

Town of Mashpee

MASSACHUSETTS



Stormwater Management Plan

Town of Mashpee

June 2019

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Engineers | Environmental Specialists

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Section 1

Introduction

Mashpee is located on the southern coast of Cape Cod, approximately 65 miles southeast of Boston. It is abutted by the Town of Barnstable on the east, the Town of Sandwich on the north, the Town of Falmouth on the west, and Nantucket Sound on the south. There are approximately 3.8 square miles of water within its 27.2 square mile footprint.



Figure 1-1 Location of Mashpee, Massachusetts

Mashpee is home to over 14,000 residents in more than 5,256 households (2010 census data) and includes members of the federally recognized Mashpee Wampanoag Tribe. According to the Town's 2010 Comprehensive Plan survey, 60% of the Town is currently developed or has the potential to be developed. 40% of the Town is has been protected as open space or recreation.

Protecting the quality of Mashpee's water resources including lakes, ponds, embayments and groundwater supplies is a priority for the Town of Mashpee. Pollutants from stormwater runoff are a contributing factor to the impairment of Mashpee's water bodies, including nutrient enrichment and bacterial contamination. The Town has worked with its neighboring communities, regional agencies, state and federal official to develop watershed solutions to improve water quality. Internally, Mashpee has developed stormwater policy initiatives, provided education to its business and citizens, publically discussed the issues related to stormwater runoff and offers many opportunities for residence and businesses to pitch in with clean-up efforts. Most importantly, Mashpee has completed a number of construction projects to remove stormwater discharge to water bodies and strongly promotes the use of innovative technology to remove nutrients and infiltrate stormwater including Low Impact Development practices.



Photo 1: Country Drainage along Monomoscoy Road

1.1 Purpose of this Plan

In an on-going effort to minimize stormwater impacts within Mashpee, the Town has developed this Stormwater Management Plan (SWMP). The SWMP is required by the U.S. Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts ("Small MS4 General Permit"). The SWMP describes and details the activities and measures that will be implemented by Mashpee to meet the terms and conditions of the permit.

The SWMP will be updated and/or modified during the permit term as the Town's activities are modified, changed, or updated to meet permit conditions. Other requirements of the Small MS4 General Permit, such as a Notice of Intent (NOI), Authorization to Discharge letter, and documentation showing Endangered Species Act and Historic Properties eligibility criteria have been certified and are located in the Appendices of this Plan.



Photo 2: View of Santuit River from Sampson's Mill Road

1.2 Regulatory Requirements

1.2.1 Overview of EPA's NPDES MS4 Program

Through the NPDES program, the EPA nationally regulates the discharge of stormwater runoff that is transported into local water bodies via MS4s. EPA's MS4 stormwater program was enacted in two phases:

- Phase I, issued in 1990, requires *medium* and *large* cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges.
- Phase II, issued in 1999, requires regulated *small* MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges.

A **municipal separate storm sewer system (MS4)** is a conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.,
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches),
- not a combined sewer, and
- not part of a sewage treatment plant, or publicly owned treatment works (POTW).

In Massachusetts, the EPA Region 1 and the Massachusetts Department of Environmental Protection (MassDEP) jointly administer the municipal stormwater program. EPA and MassDEP originally authorized Mashpee to discharge stormwater in 2003 under a *NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems*, known as the "2003 General Permit." Under this permit, the Town has developed and implemented a Stormwater Management Program to reduce the contamination of stormwater runoff.

The 2003 General Permit expired in May 2008 but remained in full force and effect until a replacement permit was issued on April 13, 2016. The reissued *NPDES General Permit for Stormwater Discharges from Small MS4 in Massachusetts* substantially increases stormwater management requirements and mandates specific timelines for compliance. On June 30, 2017, an EPA stay delayed the effective date of the General Permit until July 1, 2018. The MassDEP also adopted this delayed effective date.

This SWMP was developed to be consistent with the requirements of the 2016 Small MS4 General Permit for Massachusetts. Once implemented, the SWMP described herein will satisfy the requirements for compliance under the 2016 General Permit.

The new General Permit is intended to be more prescriptive than the 2003 General Permit, and to build upon the regulations already in place. The new General Permit substantially increases stormwater management requirements and mandates specific timelines for compliance. A few of the major differences for each minimum control measure are summarized in the following points:

- **Public Education and Outreach:** More specific messages required, and prescriptive deadlines compared to the 2003 General Permit.

- **Public Involvement and Participation:** No substantial change from the 2003 General Permit.
- **Illicit Discharge Detection and Elimination (IDDE) Program:** Complete drainage system mapping, building on outfall mapping developed under the 2003 General Permit. Add interconnections to the outfall inventory. Delineate catchment areas and prioritize catchment investigations. Perform dry weather screening and sampling of high priority and low priority MS4 interconnections and outfalls by the end of Year 3. Perform wet weather screening in the spring for the catchments that indicate the presence of one or more System Vulnerability Factors. Complete catchment investigations. For impaired waters without Total Maximum Daily Loads (TMDLs), implement a multi-step approach to address the discharges including BMPs, source identification, and an evaluation of retrofit feasibility.
- **Construction Site Stormwater Runoff Control:** If it does not already exist, add inspection and enforcement to the site plan review procedure.
- **Stormwater Management in New Development and Redevelopment:** For new development, retain the first 1 inch of runoff from all impervious surfaces on site, or provide pollutant removal with a BMP. For redevelopment, retain the first 0.80 inches of runoff from all impervious surfaces on site or provide pollutant removal with a BMP. Offsite mitigation may be used for redevelopment projects. Evaluate local code for consistency with smart growth principles and green infrastructure.
- **Good Housekeeping and Pollution Prevention:** Develop a program to repair and rehabilitate the MS4 infrastructure. Sweep/clean municipal streets once in the spring. Include all activities that occur at a municipal facility and potential pollutants associated with each activity in the stormwater pollution prevention plan (SWPPP) for the facility.

1.3 Summary of Mashpee's Stormwater Management Program under the 2003 Small MS4 General Permit

The Town of Mashpee meets EPA's regulatory threshold for Phase II of the MS4 program, and therefore is required to be covered under a NPDES permit for its stormwater discharges from the MS4 in its Urbanized Area. The Town of Mashpee is charged by the EPA with operating and maintaining its MS4 to manage stormwater runoff, as well as to protect public health and safety, preserve environmental resources, and safeguard town character.

Urbanized Areas (also known as "regulated areas") are defined by the latest U.S. decennial census. On March 26, 2012, the Census Bureau published the final listing of urbanized areas for the 2010 census. An urbanized area encompasses a densely settled territory that consists of core census block groups or blocks that have a population of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile or are included to link outlying densely settled territory with a densely settled urban core.¹ According to EPA Region 1, the area covered by *both*

¹ U.S. EPA. *Fact Sheet: Draft General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts*. September 2014. For a complete definition of Urbanized Area see Federal Register, August 24, 2011. Vol. 76 No. 164 p. 53030. URL: <http://www2.census.gov/geo/pdfs/reference/fedreg/fedregv76n164.pdf>.

the 2000 census and the 2010 census are regulated by EPA under the MS4 program. Therefore, all of Mashpee is regulated, as seen in Figure 1-2, and the SWMP must be implemented within the entire Town.²

