supply and waste disposal; parking and traffic impacts; stormwater drainage, signage, lighting and landscaping.

This handout offers a quick guide to the processes you need to follow and the boards, commissions or departments responsible for each. It is not meant to replace the official (and more detailed) documents.

If you are not sure if the work you are planning requires any kind of permit, it is better to check with the Building Commissioner first. The following list presents some, but not all, of the activities that require one or more permits or approvals from a town board, commission or department:

- *Additions/footprint changes*
- *Altering a business property*
- *Change of use*
- *Connections to Town water/sewer*
- *Decks*
- *Demolitions*
- *Garages/barns*
- *Impervious surface increases*
- *Livestock/animals*
- *New houses /new roofs*
- *New/replacement septic systems*
- *New/replacement signage*
- *New/replacement wells*
- *Porches*
- *Renovations (interior/exterior)*
- *Sheds and fences*
- *Structural changes*
- *Subdividing land*
- *Tennis courts/swimming pools*
- *Tents*
- *Wood stoves/fireplaces*

Pre-application discussions with town staff is strongly encouraged. Delays and costly design changes in your project can often be avoided by discussing it with the appropriate entities in advance of doing any work or applying for permits.

Gather Information

The Town of Medfield strongly encourages pre-application discussions for any and all projects. The amount of detail you need varies according to the nature of the project and the types of permits you need. You may consult with the appropriate boards, commissions or departments to determine the level of detail that is expected.

Statutorily, the Board of Appeals is not available for pre-application reviews but the Planning staff can assist you. At a minimum, your plans should show a rough layout and access to the lot as well as any likely wetlands, streams or flood plains that may be impacted. Obtaining and familiarizing yourself with the relevant rules and regulations from the pertinent boards, commissions or departments can significantly expedite the development process. At this point, it is not necessary to have a survey or engineered plans, but they will be required later in the process. You will receive guidance from staff on the type of information and the level of detail required for your project.

When you know the location and size of your building or development project and the uses contemplated, you should initiate contact with the Building Commissioner, Health Agent, Conservation Agent and the Town Planner. Any of these will be able to direct you appropriately to the Board of Health, Conservation Commission, Planning Board, Board of Appeals, Historical Commission, Selectmen, Licensing, Public Works, Police Department, or Fire Department as necessary. These Town agencies can advise you if your project seems feasible or what changes you should consider. They will also tell you which permits you are likely to need, roughly how long it will take to get them and whether public hearings will be required.

List of Contacts and Development-Related Town Permits

The following is a compilation of contacts and description of the various types of permits and approvals that are issued by the Town and the types of projects that they apply to. The list is meant to be illustrative only. You may need a ruling from the applicable board or commission to determine exactly which permits you need. The following contains specific bylaws, rules and regulations that apply to development projects in Medfield. Individual boards, commissions and departments may have additional materials that pertain to specific types of projects. We recommend calling before coming in to meet with the various departments as several are either staffed part-time or by one person.

To the extent feasible, you should try to determine which permits or process may be done concurrently and which must be done consecutively. For example, if you are planning an addition that requires a new septic system, you may need a wetlands &/or zoning determination for each.

Be sure to request that ALL ASPECTS of your project are included in any wetlands determination.

Changes in plans may require additional review.



Building Department, Town House, Ground Floor, (508) 906-3005

- Enforcement of the State building code is the responsibility of the local inspection department which consists of a Building Commissioner, and inspectors of wiring, plumbing, and gas. Permits are issued for all new construction and all renovation projects. Inspections are made throughout the construction renovation process.
- The Building Commissioner also enforces the zoning bylaws of the Town.
- Office Hours: Monday, Tuesday, and Wednesday: 8:30 am – 4:30 pm; Thursday 8:30 am – 7:30 pm; Friday 8:30 am – 1 pm

John Naff, CBO, Building Commissioner/Zoning Enforcement Officer

Scott Allison, Building Department Administration

Jack Rose, Plumbing and Gas Inspector

James Leonard, Electrical Inspector

Building Department	Building Permits	Any building or structure, additions, wood burning stoves, certain other facilities, demolition permits	Sheds may require permits. Fences under 6' do not require permits. Zoning setbacks and heights must be met.
	Plumbing, gas and electrical permits	Virtually all wiring, plumbing and gas jobs	Licensed electrician, plumber and gas fitter required for pulling permits.
	Enforcement of Zoning By-laws	General compliance with all aspects of the Zoning By-laws	Requires review prior to issuance of building permit. Pre-existing Non-Conformities/Grandfathering, Lighting, Signs, Parking, etc.

Board of Health, Town House Ground Floor, (508) 906-3006

- Board of Health (BoH) reviews plans concerning stormwater runoff, drainage and septic system design as it pertains to subdivisions, commercial properties and private homes. The Board also reviews upgrades and repairs of existing septic systems and installation of private wells. Issuance of Form A is for residents seeking Building Permits involving properties served by private septic systems. Permitting of Food Establishments, public pools, beaches, camps, keeping of animals; and beaver/muskrat trapping (emergency) permits.
- Office Hours: Monday through Friday 8:30am to 12:30 pm

[Nancy Bennotti](#), Administrative Assistant

Health Department/ Board of Health	Stormwater/Drainage Plan Review	Plan review application, and checklist submittal, with supporting documentation	Stormwater regulations available at BoH office. Review by consulting engineer and approval issued by Board of Health
	Septic Systems	New system installation; upgrade and/or repair to existing systems	Medfield Title 5 regulations are available on the Town website. Permit review and issue by Health Agent
	Soil/Percolation Test	Soil test application submittal with supporting documentation	Soil test application and excerpt of soil testing requirements available on town website . Permit review and issue by Health Agent
	Food Establishment & Temporary Food Permits	Operation of any food service or food retail business; including mobile food, and residential food kitchens; and temporary or seasonal events at which food will be served to the public. Plan/Spec review document and permit application submittal with supporting documentation.	Food Plan/Specification Review - document review by Health Agent. Depending on permit; issue by either Board of Health or Health Agent

Wells	Private well permit application submittal with supporting documentation	Private well regulations and permit application Available on Town website . Permit application review and issue by Health Agent.
Form A	BOH review of proposed addition/renovation to properties served by septic systems. Requirement of building permit application. Form A submittal with supporting documentation	Form A available at BOH office. Review and issue by Health Agent
Other Permits	Tobacco and Nicotine Delivery Products; septic hauler, septic installer, and offal; semi-public and public pools; beach, camp, animals, beaver/muskrat trapping (emergency) permits, and MA Rental Voucher Program (MRVP) inspections	Permit applications available at BOH office. Review and issue by either Health Agent or Board of Health, depending on permit.