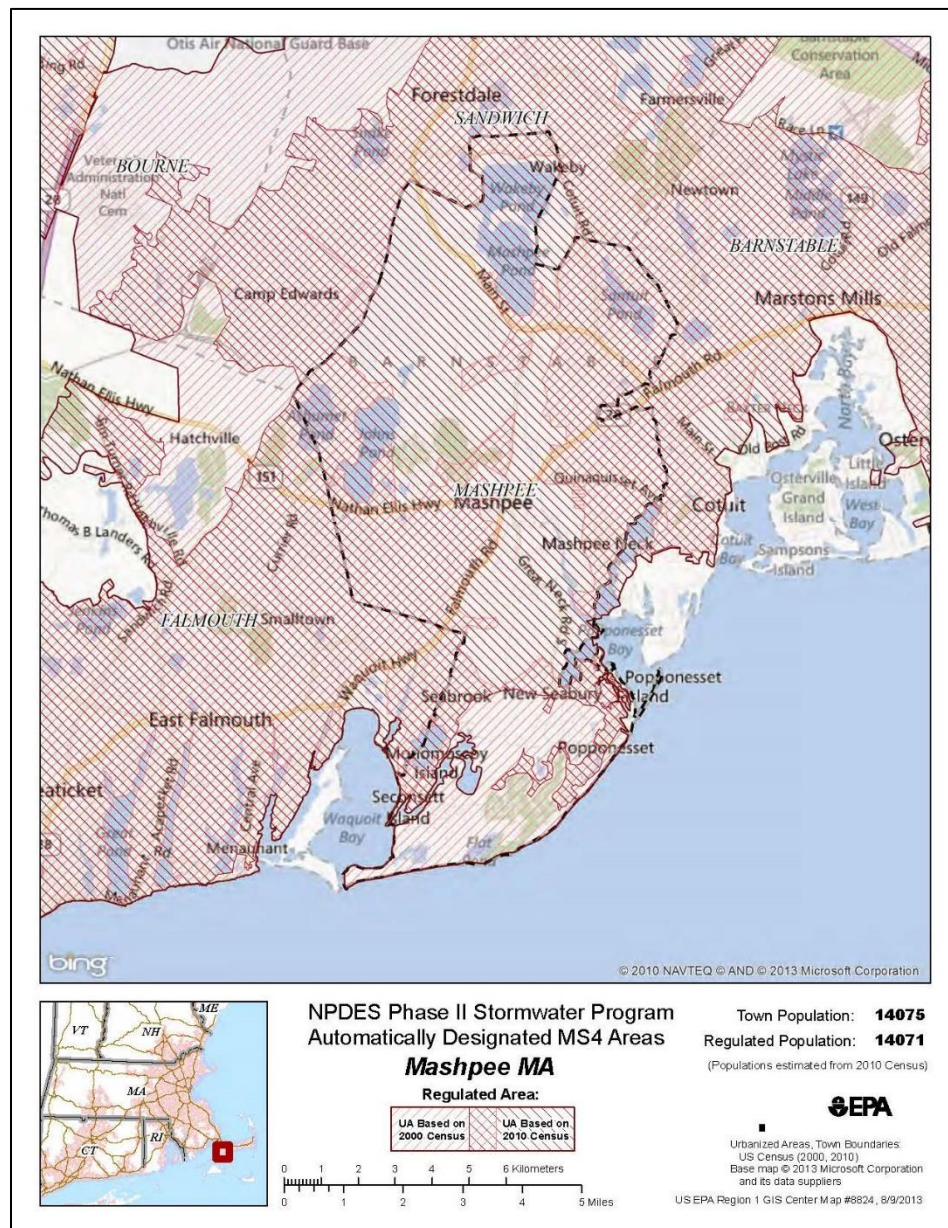


Figure 1-2 Town of Mashpee's Urbanized Area based on 2000 and 2010 census

² U.S. EPA, 2014.

Mashpee's stormwater management program is managed within the Department of Public Works (DPW). Currently, stormwater management tasks are carried out by various Town departments and volunteer boards, including the DPW, Conservation Department, Natural Resource Department, Health Department, Planning Board and the Environmental Oversight Committee.

The Town of Mashpee has achieved all the measurable goals for the BMPs selected in the 2003 Notice of Intent and those added in subsequent years to reflect unplanned stormwater activities by the Town. The following paragraphs include brief descriptions of current practices the Town undertakes as part of its Stormwater Management Program.

1.3.1 MCM 1 - Public Education and Outreach

The Town has been able to provide a robust multi-media public education program related to nonpoint source pollution and stormwater management targeted at multiple audiences. The Town has accomplished this through multi-media distribution of stormwater and pollution prevention information, hosting annual cleanup events and water festivals for school age children and implementing a composting program. The Town efficiently met the permit requirements with the cooperation of local, regional and state partners including AmeriCorps Cape Cod, Cape Cod Cooperative Extension, Cape Cod Commission, Association to Preserve Cape Cod and Waquoit Bay Estuarine Research Reserve.

1.3.2 MCM 2 – Public Involvement and Participation

Notice of public meetings complies with State and Local public meeting notice requirements and there are opportunities for residents of all ages to participate in Mashpee's stormwater program and overall environmental stewardship. This includes Annual clean up events, recycling at the Town transfer station and regional household hazardous waste collections. Town staff and local citizen groups are actively involved in monitoring the water quality of Mashpee's lakes and ponds through the Cape Cod Pond and Lakes Stewards and the Mashpee Wampanoag Tribe. Workshops and education events are provided to expand pollution prevention, nitrogen management, shellfish and aquaculture awareness. Pet waste collection and education is provided at several public parks including Heritage and Mashpee Dog Park.

1.3.3 MCM 3 – Illicit Discharge and Detection Elimination

The Town has spent considerable effort on their IDDE Program over the past fifteen years. Drainage system mapping is substantially complete, including outfalls, catch basins, manholes, culverts and open drainage. The Town has worked diligently to identify and remove outfalls that discharge to surface water and subsequently has a very small number of outfalls remaining anywhere in Town. Most remaining outfalls are on privately owned roads.

Illicit discharge is addressed through three local regulations including the Board of Health Nuisance Control Regulation that prohibit dumping, General Bylaws for Health and Sanitation prohibit discharge from sinks or other impure liquids to run into the street and the Use of Waterways prohibits discharge to waters, shores or foreshores. The Department of Public Works serves as the enforcement agency for illegal dumping.

Town Staff and volunteers have been trained on illicit discharges and stormwater outfall investigations and sampling and continue to look for the presence of illicit discharges.

1.3.4 MCM 4 – Construction Site Stormwater Runoff Control and MCM 5 – Post-Construction Stormwater Management

Mashpee adopted the *Stormwater Management Bylaw* (Mashpee Zoning Bylaw Section 174-27.2) in May 1999. The Bylaw requires that all construction activities that require subdivision approval, a special permit, land use review under 174-24B or a building over 1,000 square feet obtain a stormwater management permit, meet performance stormwater standards, and develop a Stormwater Management Program.

In addition, the Town adopted the Erosion and Sediment Control under their General Bylaw (Chapter 84) in April 2000. Additional regulations address stormwater issues through the Mashpee Wetlands Bylaw, a Nitrogen Control Bylaw and Mashpee's Subdivision Rules and Regulations and site plan review requirements. Between these bylaws and regulations, procedures for site plan reviews are established and enforced, and reviews by the DPW, Planning Board, and Conservation Commission are conducted. These reviews include regular inspections and communication with the developer to ensure adherence to local requirements during construction.

1.3.5 MCM 6 – Pollution Prevention and Good Housekeeping

The Town implements Good Housekeeping Standard Operating Procedures and employee training for numerous actions to reduce pollutant runoff from municipal operations, including catch basin cleaning, street sweeping, staff training, storing oil and hazardous materials properly, covering winter deicing materials, vehicle washing and maintenance, park and landscape maintenance, culverts and outfall cleaning, implementing the Oil Spill Prevention Control and Countermeasures Plan (SPCC) for the DPW garage and providing employee training.

1.3.6 Additional Permit Requirements

Groundwater Recharge and Infiltration: Through implementation of the Stormwater Management Bylaw, Wetlands Bylaw, Zoning Bylaw Special Permit regulations and Subdivision Rules and Regulations, the Town evaluates site conditions relative to stormwater infiltration. Land development activities must submit a Stormwater Report to document compliance with the ten Massachusetts Stormwater Management Standards. Additionally, the Town of Mashpee Zoning Bylaws have infiltration design requirements that promote surface infiltration and include pollutant source reduction conditions.

Public Drinking Water Supply Requirements: The Town of Mashpee Groundwater Protection Overlay District was established to protect the Town wells are located within this district. District requirements ensure adequate drinking water quality and quantity, preserve and protect drinking water supplies, conserve natural resources, and prevent contamination of the environment. The Town considers water supply sources and wellhead protection areas a priority for stormwater management, particularly IDDE activities.

Record Keeping: The Town of Mashpee maintains stormwater management program records that are organized by year and are stored in both paper and digital format.

Water Quality Impaired Waters and Total Maximum Daily Load (TMDL) Allocations: Mashpee's stormwater program is addressing many of the current requirements for discharges to impaired water bodies both with and without published Total Maximum Daily Loads (TMDLs). Through implementation of its current stormwater program, the Town is addressing the discharge of the pollutants of concern, specifically nitrogen and bacteria.

1.3.7 Building on 2003 BMPs

According to Section 1.10.b of the 2016 General Permit, Mashpee must modify or update the BMPs being implemented under the 2003 General Permit to meet the terms and conditions of part 2.3 of the new General Permit. Appendix B includes a list of BMPs completed under the 2003 Small MS4 General Permit and BMPs included in the Notice of Intent and SWMP which comply with the 2016 Small MS4 General Permit. This list identifies how the intent of each 2003 BMP is being met under the 2016 BMPs (further description of 2016 BMPs is included in Section 3 of this SWMP).

1.4 General Eligibility Determination

Section 1.2.1 of the Small MS4 General Permit authorizes the discharge of stormwater from small MS4s if the MS4 is determined to meet general eligibility criteria:

- *Small MS4 within the Commonwealth of Massachusetts*

The Town of Mashpee is located within Barnstable County, Massachusetts.

- *Not a large or medium MS4 as defined in 40 CFR 122.26(b)(4) or (7)*

The population of Mashpee is approximately 14,000 according to the 2010 Census, the MS4 is not within a designated County, and the Town has not been designated by the Director as part of a large or medium MS4.

- *Located either fully or partially within an urbanized area as determined by the 2010 Census or located in a geographic area designated by EPA as requiring a permit*

Figure 1-2 shows the Regulated MS4 Areas for the Town of Mashpee, based on 2000 and 2010 census listings. Mashpee is fully within an urbanized area.

1.5 Special Eligibility Determinations

1.5.1 Endangered Species

On behalf of the Town of Mashpee, Tighe & Bond completed the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of the Small MS4 General Permit, and determined that the Town of Mashpee meets **Criterion B**, where it has been determined that the Town's stormwater discharges and discharge related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the US Fish and Wildlife Service. Refer to Appendix C of the SWMP for supporting information, including the US Fish and Wildlife Service IPaC Trust Resources Report for the project area and the Endangered Species Act Certification.

1.5.2 Historic Properties

On behalf of the Town of Mashpee, Tighe & Bond completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of the Small MS4 General Permit and determined that the Town of Mashpee meets **Criterion A**, as the discharges do not have the potential to cause effects on historic properties. Please refer to Appendix D of the SWMP for supporting information, including a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures in the Town of Mashpee's regulated area downloaded from the Massachusetts Cultural Resource Information System (MACRIS).

1.6 Authorization for Mashpee to Discharge Stormwater

A NOI must be submitted within 90 days of the effective date of the permit. A copy of the NOI is included in Appendix A. Documentation of the Town of Mashpee's Authorization to Discharge by EPA will also be provided in Appendix A once issued by EPA. This written SWMP must be finalized within one year of the effective date of the permit.



Photo 3: Waste Oil Recycling at the Mashpee Transfer Station

Section 2

Watershed Resources

2.1 Watershed Inventory

The Town of Mashpee, Massachusetts is located within the Cape Cod Watershed. The Town drains to two major estuaries, Waquoit Bay and Popponesset Bay, and Nantucket Sound, as shown in Figure 2-1.

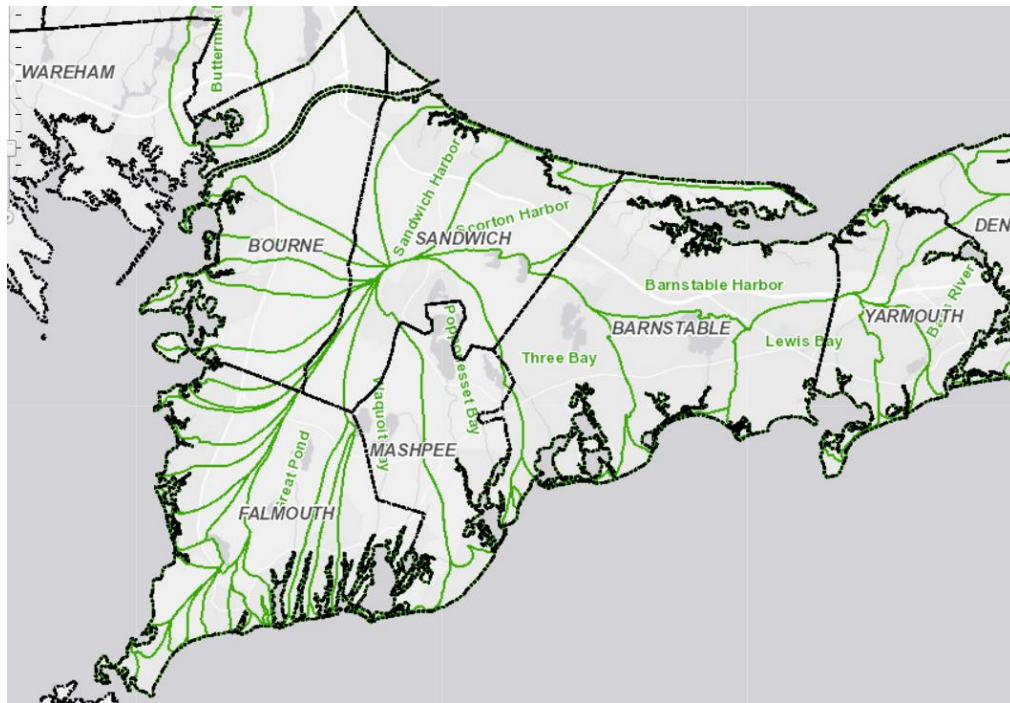


Figure 2-1 Western portion of the Cape Cod Watershed³

The Popponesset Bay System is located within the Town of Mashpee and Barnstable with a southern shore bounded by Nantucket Sound. The watershed to this system includes the Towns of Mashpee, Sandwich and Barnstable. Freshwater is contributed through 3 surface water discharges (Mashpee River, Santuit River and Quaker Run) and groundwater discharge. The estuarine region of the Popponesset Bay system includes a large lower basin (Popponesset Bay), and multiple tributary subembayments including Ockway Bay, Pinquisset Cove, Shoe String Bay and the Mashpee River. Mashpee, Wakeby and Santuit Ponds are located at the upper extent of the Popponesset Bay Watershed.⁴

The Waquoit Bay System is located within the Town of Mashpee and Falmouth. To the south is a barrier beach that separates Waquoit Bay from Nantucket Sound. The Waquoit bay watershed includes Sandwich, Mashpee and Falmouth. The system includes three major tributary sub-embayments, the Quashnet River estuary, Hamblin Pond/ Little River

³ Cape Cod Commission Watershed MVP tool: www.watershedmvp.org

⁴ Massachusetts Estuary Project, Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for Popponesset Bay, Mashpee and Barnstable Massachusetts, September 2004

Estuary and the Jehu Pond/ Great River Estuary. Ashumet and Johns Pond are located along the western side of the Waquoit Bay watershed. Hamblin and Jehu Pond are in the lower Waquoit Bay watershed.⁵

Table 2-1 identifies the natural drainage basins, or watersheds within the Town of Mashpee.

Table 2-1

Natural Drainage Basins/Watersheds within the Town of Mashpee, Massachusetts

Major Basin	Regional Watersheds	Sub Watersheds
Cape Cod Watershed	Popponesset Bay Watershed	MA96-24 – Mashpee River
		MA96194 – Mashpee Pond
		MA96-91 – Santuit River
		MA96277 – Santuit Pond
		MA96-25 – Red Brook
		MA96-40 – Popponesset Bay
		MA96-39 – Popponesset Creek
		MA96-08 – Shoestring Bay
		MA96346 – Wakeby Pond
	Waquoit Bay Watershed	MA96-21 – Waquoit Bay
		MA96-58 – Hamblin Pond
		MA96-59 – Jehu Pond
		MA96-20 – Quashnet River
		MA96-60 – Great River
		MA96004 – Ashumet Pond
		MA96157 – John’s Pond
		MA96-61 – Little River

2.2 Water Quality

To meet the requirements of the Clean Water Act (CWA) Section 303(d), Massachusetts must assess and categorize surface waterbodies for attainment of designated uses (such as habitat for aquatic wildlife, aquatic wildlife consumption, and primary and secondary recreation), as well as identify any waterbodies that are not expected to meet surface water quality standards after implementation of controls. These sources are prioritized for establishing TMDLs for use in permit setting. Massachusetts meets the CWA reporting requirements through the development of an Integrated List of Waters, in which waters in the Commonwealth are categorized for attainment of designated uses. The Integrated List assigns each waterbody or waterway with one of five categories:

⁵ Massachusetts Estuary Project, Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for Quashnet River, Hamblin Pond and Jehu Pond in the Waquoit Bay System, Mashpee and Barnstable Massachusetts, September 2004

- **Category 1:** waters that are unimpaired and not threatened for all designated uses
- **Category 2:** waters that are unimpaired for some uses and not assessed for others
- **Category 3:** waters with insufficient information to make assessments for any uses
- **Category 4a:** waters with a completed TMDL
- **Category 4c:** waters that are impaired or threatened for one or more uses, but not by a pollutant and therefore not requiring the calculation of a TMDL
- **Category 5:** waters that are impaired or threatened for one or more uses and requiring a TMDL

Waterbodies classified as Category 4a (waterbodies with a TMDL) and Category 5 ("water quality limited" waterbodies) do not meet CWA designated uses, and stormwater pollutants of concern will need to be addressed per General Permit requirements. Table 2-2 summarizes the designated uses of watercourses and waterbodies within the Town of Mashpee.