Department of Public Works, (DPW) 55 North Meadows Road, (508) 906-3003

Maurice Goulet, Director of Public Works
 Ed Hinkley, Tree Warden
 Donna Cimeno, Public Works Department

Water and Sewer Department, Town House Ground Floor, (508) 906-3004

- Responsible for water and sewer connection permits.
- Driveway / road opening permits
- Stormwater permits for land disturbances of one acre or more
- Office Hours: Monday, Tuesday, Wednesday: 8:30 am – 4:30 pm; Thursday 8:30 am – 7:30 pm; Friday 8:30 am – 1 pm

Maureen Anderson, Water and Sewer Department



DPW	Various Permit	Curb cuts/driveway openings, Town water connections, Town sewer connections, hydrants	
	Stormwater Management	Review soil erosion, sedimentation, and stormwater runoff	Town Code Section 235
	Public Shade Tree Law	Trees within the boundaries of a public right of way	MGL Chapter 87

Planning & Zoning, Town House Second Floor, (508) 906-3027

- [Zoning Board of Appeals](#)
- [Planning Board](#)
- [Zoning Map / Use Regulations / Area & Setback Regulations / Height & Bulk Regulations](#)
- Town Planner helps administer and review projects before the Planning Board and ZBA.
- Office Hours: Monday, Tuesday, and Wednesday: 8:30 am – 4:30 pm; Thursday 8:30 am – 7:30 pm; Friday 8:30 am – 1 pm

[Sarah Raposa, AICP](#), Town Planner

Board of Appeals	Findings	Extension, change or alteration of a preexisting non-conforming use or structure.	MGL Ch 40A §6 and Medfield Zoning Bylaw Article 9 Dimensional Requirements: Area / Height & Bulk
	Special Permits	Certain uses as identified in the Medfield zoning bylaw	Chapter 300a , Table of Use Regulations Article 7 , Open Space Residential Zoning Article 8.4 , Downtown Parking District Article 10 , Flood Plain District Article 11 , Watershed Protection District
	Variances	Relief from zoning relative to dimensional requirements	Need to demonstrate a hardship directly related to soil, shape or topographical conditions (MGL Ch 40A §10)
Planning Board	Approval Not Required (ANR) Plan	To create a new lot where there is sufficient frontage on an existing way	Exemptions to the Subdivision Control Law (MGL Ch 41 §81P)
	Subdivision Plans: Preliminary/Definitive	Creating new lots by constructing a new road	A preliminary plan is required for commercial property and it is recommended for residential subdivisions (MGL Ch 41 §81L)
	Site Plan Approval	New or expanded commercial/industrial uses	This assures that parking, drainage, lighting, etc. are adequate. See Article 14.12 of the zoning by-law.
	Special Permit	Two-Family & Multi-Family Dwellings in the RU District	Article 14.15
	Special Permit	Large-scale, ground-mounted solar arrays	Article 19 , Photovoltaic Overlay District
	Scenic Roads	Protects significant features like trees and stone walls within the public road layout	Chapter 210, Scenic Roads : Causeway St, Foundry St, Hartford St, portion of North St, Orchard St, Philip St, portion of Pine St, School St, Wight St



Conservation Commission, Town House Second Floor, (508) 906-3028

- Enforces MA Wetlands Protection Act, [Chapter 131](#) and Medfield Wetlands Bylaw
- Office Hours: Tuesday, and Wednesday: 12:00 pm – 4:30 pm; Thursday 12 pm – 7:30 pm
- Always phone ahead as the agent may be doing field work

[Leslee Willitts](#), Conservation Agent

Conservation Commission	Determination of Applicability	To determine whether any wetlands on your property will be impacted by your project.	Chapter 290, Wetlands
	Abbreviated Notice of Resource Area Delineation	This establishes the extent of wetlands or other protected resources on your property.	This process allows the resources to be identified prior to the design of the project so that the project can be designed to minimize its impact on the resources
	Notice of Intent	Any project that disturbs land within 100 feet of wetlands, or 200 feet of a stream/river	An Order of Conditions is the approval document issued that states mitigating actions that must be done to minimize the impacts of the project.
	Request for Certificate of Compliance	Documentation that Order of Conditions was complied with	This is issued following an inspection after the project is complete



RECOMMENDED PERMITTING ORDER:

1. **Board of Health, DPW, and Conservation Commission**
2. **Concurrent Submittal to Planning Board and Zoning Board of Appeals (process: open with Planning Board Hearing so feedback can be provided to ZBA; obtain ZBA Decision; obtain Planning Board Decision)**
3. **Building Dept, Fire Dept.**

Selectmen's Office and Town Administration Town House Second Floor, (508) 906-3012

- Town Licensing Authority
- Earth Removal Permits
- Office Hours: Monday, Tuesday, and Wednesday: 8:30 am – 4:30 pm; Thursday 8:30 am – 7:30 pm; Friday 8:30 am – 1 pm

Michael Sullivan, Town Administrator

Kristine Trierweiler, Assistant Town Administrator

Evelyn Clarke, Administrative Assistant

Selectmen	Various Licenses	Liquor licenses, common victualler licenses, entertainment licenses	Licenses are issued by the Board of Selectmen
	Special Permit	Earth removal	Medfield Zoning Bylaw Article 12

Historic Preservation: Historical Commission / Historic District Commission

- Contacts may be obtained through the [Building Department](#)

Historical Commission	Reviews applications for demolition of structures over 50 years old	For demolition of historically significant structures / buildings	Town Bylaw 16 , Demolition (Historic & Archeological)
Historic District Commission	Reviews applications for demolition of structures in local Historic Districts	John Metcalf, Hospital Farm, Clark-Kingsbury and Town Center	MGL Ch. 40C

Sign Advisory Board

- Contacts may be obtained through the [Building Department](#)

Sign Advisory Board	Reviews applications for signage	For permanent and temporary sign; sign limitations on size and location	Zoning Bylaw Article 13 (adhere to required setbacks)
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Fire Department, 114 North Street, Medfield (508) 359-2323

- Reviews projects for various safety provisions

Robert Hollingshead, Interim Fire Chief

Fire Department	Permitting, Plan Review, Fire Prevention Inspections	Inspection & permitting of smoke/CO detectors, fuel storage, oil burners, open burning, hydrants	527 CMR Fire Prevention Regulations MGL Chapter 148 Fire Prevention
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Town Clerk, 459 Main Street, Medfield (508) 906-3024

- The Town Clerk is responsible for the maintenance of factual public records, the administration of fair and accurate elections, and the registration of Town voters.

[Carol Mayer](#), Town Clerk

Town Clerk	Various	Business licenses, filing of planning and zoning applications and decisions	Medfield <u>Town Charter</u> and <u>Town Code</u>
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What if I want to construct a new home, addition, or new business?

New construction and additions sometimes requires one or more permits, depending on the size, location, and proposed use of the structure. Your first step should be to consult the Building Commissioner. The Building Commissioner will discuss with you the property improvements you propose, and what the typical permit requirements are. The Building Commissioner will inform you of other regulations, like environmental regulations, wetlands, etc. that might apply to your site. He will also guide you to the Zoning Bylaw, which specifies minimum lot area, setbacks for front, rear, and side yards, lot coverages, and permitted uses in specific districts.

How do I know what laws apply to my project?

Call the Building Commissioner or Town Planner for help in determining the various laws and regulations that govern your project and your site.

What is Zoning?

All property in Medfield is classified into a zoning district. These districts are located on the official Zoning Map, which can be found in the Zoning Bylaw or on the free online interactive maps on the Town website. These districts define the uses that are allowed in that district by right or by special permit (see Attachment 1 of the Zoning Bylaw). Each district also has specific regulations for lot sizes and setbacks (see Attachment 2). Specific regulations for parking (see Section 8), various commercial uses allowable by special permit (see Section 14). There are also several "overlay" districts that stipulate additional development controls in some areas of the Town such as floodplains, watershed, and aquifer protection.

What is the difference between the Zoning Code and the Building Code?

Zoning regulations are established by the Town and adopted at Town Meetings. Zoning determines the types of structures and uses that are allowed in each zoning district. No matter where your property is located in town, it is subject to some type of zoning. The Building Code is established by the Commonwealth of Massachusetts and applies to all structures and buildings, no matter the use or location. The Building Code sets the minimum safety standards to protect the health and safety of the building occupants and neighbors.

What if my proposed structure or use is not allowed by the Zoning Bylaws?

Some uses are not allowed, and others are allowed only with a Special Permit. A Special Permit means that the use is not normally permitted, but the Town will consider allowing it if it meets certain criteria and is judged to be an overall benefit to the Town. Section 14 of the Zoning Bylaw outlines the process and the uses subject to Special Permits. In other cases, when a proposed structure cannot fit properly on a lot, a Variance pursuant to MGL Chapter 40A Section 10 may be required. Use variances are not allowable in Medfield. Please contact the Building Commissioner or Town Planner for more information.