Water quality within the Waquoit Bay and Popponesset Bay Watershed was assessed by the Massachusetts Department of Environmental Protection, Division of Watershed Management in 2002⁶. See the applicable MassDEP reports for further information.

Table 2-2

Summary of MassDEP Water Quality Assessment, Town of Mashpee Watercourses and Waterbodies, 2002

Description	Location	Size	Designated Uses		
			Aquatic Life	Fish /Shellfish Consumption	Recreation
Shoe String Bay-08	Quinaquisset Ave to Ryefield Point, Barnstable/Mashpee	0.4 sq. miles	UA	UA/ IMP SF	SUP
Quashnet River-20	South of Route 28 to mouth at Waquoit Bay/ Falmouth	0.1 sq. miles	UA	UA/ SUP SF	SUP
Waquoit Bay- 21	From mouths of Seapit River, Quashnet River, Little River and Great River to confluence with Vineyard Sound, Falmouth	1.54 sq. miles	UA	UA/ SUP SF	SUP
Santuit River-91*	Headwaters, outlet Santuit Pond, Mashpee to confluence with tidal portion south of Old Mill Road, Mashpee	1.6 Miles	SUP*	UA	SUP

⁶ MassDEP, "Cape Cod Watersheds 2002 Water Quality Assessment Report".

Mashpee River-24*	Quinaquisset Ave. to mouth at Popponesset Bay, Mashpee	2.7 miles	SUP*	SUP*/ SUP SF	SUP
Red Brook – 25*	Mashpee to Hamblin Pond, Falmouth/Mashpee	0.01 Sq. miles	UA	SUP/ SUP SF	SUP
Ashumet Pond-04	Mashpee	203 acres	SUP*	IMP	SUP
John's Pond-157	Mashpee	323 acres	SUP	IMP	SUP
Mashpee Pond-194	Mashpee	378 acres	SUP	IMP	SUP
Santuit Pond-289	Mashpee	167.4 acres	SUP	SUP	SUP
Wakeby Pond-346	Mashpee	351 acres	SUP	IMP	SUP

*Updated information added from the 2014 303(d) list

SUP = Supported

UA = Unassessed

IMP = Impaired

SUP SF= Support shellfish

2.2.1 2018-2020 Integrated List of Waters

As of the date of this SWMP, Massachusetts waters categorized as impaired surface waters were identified in the Final Massachusetts Year 2018-2020 Integrated List of Waters.⁷ Waterbodies identified on Integrated List within Mashpee are listed in Table 2-2.

Table 2-3

Summary of 2018-2020 Integrated List of Waters - Status of Mashpee's Receiving Waters

Category 5 Waters: waters requiring a TMDL						
Indicator contributing to impairment:						
Waterbody	Estuarine Bioassessments	Fecal Coliform	Dissolved Oxygen	Nutrients	Phosphorus	Mercury in Fish Tissue
Ashumet Pond MA96-04			X		X	X
Santuit Pond MA96289				X	X	
Popponesset Creek MA92-11	X	X				
Mashpee Pond MA96194			X			X

⁷ MassDEP, Bureau of Water Resources "Final Massachusetts Year 2018-2020 Integrated List of Waters". December 2015. Accessed online at: <https://www.mass.gov/doc/final-massachusetts-integrated-list-of-waters-for-the-clean-water-act-20182020-reporting-cycle/download>

Table 2-3

Summary of 2018-2020 Integrated List of Waters - Status of Mashpee's Receiving Waters

Category 4a Waters: TMDL is completed				
Indicator contributing to impairment:				
Waterbody	Estuarine Bioassessments	Fecal Coliform	Nitrogen	Mercury in Fish Tissue
Great River MA96-60	X		X	
Hamblin Pond MA96-58	X	X	X	
Jehu Pond MA96-59	X		X	
John's Pond MA96157				X
Little River MA96-61	X	(in appendix F but not 303d)	X	
Mashpee River MA96-24	X	X	(in appendix F but not 303d)	
Peters Pond MA96244				X
Popponesset Bay MA96-40	X			
Santuit River MA96-92		X		
Shoestring Bay MA96-08	X	X		
Wakeby Pond MA96346				X
Waquoit Bay MA96-21	X		X	
Category 2 Waters: attaining some uses; other uses not assessed				
Uses attained:	Red Brook MA96-25	Mashpee River MA96-89		
Aesthetic			X	
Fish, other Aquatic Life and Wildlife			X	
Primary Contact Recreation	X		X	
Secondary Contact Recreation	X		X	
Shellfish Harvesting	X			

2.2.2 Pollutants of Concern

The pollutants of concern for Mashpee's impaired waters include **bacteria, nutrients, phosphorous, and dissolved oxygen**. Causes for the impairments septic systems, fertilizers, unspecified urban stormwater, aquatic and non-aquatic animals and excessive algal growth. Top concerns for Mashpee's priority waters include degrading water quality and loss of shellfish habitat due to nutrient enrichment. Contaminants of concern

impacting Mashpee's drinking water supply include pharmaceuticals and hazardous materials. More information about these pollutants and their potential sources are included in Appendix E.

2.2.3 Applicable TMDLs

At the time of developing the Notice of Intent in July 2003, only four water bodies (Mashpee, Childs, Great and Dutchman's Creek) were listed that received discharges from the MS4 within Mashpee with five (5) outfalls and none were listed with impairments.

Since preparation of the NOI in 2003, the Integrated List of Waters (303(d) list) has been revised. **Figure 2.2** shows the updated (year 2018-2020) water quality impairments for each of the Town of Mashpee's water bodies.

The red water bodies are classified as Category 5 (Waters Requiring a TMDL) indicating that there is a water quality impairment that will require a TMDL in the future. These water bodies include:

- Santuit Pond (impaired by nutrients and phosphorous)
- Ashumet Pond (impaired by mercury, dissolved oxygen, and phosphorous)
- Mashpee Pond (impaired by low dissolved oxygen)
- Popponesset Creek (estuarine assessment required and impaired by bacteria)

The yellow water bodies are classified as Category 4A (TMDL is complete) indicating these water bodies have established TMDLS.

The following water bodies have a TMDL for **fecal coliform**:

- Hamblin Pond
- Mashpee River
- Santuit River
- Shoestring Bay

The following water bodies have a TMDL for **nitrogen**:

- Great River
- Hamblins Pond
- Jehu Pond
- Little River
- Waquoit Bay

The following water bodies have a TMDL for **mercury in fish tissue**:

- John's Pond
- Wakeby Pond
- Peters Pond

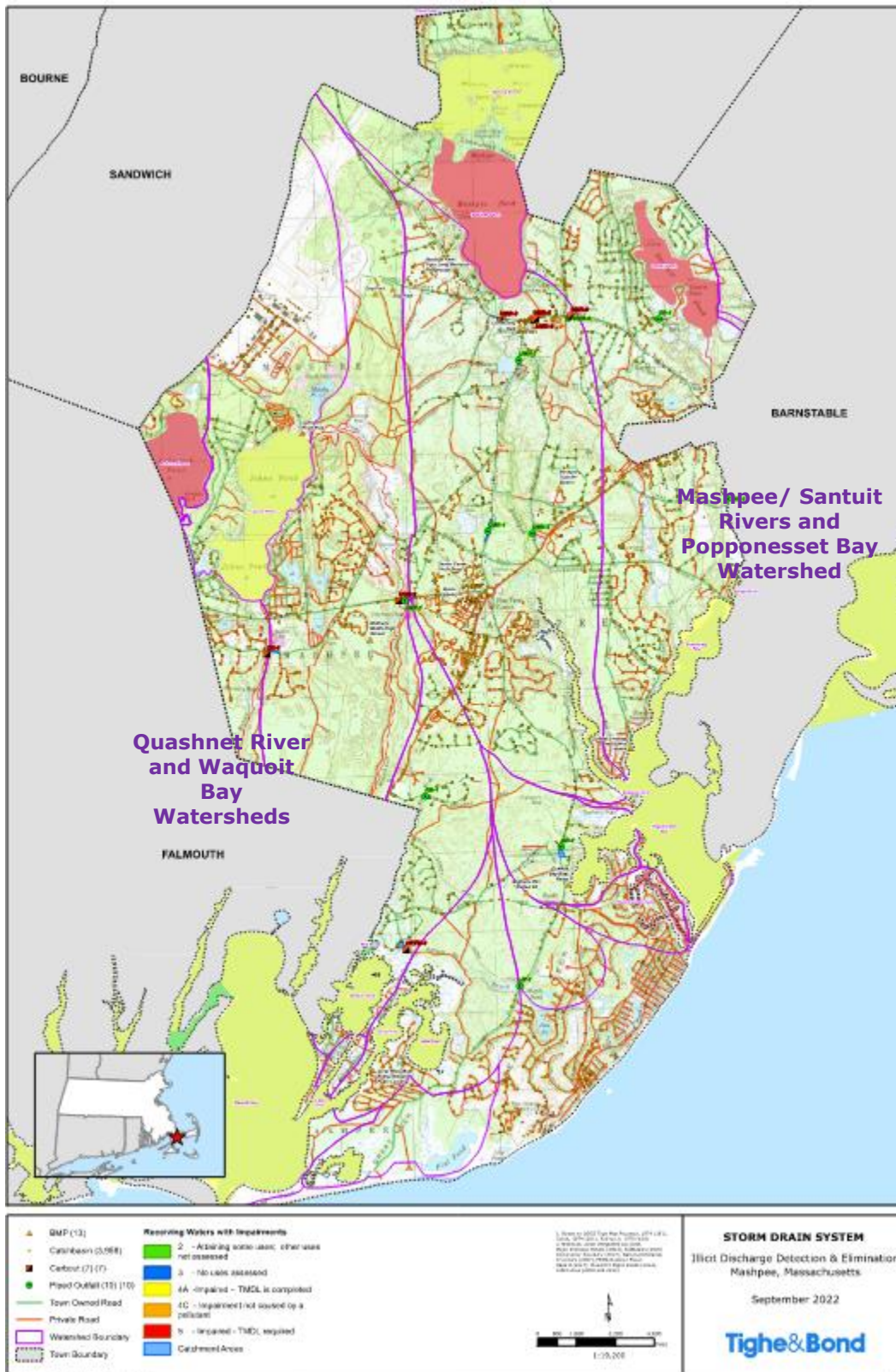


Figure 2-2 Impaired Waters and Applicable TMDLs in the Town of Mashpee

Section 3

Best Management Practices (BMPs) to Address Minimum Control Measures (MCMs)

This section includes descriptions of each BMP included in Mashpee's NOI, an implementation plan, guidelines and resources, and lists of important documentation to best address the MCMs in the General Permit.

3.1 MCM 1: Public Education and Outreach

Objective: *The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced.*

This section of the SWMP describes how to comply with the Public Education and Outreach requirements in General Permit Section 2.3.2.

3.1.1 MCM 1 BMPs from NOI

BMP ID	BMP Media/Category	BMP Description	Targeted Audience	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
1A	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Mashpee, including the proper use of slow-release fertilizers, pet waste management, septic system maintenance and disposal of grass clippings and leaf litter. Educational topics will include but are not limited to those in Part 2.3.2.d.i	Residents	Department of Public Works (DPW), Environmental Oversight Committee (EOC)	Distribute a minimum of two (2) educational messages spaced at least a year apart	FY 2019 (PY1)

**Section 3 Best Management Practices (BMPs) to Address
Minimum Control Measures (MCMs)**

Tighe&Bond

BMP ID	BMP Media/ Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1B	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Mashpee, including the proper use of slow-release fertilizers, pet waste management and disposal of grass clippings and leaf litter. Educational topics will include but are not limited to those in Part 2.3.2.d.ii	Businesses, Institutions, and Commercial Facilities including Landscaping, Marine Services and Golf Courses	DPW, EOC	Distribute a minimum of two (2) educational messages spaced at least a year apart	FY 2020 (PY2)
1C	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Mashpee, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.iii	Developers (Construction)	DPW, EOC	Distribute a minimum of two (2) educational messages spaced at least a year apart	FY 2019 (PY1)
1D	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Mashpee, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.iv	Industrial Facilities	Department of Public Works	Distribute a minimum of two (2) educational messages spaced at least a year apart	FY 2020 (PY2)
1E	Public Education Goals and Progress	Educational goals (programmatic and message specific) will be defined in the SWMP.	All	DPW/ EOC	Annually report methods/measures to evaluate effectiveness and progress to meet meeting goals.	FY 2019 (PY1)

3.1.2 MCM 1 Implementation Plan

BMP 1A Education and Outreach to Residents

Education and outreach goals for BMP 1A include:

- Increasing awareness of the impact of human activities on stormwater runoff and water quality;
- Changing residential behavior over time; and
- Reaching broad audiences with information that appeals to a diverse public.

Mashpee will provide educational materials and general outreach to residents for stormwater management topics relevant to the Town. Topics may include:

- information about Mashpee's impaired waterbodies;
- effects of outdoor activities such as lawn care on water quality (use of pesticides, herbicides, and fertilizers);
- benefits of appropriate on-site infiltration of stormwater;
- effects of automotive work and car washing on water quality;
- proper disposal of swimming pool water; and
- proper management of pet waste.

The Town will build upon the existing public education and outreach program to disseminate educational materials to residents via the internet, email, direct mailing, local cable channel, and/or public posting. The Town will coordinate public educational strategies with local watershed groups and take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

BMP 1B Education and Outreach to Businesses, Institutions, and Commercial Facilities

Education and outreach goals for BMP 1B include:

- Increasing awareness of business practices that may contribute to stormwater pollution;
- Changing behavior over time; and
- Improving compliance with local code.

Mashpee will provide educational materials and general outreach to businesses, institutions, and commercial facilities within Town for stormwater management topics relevant to Mashpee. Topics may include:

- information about Mashpee's impaired waterbodies;
- proper lawn maintenance (use of pesticides, herbicides and fertilizer);
- benefits of appropriate on-site infiltration of stormwater;
- building maintenance (use of detergents);
- minimizing the use of salt or other de-icing and anti-icing materials;

- proper storage of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and contamination to groundwater);
- proper storage of materials (emphasize pollution prevention);
- proper management of waste materials and dumpsters (cover and pollution prevention);
- proper management of parking lot surfaces (sweeping);
- proper car care activities (washing of vehicles and maintenance); and
- proper disposal of swimming pool water by entities such as motels, hotels, and health and country clubs (discharges must be dechlorinated and otherwise free from pollutants).

The Town will build upon the existing public education and outreach program to disseminate educational materials to businesses, institutions, and commercial facilities within Town via the internet, email, direct mailing, local cable channel, and/or public posting. The Town will coordinate public educational strategies with local watershed groups and take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

BMP 1C Education and Outreach to Developers

Education and outreach goals for BMP 1C include:

- Increasing awareness of the impact of construction activities on stormwater runoff and water quality;
- Changing developer behavior over time; and
- Improving compliance with local code.

Mashpee will provide educational materials and general outreach to developers for stormwater management topics relevant to Mashpee. Topics may include:

- information about Mashpee's impaired waterbodies;
- proper sediment and erosion control management practices;
- information about Low Impact Development (LID) principles and technologies; and
- information about EPA's construction general permit (CGP).

The Town will build upon the existing public education and outreach program to disseminate educational materials to developers via the internet, email, direct mailing, local cable channel, and/or public posting. The Town will coordinate public educational strategies with local watershed groups and take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

BMP 1D Education and Outreach to Industrial Facilities

Education and outreach goals for BMP 1D include:

- Increasing awareness of industrial activities that may contribute to stormwater pollution;

















- Changing behavior over time; and
- Improving compliance with local code.

Mashpee will provide educational materials and general outreach to industrial facilities within Town for stormwater management topics relevant to Mashpee. Topics may include:

- information about Mashpee’s impaired waterbodies;
- equipment inspection and maintenance;
- proper storage of industrial materials (emphasize pollution prevention);
- proper management and disposal of wastes;
- proper management of dumpsters;
- minimization of use of salt or other de-icing/anti-icing materials;
- proper storage of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and groundwater contamination);
- benefits of appropriate on-site infiltration of stormwater runoff from areas with low exposure to industrial materials such as roofs or employee parking;
- proper maintenance of parking lot surfaces (sweeping); and
- requirements for coverage under EPA’s Multi-Sector General Permit (MSGP).

The Town will build upon the existing public education and outreach program to disseminate educational materials to industrial facilities within Town via the internet, email, direct mailing, local cable channel, and/or public posting. The Town will coordinate public educational strategies with local watershed groups and take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can take advantage of to supplement the program.