What are zoning nonconformities?

Zoning nonconformities are defined as parcels, land uses, buildings, structures, or situations that do not conform with current zoning regulations. Examples include: older lots or subdivisions with lots that met the size requirement at the time (an increase in lot size or a reduction in density is called “down-zoning”), a building built to lesser setbacks than are currently required, a two-family or multi-family dwelling in a single-family zoning district, or a residential dwelling in a business zone.

Can zoning nonconformities legally continue to exist?

Yes. The zoning bylaw allows nonconformities to continue. If certain nonconformities are abandoned, damaged, or destroyed, the regulations restrict their replacement. For further information talk to the Building Commissioner or Town Planner.

Can zoning nonconformities be enlarged?

Generally, no. However, a nonconforming parcel (substandard lot) and nonconforming residential use (lot size, perfect square, setbacks, etc.) may be enlarged under certain circumstances and with some restrictions. The Building Commissioner is authorized to make certain Section 6 findings during the building permit review process. If the project proposes to make existing nonconformities worse or create new nonconformities, please speak with the Town Planner for an application to the ZBA. All teardowns on nonconforming lots require a special permit from the ZBA.

When can zoning nonconformities be replaced as they currently exist?

Zoning nonconformities can be replaced as they currently exist when they require maintenance, become damaged, or in the case of most residential uses, are destroyed by an act of nature or other unintentional event.

When must zoning nonconformities be replaced to conform with current zoning requirements?

When zoning nonconformities are intentionally destroyed, demolished or removed from the site, they may only be replaced in conformance with the current zoning requirements. Also, when nonresidential nonconformities are abandoned or demolished (intentionally or unintentionally), they may only be replaced in conformance with the current zoning requirements.

Other Resources:

Medfield [Town Charter](#) and [Town Code](#) – Source for town government structure and laws

Medfield Assessor’s [Property Assessments](#) – Review an abbreviated property record card

Massachusetts General Laws ([MGL](#)) – Source for state laws

State Building Code

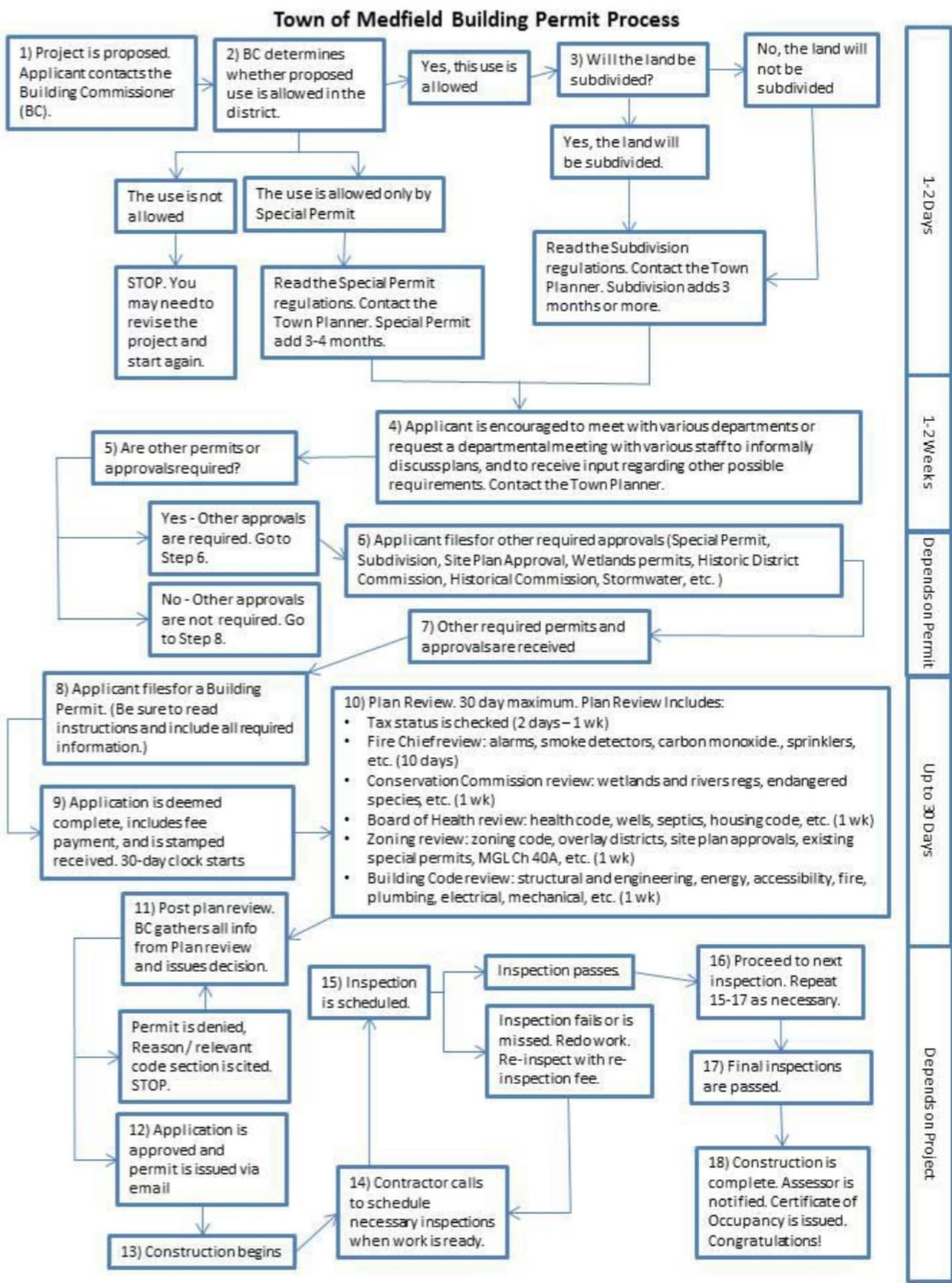
[Norfolk County Registry of Deeds](#) – Research your deed, easements, and original subdivision plans

[MassGIS Oliver](#) – Statewide Geographic Information System (GIS Mapping)

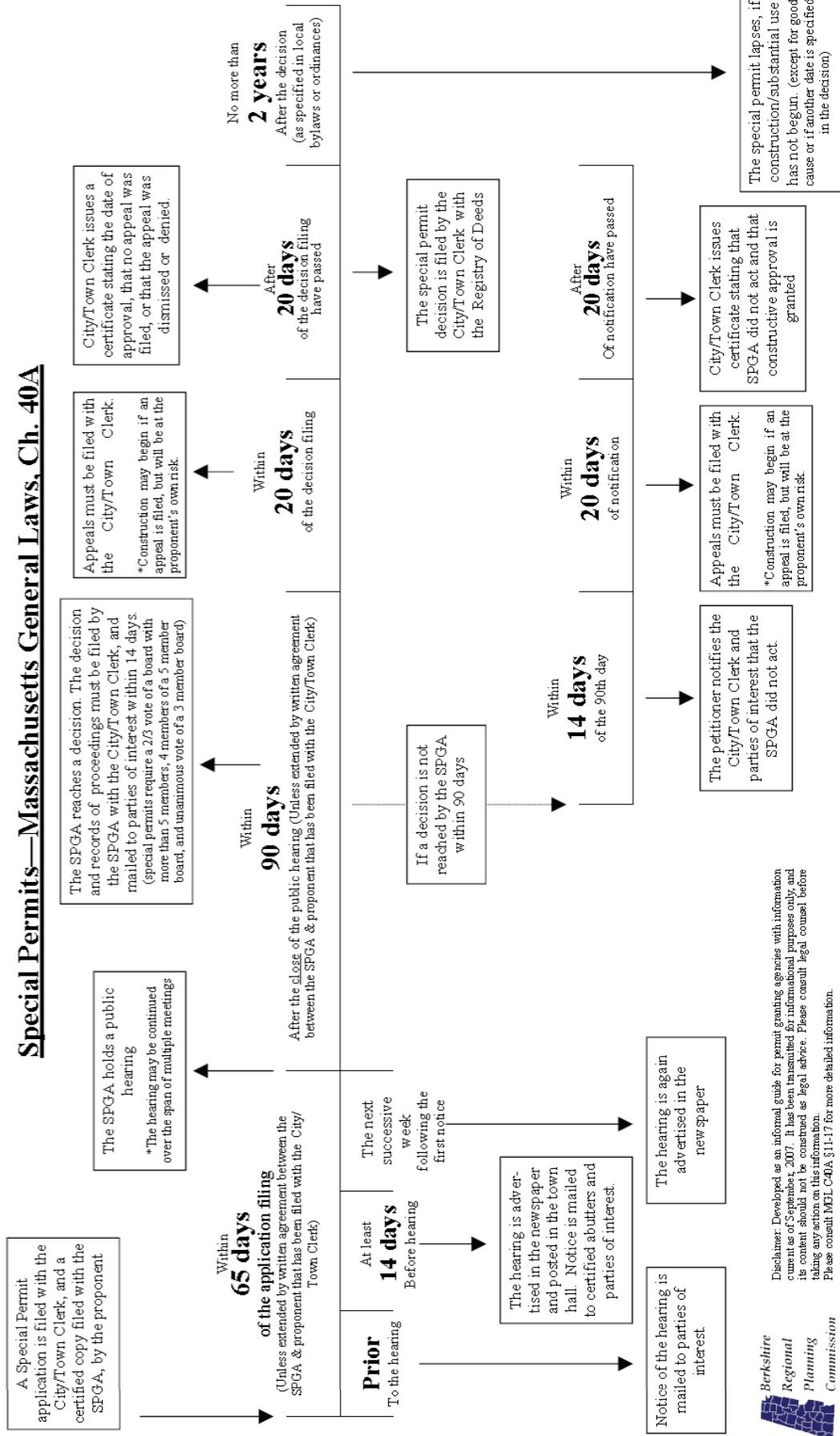
[FEMA FIRM-ette](#) – Create and print your own Flood Insurance Rate Maps (FIRMs)

The Process

The flowcharts and diagrams that follow illustrate the application and review process for typical permits. These reviews and timelines are governed by local and State laws. Applicants are reminded that several permits may be required for a project. All applicants are encouraged to speak with Town staff before applying for permits. We can help you understand the required forms, the process, and the review criteria.