3.1.3 MCM 1 Implementation Schedule

Outreach Method	PY1	PY2	PY3	PY4	PY5
Social Media					
Signage and brochures					
Direct mailing					
Direct mailing					
Direct mailing					
Direct mailing					
Survey					
 Residents					
 Businesses, Institutions, and Commercial Facilities					
 Developers					
 Industrial Facilities					
 All Audiences					

3.1.4 Public Education and Outreach Goals and Progress

Per Section 2.3.2.e of the General Permit, the public education and outreach program shall provide focused messages for specific audiences and show evidence that progress toward the goals of the program have been achieved. The following methods will be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

- Quantify the number of each audience that is reached during direct mailings
- Develop survey for each audience and distribute in Permit Year 1, Permit Year 3, and Permit Year 5 to determine whether there has been a change in knowledge or behavior
- Track changes in behavior for specific issues addressed with education throughout the permit term (e.g., issues with erosion/sediment control during construction, pet waste bags found in catch basins, etc.)

The above methods used to evaluate the effectiveness of the program, and any additional methods developed after the date of this SWMP, shall be tied to the defined goals of the program and the overall objective of **changes in behavior and knowledge**.

3.1.5 MCM 1 Guidelines and Resources

The following links include free or low-cost resources Mashpee can use to supplement the Public Education program.

EPA Public Education

<https://cfpub.epa.gov/npstbx/>

EPA Stormwater Management Program Resources – Public Education

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#peo>

EPA Stormwater Education Toolkit (SET)

<http://www.stormwater.ucf.edu/toolkit/>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>

MassDEP Public Education

<https://www.mass.gov/guides/stormwater-outreach-materials-to-help-towns-comply-with-the-ms4-permit>

Developing an Effective Stormwater Education and Outreach Program for Your Community

http://www.urbanwaterslearningnetwork.org/wp-content/uploads/2016/04/Manual-Stormwater-Education-and-Outreach_2014.pdf

Greenscapes

<http://greenscapes.org/services-resources/>

Urban Waters

<http://www.nmstormwater.org/for-municipalities>

Association to Preserve Cape Cod

<http://www.apcc.org/stormwatermanagement/>

Cape Cod Stormwater Collaborative

<https://capecodstormwater.wordpress.com/>

3.1.6 MCM 1 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 1. See Section 5 of this Plan for additional record keeping information.

- ☐ All educational materials provided to target audiences
- ☐ Distribution lists for target audiences
- ☐ Dates of distribution of educational materials
- ☐ Annually track changes in social media subscription and use
- ☐ Note educational goals and opinion on effectiveness based on results tracked; modify education and outreach program if necessary

3.2 MCM 2: Public Involvement and Participation

Objective: *The permittee shall provide opportunities to engage the public to participate in the review and implementation of the SWMP.*

This section of the SWMP describes how to comply with the Public Involvement and Participation requirements in General Permit Section 2.3.3.

3.2.1 MCM 2 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
2A	Public Review	SWMP Review	Department of Public Works	Annually provide the public with an opportunity to participate in the review and implementation of the SWMP	FY 2019 (PY1)
2B	Public Participation	Provide opportunities for public involvement and participation in Mashpee's stormwater program. Specific activities, schedule, and lead departments are included in the SWMP.	All Town Departments, Boards, and Committees	Ongoing compliance	FY 2019 (PY1)
2C	Public Review	Stormwater Task Force (DPW, Conservation Commission, Planning, Board of Health, Environmental Oversight Committee)	Department of Public Works	At a minimum, Stormwater Task Force will meet annually.	FY 2019 (PY1)

3.2.2 MCM 2 Implementation Plan

BMP 2A Stormwater Management Plan Public Review

Mashpee shall provide the public with an opportunity to review this Stormwater Management Plan prior to finalizing it, and with other opportunities to participate in the Town's Stormwater Program on an annual basis.

While the Department of Public Works is the responsible party for this BMP, multiple Town Departments can help aid in successful implementation, as public participation in stormwater management initiatives often crosses Departments.

BMP 2B Public Participation in Stormwater Management Program

Public involvement and participation goals for BMP 2B include:

- Increasing public involvement in and knowledge of Mashpee's stormwater program; and
- Improving water quality through local clean up and waste collection events.

Mashpee shall continue to provide notice for public meetings per Massachusetts General Law requirements, including meetings pertaining to the Stormwater Management Program.

The Town shall continue to provide annual opportunities for public participation in the Program. These opportunities may include, but are not limited to:

- Storm drain stenciling;
- Storm Water School Program;
- Hazardous waste collection day; and/or
- Community Cleanups.

Appendix E includes a document with helpful tips for organizing and conducting volunteer clean-up events that Mashpee may reference. The Town shall document all public participation activities in the Annual Reports, and documentation should seek to quantify results or impact to better evaluate the public involvement and participation program effectiveness.

BMP 2C Stormwater Task Force

The Town has implemented a Stormwater Task Force, which meets on an as-needed basis. The Committee will continue to meet annually and/or as needed during the Permit term.

3.2.3 MCM 2 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
2A Stormwater Management Plan Public Review	●	●	●	●	●
2B Public Participation in Stormwater Management Program	↔				
2C Stormwater Task Force	●	●	●	●	●

● = annual requirement
↔ = ongoing requirement

3.2.4 MCM 2 Guidelines and Resources

The following links include free or low-cost resources Mashpee can use to supplement the Public Involvement program.

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#inv>

EPA Evaluation of the Role of Public Outreach and Stakeholder Engagement in Stormwater Funding Decisions in New England: Lessons from Communities

<https://www.epa.gov/sites/production/files/2015-09/documents/eval-sw-funding-new-england.pdf>

Manchester Urban Ponds Restoration Program: Tips for Organizing and Conducting Volunteer Clean-up Events

Available in Appendix E of this SWMP

Massachusetts Open Meeting Law Guide

<http://www.mass.gov/ago/docs/government/oml/oml-guide.pdf>

3.2.5 MCM 2 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 2. See Section 5 of this Plan for additional record keeping information.

- ☐ Public meeting dates and topics when stormwater management-related topic is discussed
- ☐ Dates of public participation activities and quantification of participation (such as number of volunteers/participants, number of bags collected, etc.)
- ☐ Meeting dates, topics, and attendees for Stormwater Task Force meetings

3.3 MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program

Objective: *The permittee shall implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.*

This section of the SWMP describes how to comply with the Illicit Discharge Detection and Elimination Program requirements in General Permit Section 2.3.4.

3.3.1 MCM 3 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
3A	IDDE Ordinance/Bylaw	Develop IDDE Ordinance or Bylaw. Continue to enforce illegal dumping or waste disposal under current regulations.	Department of Public Works and Board of Health	Track illicit discharges identified and removed. Track permits issues with certification of no illicit connections.	FY 2019 (PY1)
3B	Storm drainage system map	Update map during IDDE program implementation	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 2020 (PY2)
3C	Written IDDE program	Create written IDDE program	Department of Public Works	Complete within 1 year of the effective date of permit and update as required	FY 2019 (PY1)
3D	Assessment and Priority Ranking of Outfalls & Interconnections	1. Initial Catchment Delineation and Priority Ranking as part of BMP 3D for outfalls in the urbanized area. Catchments draining to any waterbody impaired for bacteria or pathogens shall be designated as high priority in implementation of the IDDE program.	Department of Public Works	Complete within 1 year of the effective date of permit and update as necessary	FY 2019 (PY1)
3D	Assessment and Priority Ranking of Outfalls & Interconnections	2. Dry Weather Outfall Screening & Sampling in accordance with IDDE Plan and permit conditions for all outfalls with dry weather flow	Department of Public Works	Complete 3 years after effective date of permit. Track # illicit discharges identified & volume removed. Summarize screening/sampling results.	FY 2019 (PY1)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
3D	Assessment and Priority Ranking of Outfalls & Interconnections	3. Catchment Investigations according to program and permit conditions	Department of Public Works	Complete 10 years after effective date of permit. Track # and percentage of MS4 catchments evaluated. Track # illicit discharges identified & volume removed. Summarize screening/sampling results.	FY 2020 (PY2)
3E	Employee Training	Train employees on IDDE implementation	Department of Public Works	Train annually. Track employees trained, training topic, date/time, and materials presented.	FY 2019 (PY1)

3.3.2 MCM 3 Implementation Plan

BMP 3A IDDE Bylaw

The IDDE program shall include adequate legal authority to prohibit, investigate, and eliminate illicit discharges and implement enforcement procedures and actions. Mashpee does not have a specific IDDE bylaw, but it does regulate non-stormwater discharges through different sections of the General Bylaws. Chapter 106 – *Health and Sanitation* prohibits unlawful dumping and discharge and runoff into streets. *Use of Waterways, Section 170-11* prohibits discharge or disposal fuels, offal, rubbish or sewage in the waters, shores or foreshores of Mashpee. The Board of Health and Harbor Master serves as the enforcement agency for these bylaws. Improvements to the bylaw will be required.

BMP 3A is ongoing.