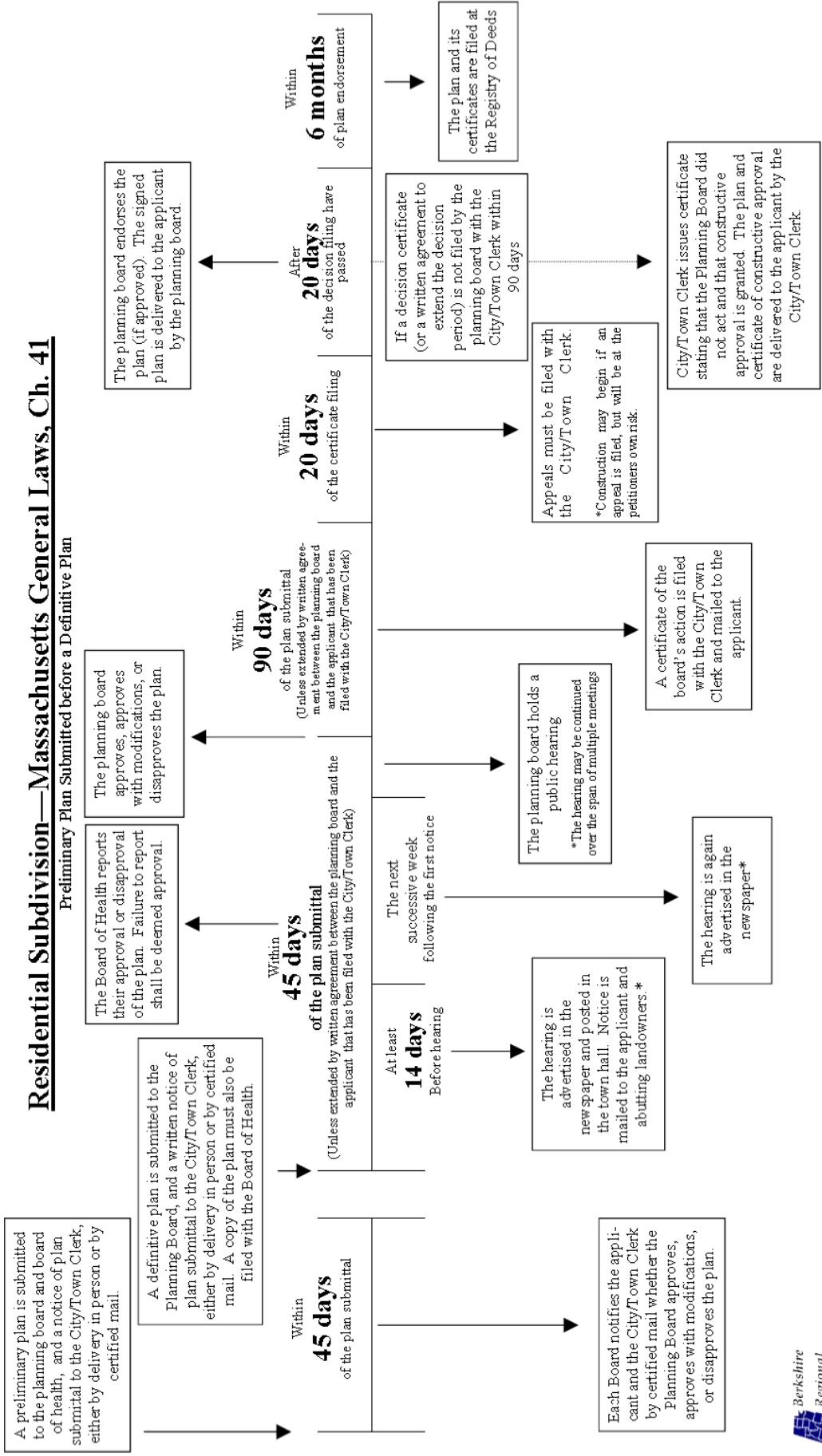


Special Permits—Massachusetts General Laws, Ch. 40A



Residential Subdivision—Massachusetts General Laws, Ch. 41

Preliminary Plan Submitted before a Definitive Plan



Massachusetts Order of Conditions Timeline

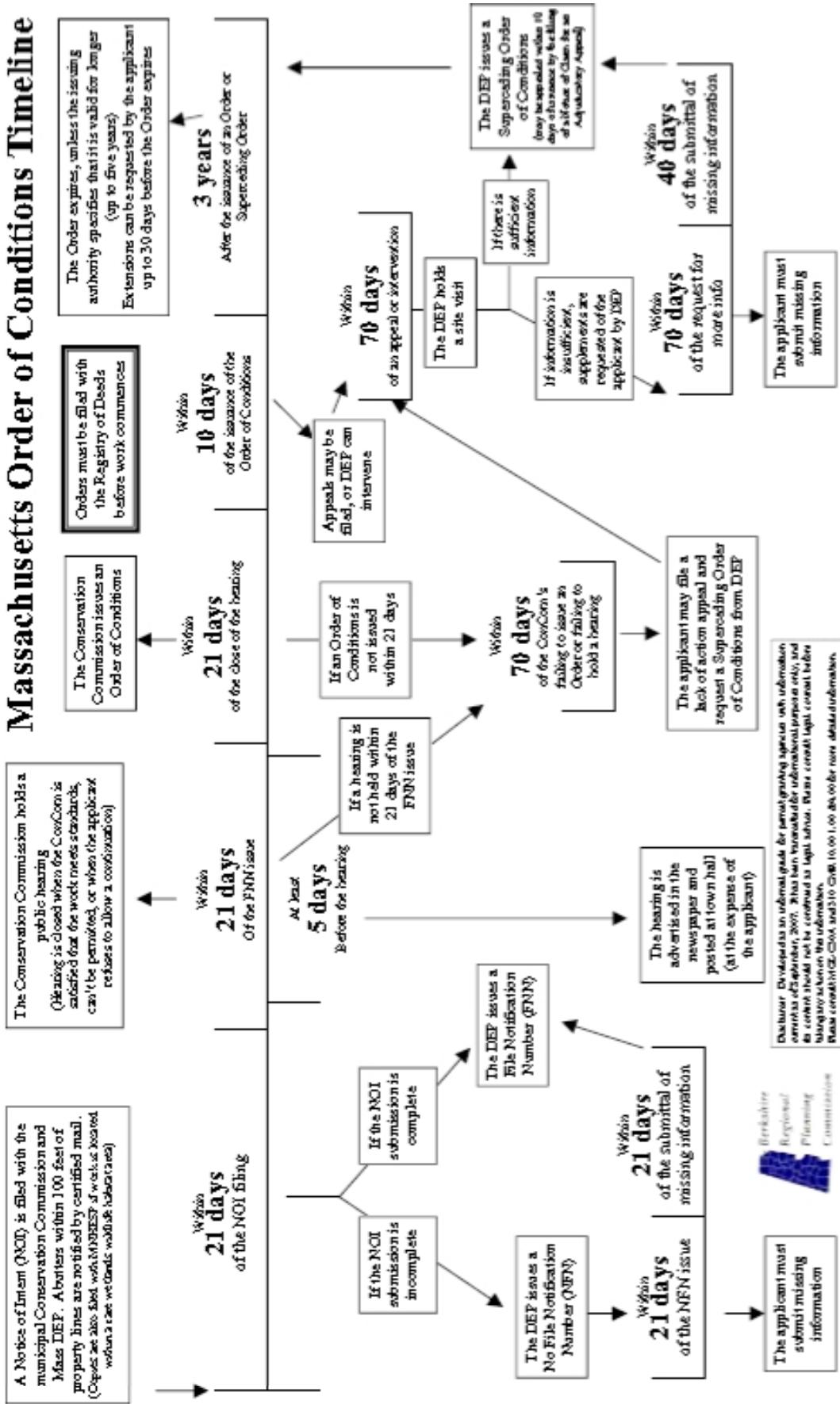




Photo credit: Alec Stevens

APPENDIX E – SECTION 303(D) LISTINGS

Massachusetts Year 2014 Integrated List of Waters

***Final Listing of the Condition of Massachusetts' Waters Pursuant to
Sections 305(b), 314 and 303(d) of the Clean Water Act***



CN 450.1

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Matthew A. Beaton, Secretary
Massachusetts Department of Environmental Protection
Martin Suuberg, Commissioner
Bureau of Water Resources
Douglas E. Fine, Assistant Commissioner

Massachusetts Category 3 Waters "No uses assessed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS
Pratts Pond	MA51124	Grafton	4	ACRES
Ramshorn Pond	MA51126	Sutton/Millbury	131	ACRES
Reservoir No. 4	MA51128	Sutton	10	ACRES
Schoolhouse Pond	MA51144	Sutton	7	ACRES
Sewall Pond	MA51191	Boylston	13	ACRES
Silver Hill Pond	MA51149	Milford	6	ACRES
Slaughterhouse Pond	MA51153	Millbury/Sutton	10	ACRES
Stoneville Reservoir	MA51161	Auburn	60	ACRES
Stump Pond	MA51162	Oxford	20	ACRES
Town Farm Pond	MA51168	Sutton	6	ACRES
Wallum Lake	MA51172	Douglas (size indicates portion in Massachusetts)	138	ACRES
Whitin Reservoir	MA51179	Douglas	342	ACRES
Windle Pond	MA51184	Grafton/Shrewsbury	4	ACRES
Boston Harbor: Mystic				
Bellevue Pond	MA71004	Medford	2	ACRES
Cummings Brook	MA71-10	Headwaters east of Wright Street, Woburn to confluence with Fowle Brook, Woburn.	2.1	MILES
Sales Creek	MA71-12	Headwaters near Route 145, Revere to tidegate/confluence with Belle Isle Inlet, Boston/Revere.	0.008	SQUARE MILES
Shaker Glen Brook	MA71-11	Headwaters, west of Dix Road Extention, Woburn to confluence with Fowle Brook, Woburn (portion culverted underground).	1.5	MILES
Spot Pond	MA71039	Stoneham/Medford	290	ACRES
Boston Harbor: Neponset				
Blue Hills Reservoir	MA73004	Quincy	12	ACRES
Bubbling Brook	MA73-11	Headwaters (perennial portion), near North Street, Walpole to inlet Pettee Pond, Walpole/Westwood border.	0.9	MILES
Buckmaster Pond	MA73006	Westwood	34	ACRES
Flynn's Pond	MA73019	Medfield	7	ACRES
Hammer Shop Pond	MA73023	Sharon	2	ACRES
Lymans Pond	MA73021	Westwood	25	ACRES
Sprague Pond	MA73053	Boston/Dedham	7	ACRES
Steep Hill Brook	MA73-18	Outlet of Pinewood Pond, Stoughton, to the inlet of Bolivar Pond, Canton.	0.9	MILES
Tubwreck Brook	MA73-07	Headwaters - small unnamed pond southeast of Powissett Street, Dover to confluence with Mill Brook just southwest of Dover/Medfield border.	1.6	MILES
Unnamed Tributary	MA73-10	Outlet Turner Pond, Walpole to confluence with Neponset River, Walpole.	0.4	MILES
Unnamed Tributary	MA73-14	Outlet Willet Pond, Walpole/Norwood, to inlet Ellis Pond, Norwood.	0.4	MILES
Boston Harbor: Weymouth & Weir				
Accord Pond	MA74030	Hingham/Norwell/Rockland (formerly reported as MA94002)	103	ACRES



Massachusetts Category 4c Waters
"Impairment not caused by a pollutant – TMDL not required"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE
Boston Harbor: Mystic					
Hills Pond	MA71018	Arlington	2	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Boston Harbor: Neponset					
Billings Street/East Street Pond	MA73065	Sharon	2	ACRES	(Non-Native Aquatic Plants*)
Clark Pond	MA73008	Walpole	7	ACRES	(Non-Native Aquatic Plants*)
Ellis Pond	MA73018	Norwood	17	ACRES	(Non-Native Aquatic Plants*)
Farrington Pond	MA73040	Stoughton	3	ACRES	(Non-Native Aquatic Plants*)
Glen Echo Pond	MA73022	Canton/Stoughton	16	ACRES	(Non-Native Aquatic Plants*)
Jewells Pond	MA73026	Medfield	4	ACRES	(Non-Native Aquatic Plants*)
Pinewood Pond	MA73039	Stoughton	25	ACRES	(Non-Native Aquatic Plants*)
Plantingfield Brook	MA73-23	Headwaters east of Thatcher Street, Westwood, to the confluence with Purgatory Brook, Norwood.	1.8	MILES	(Low flow alterations*)
Town Pond	MA73056	Stoughton	8	ACRES	(Non-Native Aquatic Plants*)
Turner Pond	MA73058	Walpole	18	ACRES	(Non-Native Aquatic Plants*)
Woods Pond	MA73055	Stoughton	14	ACRES	(Non-Native Aquatic Plants*)
Boston Harbor: Weymouth & Weir					
Accord Brook	MA74-17	From water supply intake (4131000-02S Accord Brook) south of South Pleasant Street, Hingham to inlet Triphammer Pond, Hingham.	1.8	MILES	(Low flow alterations*)
Sunset Lake	MA74020	Braintree	58	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)
Buzzards Bay					
Federal Pond	MA95055	Carver/Plymouth	125.041	ACRES	(Non-Native Aquatic Plants*)
Fresh Meadow Pond	MA95174	Carver/Plymouth	59.381	ACRES	(Non-Native Aquatic Plants*)
Mill Pond	MA95105	Wareham	148.573	ACRES	(Non-Native Aquatic Plants*)
Tremont Mill Pond	MA95150	Wareham	30.664	ACRES	(Non-Native Aquatic Plants*)
Cape Cod					
Long Pond	MA96184	Barnstable	48	ACRES	(Non-Native Aquatic Plants*)
Charles					
Beaver Pond	MA72006	Franklin	31.789	ACRES	(Non-Native Aquatic Plants*)
Dug Pond	MA72034	Natick	50.191	ACRES	(Non-Native Aquatic Plants*)
Kingsbury Pond	MA72056	Norfolk	15.36	ACRES	(Low flow alterations*)
Lake Archer	MA72002	Wrentham	77.118	ACRES	(Non-Native Aquatic Plants*)
Lake Waban	MA72125	Wellesley	108.997	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*) (Non-Native Aquatic Plants*)