BMP 3B Storm Drainage System Map

A comprehensive map of Mashpee's drainage system has been developed, and the Town has met the requirements of this BMP. Town staff should continue to update the map as necessary to reflect newly discovered information, corrections or modifications, improved connectivity, and progress made. The distinction between private and town-owned roadways should be called out in the mapping as some outfalls are located on private roadways. Private stormwater facilities are not under the control/ jurisdiction of the Town.

BMP 3B is ongoing.

BMP 3C Written IDDE Program

Mashpee will develop and implement a town-wide IDDE Plan, which will include procedures and timelines developed in accordance with the final General Permit. The Town should continue to update and modify the Plan on an as-needed basis.

BMP 3C is ongoing.

BMP 3D.1 Outfall/Interconnection Inventory and Initial Ranking

The Town will assess, and priority rank each outfall within the MS4 in terms of their potential to have illicit discharges and the related public health significance within 3 years of effective date of the permit.

BMP 3D.1 is ongoing.

BMP 3D.2 Dry Weather Outfall/Interconnection Screening and Sampling

Field investigations must be completed during dry weather conditions to confirm whether any Low or High Priority outfalls have dry weather flow, which may be indicative of illicit connections/discharges. The initial catchment delineation and priority ranking must be updated by the end of Permit Year 3 based on the data gathered in the field. All data gathered during implementation of this BMP must be reported annually.

BMP 3D.2 is ongoing.

BMP 3D.3 Outfall/Interconnection Catchment Investigations

Each catchment associated with an outfall or interconnection within the MS4 must be investigated based on identified System Vulnerability Factors (SVF, i.e., the likelihood that illicit discharges/connections exist) in that area. For catchments with one or more SVF, wet weather monitoring must be completed. The Town will identify the number of outfall catchments in the MS4 that have been evaluated using the catchment investigation procedure developed under BMP 3D. All data gathered during implementation of this BMP must be reported annually.

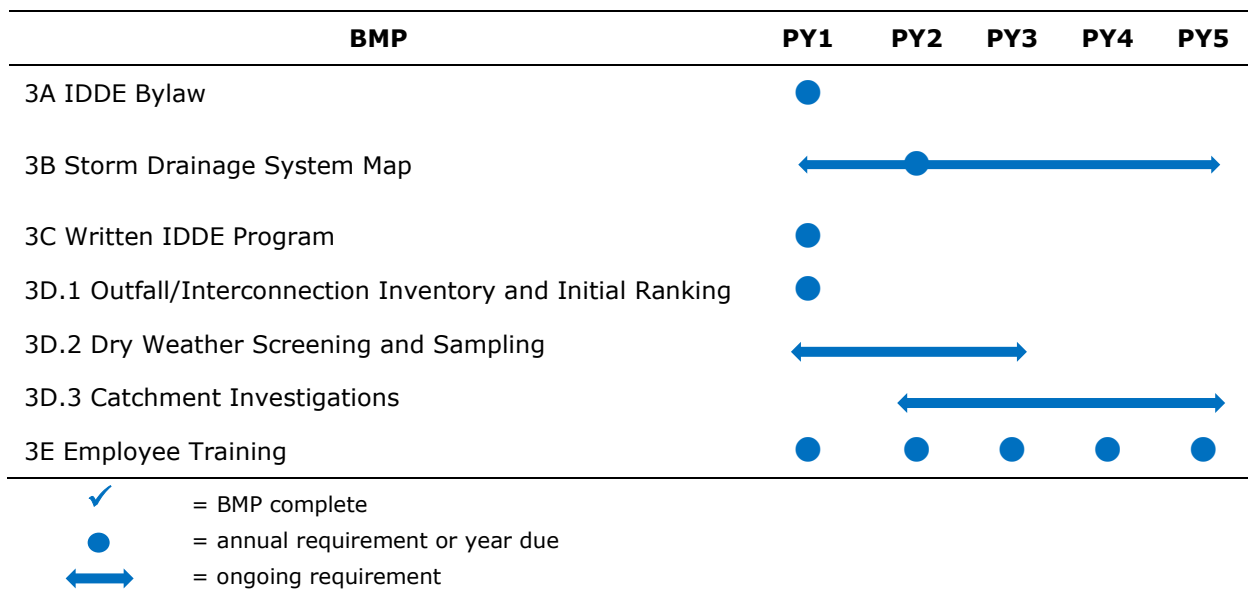
At the end of field work for this BMP, the outfall/interconnection inventory should be updated and reprioritized for ongoing screening once every five years.

BMP 3E Employee Training

Employees involved in the IDDE Program must be trained annually on the Program, including how to recognize illicit discharges and SSOs in accordance with the IDDE Plan.

3.3.3 MCM 3 Implementation Schedule

EPA's implementation timeline for the IDDE Program is available in Appendix E.



3.3.4 MCM 3 Guidelines and Resources

The following links include free or low-cost resources Mashpee can use to supplement the IDDE program. The Town-specific procedures in the IDDE Plan were developed using the IDDE Guidance Manual and New England Source Tracking Protocol linked below.

Center for Watershed Protection Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments

https://www3.epa.gov/npdes/pubs/idde_manualwithappendices.pdf

EPA Stormwater Management Program Resources – IDDE

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#idde>

EPA New England Bacterial Source Tracking Protocol

<https://www3.epa.gov/region1/npdes/stormwater/ma/2014AppendixI.pdf>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#ill>

Mashpee Health and Sanitation Bylaw

https://www.mashpeema.gov/sites/mashpeema/files/uploads/2017_town_code_0.pdf

3.3.5 MCM 3 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 3. See Section 5 of this Plan for additional record keeping information.

- ☐ Log of phone calls and complaints received regarding suspected illicit connections and other storm drain issues, including dates and actions taken;
- ☐ Drainage system map;
- ☐ Data collected during dry and wet weather outfall/interconnection investigations, including the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening results, and results of all analyses (summarize on an annual basis and for the entire permit term);
- ☐ Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure;
- ☐ Presence or absence of System Vulnerability Factors for each catchment;
- ☐ Inspection and maintenance records; and
- ☐ Frequency and type of employee training, including employees trained, training topic, date/time, and materials presented.

3.4 MCM 4: Construction Site Stormwater Runoff Control

Objective: *To minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S. through the permittee's MS4.*

This section of the SWMP describes how to comply with the Construction Site Stormwater Runoff Control requirements in General Permit Section 2.3.5.

3.4.1 MCM 4 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
4A	Construction Bylaw and Regulations	Modify local bylaw and regulations, as needed, to contain new MS4 provisions per section 2.3.5.i. Regulations shall include a requirement that new development and redevelopment of stormwater management BMPs be optimized for nitrogen removal.	Planning Board	Review current procedures and modify if necessary within 1 year of permit effective date	FY 2019 (PY1)
4B	Construction Policy and Procedures	Review and revise as needed, written procedures for site inspections and enforcement procedures per section 2.3.5.ii.	Planning Board	Review current procedures and modify if necessary within 1 year of permit effective date	FY 2019 (PY1)

3.4.2 MCM 4 Implementation Plan

Per the General Permit, Mashpee must develop and implement the following items, which will be adopted as either Bylaw/regulation modifications or a new policy or procedure:

- A regulatory mechanism that requires the use of sediment and erosion control practices at construction sites, as well as controls for other wastes on construction sites such as demolition debris, litter, and sanitary wastes;
- Written procedures for site inspections and enforcement of sediment and erosion control measures, including the responsible party for site inspections and enforcement authority, due within one (1) year of the effective date of the permit;
- Requirements for construction site operators performing land disturbance activities within the MS4 jurisdiction that result in stormwater discharges to the MS4 to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site;
- Requirements for construction site operators within the MS4 jurisdiction to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes; and
- Written procedures for site plan review and inspection and enforcement, due within one (1) year of the effective date of the permit.

BMP 4A Construction Bylaw and Regulations

The Town shall implement and enforce a program to reduce pollutants in stormwater runoff discharged to the municipal drainage system from construction activities, including use of sediment and erosion control practices, at sites greater than one acre. Mashpee adopted a zoning bylaw under *Article VI – Land Use Regulations* entitled *Stormwater Management* in May 1999. This bylaw requires erosion and sediment controls for all residential and commercial projects requiring subdivision approval, a special permit or for buildings over 1,000 square feet. Chapter 84 - *Erosion and Sediment Control* was adopted under their General Bylaw in April 2006 to manage construction site and post-construction site runoff for all new and redevelopment activities that disturb more than 2,500 SF or removal of 100 cubic yards of fill. The Department of Public Works serves as the enforcement agency for this bylaw. Additionally, under the Chapter 172 – *Wetlands* bylaw, all regulated projects must mitigate adverse impacts including erosion, siltation or loss of groundwater recharge. The Conservation Commission serves as the enforcement agency for this bylaw.