Massachusetts Category 5 Waters "Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Massapoag Brook	MA73-21	Outlet Hammer Shop Pond, Sharon, through Manns Pond (formerly segment MA73028), Trowel Shop Pond, and Shephard Pond to the inlet of Forge Pond, Canton.	4.2	MILES	(Non-Native Aquatic Plants*)	
					Aquatic Macroinvertebrate Bioassessments	
					Phosphorus (Total)	
					Turbidity	
Memorial Pond	MA73012	Walpole	8	ACRES	Aquatic Plants (Macrophytes)	
					Turbidity	
Mill Brook	MA73-08	From headwaters (perennial portion) north of Hartford Street, Medfield to inlet of Jewells Pond, Medfield.	2.3	MILES	(Low flow alterations*)	
					Aquatic Macroinvertebrate Bioassessments	
					Oxygen, Dissolved	
Mine Brook	MA73-09	Outlet of Jewells Pond, Medfield, to the inlet of Turner Pond, Walpole.	3	MILES	Fecal Coliform	2592
					Oxygen, Dissolved	
Mother Brook	MA73-28	Headwaters at the Charles River Diversion control structure, Dedham to confluence with Neponset River, Boston. [Reported as MA72-13 until May 3, 2000]	3.7	MILES	(Low flow alterations*)	
					Color	
					DDT	
					Escherichia coli	2592
					Fecal Coliform	2592
					Mercury in Fish Tissue	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Phosphorus (Total)	
					Taste and Odor	
Neponset Reservoir	MA73034	Foxborough	312	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	
					Turbidity	
Neponset River	MA73-01	Outlet of Neponset Reservoir, Foxborough to confluence with East Branch, Canton. (through former pond segments Crackrock Pond MA73010 and Bird Pond MA73002)	13.2	MILES	DDT	
					Escherichia coli	54840
					Excess Algal Growth	
					Other	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Phosphorus (Total)	
					Sedimentation/Siltation	
					Total Suspended Solids (TSS)	
					Turbidity	



Massachusetts Category 5 Waters "Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Stop River	MA72-09	Headwaters near Dedham Street (Route 1A), Wrentham to Norfolk-Walpole MCI discharge, Norfolk (through Highland Lake formerly segment MA72047).	5.566	MILES	Ambient Bioassays -- Chronic Aquatic Toxicity	
					Oxygen, Dissolved	40317
					Phosphorus (Total)	40317
Stop River	MA72-10	Norfolk-Walpole MCI discharge, Norfolk to confluence with Charles River, Medfield.	4.168	MILES	Escherichia coli	32372
					Organic Enrichment (Sewage) Biological Indicators	40317
					Phosphorus (Total)	40317
					Temperature, water	
Trout Brook	MA72-19	Headwaters, outlet Channings Pond, Dover to confluence with Charles River, Dover.	2.772	MILES	Nutrient/Eutrophication Biological Indicators	40317
					Temperature, water	
Unnamed Tributary	MA72-30	Locally known as Laundry Brook - emerges north of California Street, Watertown to the confluence with the Charles River, Watertown.	0.023	MILES	(Physical substrate habitat alterations*)	
					Enterococcus	32381
					Escherichia coli	32381
					Phosphorus (Total)	
					Taste and Odor	
					Total Suspended Solids (TSS)	
					Turbidity	
Unnamed Tributary	MA72-31	Locally known as "Millers River" - from emergence near Route 93, Cambridge/Boston to the confluence with the Charles River, Cambridge.	0.207	MILES	(Bottom Deposits*)	
					(Habitat Assessment (Streams)*)	
					Foam/Flocs/Scum/Oil Slicks	
					Other	
					Petroleum Hydrocarbons	
					Polychlorinated biphenyls	
					Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)	
					Sedimentation/Siltation	
					Taste and Odor	
Waban Brook	MA72-17	Headwaters, outlet Lake Waban, Wellesley to confluence with the Charles River, Wellesley.	0.717	MILES	Temperature, water	
Chicopee						
Abbey Brook	MA36-40	Headwaters west of Saint James Avenue, Springfield through Bemis Pond (formerly reported as segment MA36011) to the confluence with the Chicopee River, Chicopee.	1.5	MILES	Total Suspended Solids (TSS)	
Alden Pond	MA36003	Ludlow	4	ACRES	Nutrient/Eutrophication Biological Indicators	
Brookhaven Lake	MA36021	West Brookfield	34	ACRES	Turbidity	



Appendix 1

Assessment Units and Integrated List Categories by Major Watershed

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
East Branch	MA73-05	East Branch Neponset River - Outlet of Forge Pond, Canton through East Branch Pond to confluence with Neponset River, Canton. (locally known as Canton River)	2.6	MILES	5
Ellis Pond	MA73018	Norwood	17	ACRES	4C
Farrington Pond	MA73040	Stoughton	3	ACRES	4C
Flynn's Pond	MA73019	Medfield	7	ACRES	3
Forge Pond	MA73020	Canton	19	ACRES	5
Ganawatte Farm Pond	MA73037	Walpole/Sharon/Foxborough	29	ACRES	5
Germany Brook	MA73-15	Headwaters, east of Winter Street, Norwood to inlet of Ellis Pond, Norwood.	2	MILES	5
Glen Echo Pond	MA73022	Canton/Stoughton	16	ACRES	4C
Gulliver Creek	MA73-30	From confluence Unquity Brook, Milton to confluence Neponset River, Milton. (Note: Unquity Brook culverted, confluence not visible on quad)	0.02	SQUARE MILES	5
Hammer Shop Pond	MA73023	Sharon	2	ACRES	3
Hawes Brook	MA73-16	Outlet of Ellis Pond, Norwood to confluence with Neponset River, Norwood.	1.1	MILES	5
Jewells Pond	MA73026	Medfield	4	ACRES	4C
Lymans Pond	MA73021	Westwood	25	ACRES	3
Massapoag Brook	MA73-21	Outlet Hammer Shop Pond, Sharon, through Manns Pond (formerly segment MA73028), Trowel Shop Pond, and Shephard Pond to the inlet of Forge Pond, Canton.	4.2	MILES	5
Massapoag Lake	MA73030	Sharon	389	ACRES	4A
Memorial Pond	MA73012	Walpole	8	ACRES	5
Mill Brook	MA73-08	From headwaters (perennial portion) north of Hartford Street, Medfield to inlet of Jewells Pond, Medfield.	2.3	MILES	5
Mill Brook	MA73-12	Source northeast of Ledgewood Drive, Dover to inlet of Pettee Pond, Westwood.	2.9	MILES	2
Mine Brook	MA73-09	Outlet of Jewells Pond, Medfield, to the inlet of Turner Pond, Walpole.	3	MILES	5
Mother Brook	MA73-28	Headwaters at the Charles River Diversion control structure, Dedham to confluence with Neponset River, Boston. [Reported as MA72-13 until May 3, 2000]	3.7	MILES	5
Neponset Reservoir	MA73034	Foxborough	312	ACRES	5
Neponset River	MA73-01	Outlet of Neponset Reservoir, Foxborough to confluence with East Branch, Canton. (through former pond segments Crackrock Pond MA73010 and Bird Pond MA73002)	13.2	MILES	5
Neponset River	MA73-02	Confluence with East Branch, Canton to confluence with Mother Brook, Boston.	7.7	MILES	5
Neponset River	MA73-03	Confluence with Mother Brook, Boston to Milton Lower Falls Dam, Milton/Boston.	3.6	MILES	5
Neponset River	MA73-04	Milton Lower Falls Dam, Milton/Boston to mouth at Dorchester Bay, Boston/Quincy.	0.67	SQUARE MILES	5
Pecunit Brook	MA73-25	Headwaters east of Carey Circle and west of Pecunit Street, Canton to the confluence with Neponset River, Canton.	1.8	MILES	4A
Pequid Brook	MA73-22	Headwaters east of York Street, Canton to the inlet of Forge Pond, Canton (excluding the approximately 1.3 miles through Reservoir Pond, segment MA73048).	2.8	MILES	5
Pettee Pond	MA73036	Walpole/Westwood	10	ACRES	4A
Pine Tree Brook	MA73-29	Outlet of Hillside Pond, Milton through Pope's Pond (formerly segment MA73044) to confluence Neponset River, Milton.	4.6	MILES	5



Appendix 1

Assessment Units and Integrated List Categories by Major Watershed

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Lake Winthrop	MA72140	Holliston	131.341	ACRES	5
Linden Pond	MA72063	Holliston	1.399	ACRES	4A
Little Farm Pond	MA72064	Sherborn	23.801	ACRES	3
Louisa Lake	MA72068	Milford	7.772	ACRES	3
Lymans Pond	MA72070	Dover	4.395	ACRES	4A
Mill River	MA72-15	Headwaters, outlet Bush Pond, Norfolk to confluence with the Charles River, Norfolk.	3.47	MILES	5
Mine Brook	MA72-14	Headwaters in Franklin State Forest, Franklin to the confluence with the Charles River, Franklin (through Mine Brook Pond, formerly segment MA72077).	8.942	MILES	5
Mirror Lake	MA72078	Wrentham/Norfolk	61.55	ACRES	4A
Morses Pond	MA72079	Wellesley/Natick	111.817	ACRES	4C
Muddy River	MA72-11	Headwaters, outlet Ward Pond in Olmstead Park, Boston through Leverett Pond, Boston/Brookline to confluence with Charles River, Boston.	3.6	MILES	5
Noanett Pond	MA72084	Westwood/Dover	49.71	ACRES	4C
Nonesuch Pond	MA72085	Natick/Weston	38.78	ACRES	4C
Norumbega Reservoir	MA72086	[North Basin] Weston	13.643	ACRES	3
Norumbega Reservoir	MA72087	[South Basin] Weston	38.41	ACRES	3
Populatic Pond	MA72096	Norfolk	41.911	ACRES	5
Powissett Brook	MA72-20	Headwaters, outlet Noanett Pond, Westwood to confluence with Charles River, Dover.	1.849	MILES	5
Rock Meadow Brook	MA72-21	Headwaters in Fisher Meadow, Westwood through Stevens Pond and Lee Pond, Westwood to confluence with Charles River, Dedham.	3.771	MILES	5
Rosemary Brook	MA72-25	Headwaters, outlet Rosemary Lake, Needham to confluence with the Charles River, Wellesley.	3.266	MILES	4A
Sandy Pond	MA72105	Lincoln	157.108	ACRES	3
Sawmill Brook	MA72-23	Headwaters, Newton to confluence with Charles River, Boston.	2.397	MILES	5
Scarboro Golf Course Pond	MA72107	Boston	6.107	ACRES	4C
South End Pond	MA72109	Millis	29.525	ACRES	3
South Meadow Brook	MA72-24	From emergence west of Parker Street, Newton to confluence with the Charles River, Newton (sections culverted).	1.706	MILES	4A
Stony Brook	MA72-26	Headwaters, outlet Beaver Pond, Lincoln to inlet Stony Brook Reservoir, Waltham/Weston.	5.122	MILES	2
Stony Brook	MA72-37	Outlet Turtle Pond, Boston to culvert entrance, Boston.	1.62	MILES	3
Stony Brook Reservoir	MA72114	Waltham/Weston	63.58	ACRES	3
Stop River	MA72-09	Headwaters near Dedham Street (Route 1A), Wrentham to Norfolk-Walpole MCI discharge, Norfolk (through Highland Lake formerly segment MA72047).	5.566	MILES	5
Stop River	MA72-10	Norfolk-Walpole MCI discharge, Norfolk to confluence with Charles River, Medfield.	4.168	MILES	5
Todd Pond	MA72117	Lincoln	9.257	ACRES	3
Trout Brook	MA72-19	Headwaters, outlet Channings Pond, Dover to confluence with Charles River, Dover.	2.772	MILES	5
Uncas Pond	MA72122	Franklin	17.3	ACRES	4A



Appendix 4

Massachusetts Year 2014 Integrated List of Waters – Responses to public comments

purposes. Furthermore, MassDEP acknowledges that nitrogen (particularly nitrate) levels are significantly elevated at CRWA sampling site 90CS, although they are substantially lower, within this same segment, downstream at site 199S. What is less certain, however, is whether the elevated nitrogen values, in and of themselves, actually constitute an impairment of the beneficial uses designated for this water body. As stated in the CRWA's comment, there is no numerical standard for nitrogen in the Massachusetts Surface Water Quality Standards, nor are there specific guidelines for interpreting nitrogen data in the CALM document, and MassDEP typically does not determine use impairment from data on nitrogen or phosphorus concentration alone. Rather, waters are identified as impaired by nutrients only if a combination of factors, such as wide ranges in DO concentration, high chlorophyll levels or algal or plant "bloom" conditions indicate a response to increased nutrient levels. Such is the case in the next downstream segment, MA72-05, where no less than six nutrient-related causes of impairment are covered by the EPA-approved *Total Maximum Daily Load for Nutrients in the Upper/Middle Charles River, Massachusetts*. Segment MA72-04 is also covered by this TMDL and, while the focus of the TMDL is on controlling total phosphorus, measures to do so will likely also tend to reduce nitrogen loadings to this segment. Nitrogen to phosphorus (N:P) ratios in both segments indicate that phosphorus is the limiting nutrient and should continue to be the target for load reductions to control eutrophic conditions in the Charles River. As such, MassDEP does not find a compelling case for listing "nitrogen" as a stressor to segment MA72-04 at this time.

MassDEP acknowledges the enormous number of dams on rivers and streams in Massachusetts that can affect, to a greater or lesser degree, the hydrology, biology and water quality of those water bodies. However, it is not MassDEP's policy to identify every stream impounded by a dam in Massachusetts as impaired by the stressor "Fish-Passage Barrier." This cause code is only applied in situations where a fish passage structure is in place, but it is functioning poorly or not at all. MassDEP's CALM document states: "If impediments to fish passage (such as dams) exist but no structure has ever been built to allow for fish passage, no impairment decision is currently made." For this reason "Fish-Passage Barrier" is not included as a stressor to this segment. However, like stream flow, fish passage limitation is not a pollutant that would result in the listing of a segment in Category 5 (i.e., the 303d List) and would not be managed through the provisions of the CWA.

Comment 16: MA72-05 / MA72-06 (Charles River) – There are dams along these segments although it is not currently listed for (Fish-Passage Barrier*).

Response 16: Please refer to the section of Response 13 that pertains to MassDEP's policy for assessing and listing limitations to fish passage.

Comment 17: MA72-10 (Stop River) – UMass Boston and CRWA conducted biological monitoring along Stop River in Medfield in 2012 and 2013. The ICI results from 2012 show this site as impacted in comparison to the other sites sampled with very poor performance in certain metrics including Scraper: Filterer, EPT Index, EPT: Chironomidae, and Reference Affinity.

Response 17: Please refer to the section of Response 13 that pertains to the CRWA/UMass-Boston collaborative invertebrate monitoring program. This segment is already listed as impaired by "organic enrichment (sewage) biological indicators" and this stressor would be applicable where deleterious effects on the benthic macroinvertebrate community are noted. It is anticipated that, over time, the implementation of the EPA-approved nutrient TMDL for the Upper Charles Watershed will result in improvements to water quality in the Stop River and that this will be reflected in improvements to its resident biological communities.

Comment 18: MA72-18 (Fuller Brook) – UMass Boston conducted biological monitoring along Fuller Brook in Wellesley in 2013, results from this sampling event show poor water quality and poor habitat quality at the sampling location (See *An Independent Study BIOL 478*). This water body should be placed

APPENDIX F – WATERSHED ASSOCIATION GOALS

THE NEPONSET RIVER WATERSHED ACTION PLAN CAN BE FOUND AT:

<https://www.neponset.org/tag/action-plan-goals/>

THE CHAARLES RIVER WATERSHED ACTION PLAN CAN BE FOUND
AT:

<https://www.crwa.org/blue-cities>

APPENDIX G – EXISTING STORM DRAIN MAPPING INFORMATION

The Town of Medfield has collected pertinent field survey data through GPS and conventional survey, depending on the location and usefulness of GPS. Phase A included an inventory of pertinent outfall/pipe information (including digital photography) and Phase B included surveying.

The inventory of each structure is attached and includes:

- a. Unique location identifier (e.g. P-01);
- b. Type of each storm drain structure;
- c. Mass. State Plan coordinates;
- d. Size of the pipe for all pipe systems;
- e. Pipe inverts;
- f. Structure and pipe material composition;
- g. Location relative to surface water (below or above);
- h. Description of the visual characteristics of the discharge (foam, film, silt, color); and
- i. Description of any noticeable odors.

The survey data is to the nearest 0.1 foot and is based on the Massachusetts State Plane Coordinate System and the NAD 83 (96 adjustment) Datum. Vertical Datum shall be NAVD 1988. The GPS survey will provide vertical control exceeding minimum NMAS Standards for 2' contour interval mapping and horizontal accuracy will exceed MassGIS requirements (1:50,000).

The nomenclature for drainage structure identification is sufficient to allow for future modeling of stormwater runoff. The goals of the nomenclature will be to:

1. Type of material encountered:

- a. Asphalt, **a**
- b. Brick, **b**
- c. Concrete, **c**

- d. Corrugated metal, **cm**
- e. Cast iron, **ci**
- f. Clay, **cl**
- g. Plastic, **pl**
- h. Polyvinyl chloride, **pvc**
- i. Rip-rap (e.g., channel), **r**
- j. Vegetated soil, **v**

2. Identify the type of drainage diversion:

- a. Pipe (**P**)
- b. Box Culvert (**B**)
- c. Channel (**C**)
- d. Miscellaneous (**M**)

3. Structure number - # (to be the same for inlet and outlet of structure)

4. Point of flow:

- a. Inlet – **I**
- b. Outlet – **O**

The nomenclature shall follow the following style:

material TYPE – Number - Point of Flow

For example, the inlet of the first concrete pipe would be:

cP-1-I

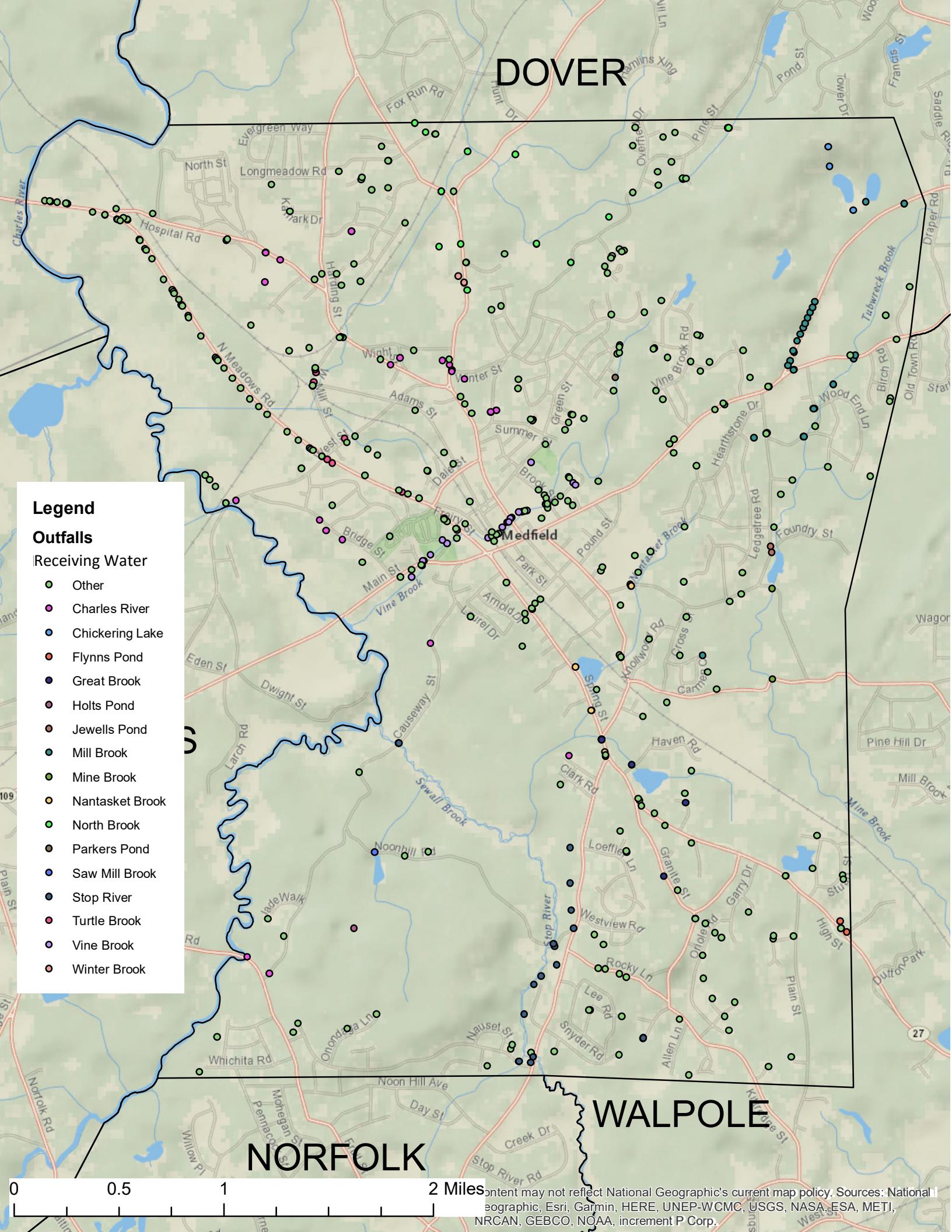
and the outlet to the same pipe would be:

cP-1-O.

The inlet to the sixth paved channel would be:

aC-6-I.

DOVER



NORFOLK

WALPOLE