The Town will review the existing bylaw and regulations with respect to the 2016 General Permit and modify it if needed.

BMP 4B Construction Policy and Procedures

Mashpee shall update written procedures for site inspections and enforcement of sediment and erosion control measures. They will include procedures for tracking the number of site reviews, inspections, and enforcement actions.

3.4.3 MCM 4 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
4A Construction Bylaw and Regulations	●				
4B Construction Policy and Procedures	●				

● = year due

3.4.4 MCM 4 Guidelines and Resources

The following links include free or low-cost resources Mashpee can use to supplement the Construction program.

EPA Construction General Permit SWPPP template, including inspection forms
<https://www.epa.gov/npdes/epas-2017-construction-general-permit-cgp-and-related-documents>

Massachusetts Stormwater Handbook

<https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards>

EPA Stormwater Management Program Resources – Construction Site Runoff Control

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#csrc>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr>

Mashpee Stormwater Management Bylaw

https://www.mashpeema.gov/sites/mashpeema/files/uploads/2017_zoning_bylaws.pdf

Mashpee Wetlands and Erosion and Sediment Control Bylaws

https://www.mashpeema.gov/sites/mashpeema/files/uploads/2017_town_code_0.pdf

3.4.5 MCM 4 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 4. See Section 5 of this Plan for additional record keeping information.

- ☐ Number of site reviews, inspections, and enforcement actions; and
- ☐ Modifications to Mashpee's bylaws, regulations, policies, and/or procedures as necessary.

3.5 MCM 5: Post-Construction Stormwater Management

Objective: *Reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites.*

This section of the SWMP describes how to comply with the Stormwater Management in New Development and Redevelopment requirements in General Permit Section 2.3.6.

3.5.1 MCM 5 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
5A	Post-Construction Bylaw and Regulations	Modify local bylaw and regulations to contain new MS4 provisions per section 2.3.6.a.	Planning Board	Modify existing bylaw and regulations within two (2) years of permit effective date	FY 2019/2020 (PY1/2)
5B	Assess street and parking lot guidelines	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.	Planning Board	Complete report no later than (4) years of permit effective date	FY 2021 (PY3)
5C	Assess allowing green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Planning Board	Complete report no later than (4) years of permit effective date	FY 2021 (PY3)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
5D	Retrofit Feasibility Assessment	Conduct detailed inventory of Town-owned properties and rank for retrofit potential. Priority ranking shall include consideration of BMPs to reduce nitrogen discharges.	Planning Board	Complete report no later than 4 years of permit effective date, beginning in year 5 keep running list of at least 5 retrofit sites	FY 2021 (PY3)

3.5.2 MCM 5 Implementation Plan

BMP 5A Post-Construction Bylaw and Regulations

The Town shall implement and enforce a program to reduce pollutants in stormwater runoff discharged to the municipal drainage system from post-construction activities for all new development and redevelopment sites greater than one acre. Mashpee adopted Chapter 84 - *Erosion and Sediment Control* under their General Bylaw in April 2006 to manage construction site and post-construction site runoff for all new and redevelopment activities that disturb more than 2,500 SF or removal of 100 cubic yards of fill. The Department of Public Works serves as the enforcement agency for the bylaw.

The Town will need to review the existing bylaw with respect to the 2016 General Permit and modify it if needed. Additionally, the Town will implement procedures to require the submission of as-built plans after the completion of construction projects and ensure long-term operation and maintenance of stormwater management practices in place at construction sites.

BMP 5B Assess Street and Parking Lot Guidelines

In accordance with General Permit Section 2.3.6.b, Mashpee shall develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover. This assessment shall be used to provide information to allow the Town to determine if changes to design standards for streets and parking lots can be made to support low impact design (LID) options. Input will be gathered from multiple Town departments. The final report will be appended to this SWMP once completed.

BMP 5C Assess Feasibility of Allowing Green Infrastructure

As detailed in General Permit Section 2.3.6.c, Mashpee shall develop a report assessing local regulations to determine the feasibility of making green roofs, infiltration practices, and water harvesting devices allowable when appropriate site conditions exist. The Town shall implement all recommendations in accordance with the schedules contained in the assessment.

BMP 5D Retrofit Feasibility Assessment

The Town must identify at least five town-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant

loads of stormwater discharges through a reduction of impervious area. General Permit Section 2.3.6.d describes factors and considerations for selecting potential sites with the goal of reducing impervious area and improving water quality. The inventory must be updated annually starting in Permit Year 5.

3.5.3 MCM 5 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
5A Post-Construction Bylaw and Regulations		●			
5B Assess Street and Parking Lot Guidelines				●	
5C Assess Feasibility of Allowing Green Infrastructure				●	
5D Retrofit Feasibility Assessment				●	→

● = year due

3.5.4 MCM 5 Guidelines and Resources

The following links include free or low-cost resources Mashpee can use to supplement the Post-Construction program.

Massachusetts Stormwater Handbook

<https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards>

EPA Stormwater Management Program Resources – Post Construction Stormwater Control

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#post>

Mashpee Erosion and Sediment Control Bylaw

https://www.mashpeema.gov/sites/mashpeema/files/uploads/2017_town_code_0.pdf

Managing Stormwater in Your Community: A Guide for Building an Effective Post-Construction Program

<https://www3.epa.gov/npdes/pubs/stormwaterinthecommunity.pdf>

EPA Managing Stormwater with LID Practices: Addressing Barriers to LID

<https://www3.epa.gov/region1/npdes/stormwater/assets/pdfs/AddressingBarrier2LID.pdf>

Metropolitan Area Planning Council LID Toolkit

<https://www.mapc.org/resource-library/low-impact-development-toolkit/>

3.5.5 MCM 5 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 5. See Section 5 of this Plan for additional record keeping information.

- ☐ Measures the Town has taken to ensure adequate long-term operation and maintenance of stormwater BMPs and to require submission of as-built plans;
- ☐ Modifications to Mashpee's bylaws, regulations, policies, and/or procedures as necessary;
- ☐ Status of BMP 5B and 5C assessments, including any planned or completed changes to local regulations and guidelines (BMP 5B) and findings and progress towards making the practices allowable (BMP 5C); and
- ☐ Retrofit inventory, including all sites that have been modified or retrofitted. Sites should include town-owned sites identified in the inventory as well as non-municipal property modified or retrofitted to mitigate impervious area.

3.6 MCM 6: Good Housekeeping and Pollution Prevention

Objective: *The permittee shall implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.*

This section of the SWMP describes how to comply with the Good Housekeeping and Pollution Prevention requirements in General Permit Section 2.3.7.

3.6.1 MCM 6 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
6A	Operation & Maintenance Program	Inventory and create O&M procedures for all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment . O&M procedures will establish requirements for use of slow-release fertilizers on permittee owned property and managing grass cuttings and leaf litter.	Department of Public Works, Conservation Commission	Complete 2 years after permit effective date, implement in following years	FY 2019 (PY1)
6B	Operation & Maintenance Program	Establish and implement program for repair and rehabilitation of MS4 infrastructure	Department of Public Works	Complete 2 years after permit effective date, implement in following years	FY 2019 (PY1)
6C	Stormwater Pollution Prevention Plans (SWPPP)	Develop and implement a SWPPP and SPCC BMPs at DPW/Highway Facility and the Transfer Station	Department of Public Works	Complete SWPPPs within 2 year of permit effective date, implement in following years	FY 2020 (PY2)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
6D	Operation & Maintenance Program	1. Implement procedures to optimize catch basin cleaning developed under BMP 6B	Department of Public Works	Track frequency and material quantity of catch basin cleaning in town. In first Annual Report and in SWMP, document plan for optimizing catch basin cleaning.	FY 2019 (PY1)
6D	Operation & Maintenance Program	2. Implement procedures for street and parking lot sweeping developed under BMP 6B. Street sweeping of all municipal owned streets and parking lots will occur a minimum of two times per year.	Department of Public Works	Annually track number of miles cleaned or the volume or mass of material removed.	FY 2019 (PY1)
6D	Operation & Maintenance Program	3. Implement procedures for use and storage of deicing materials developed under BMP 6B	Department of Public Works	Implement program for winter road maintenance throughout permit term.	FY 2019 (PY1)
6D	Operation & Maintenance Program	4. Implement procedures to inspect and maintain Town-owned structural stormwater BMPs	Department of Public Works	Develop an inventory of Town owned-BMPs during PY3. Report on inspection and maintenance conducted annually starting in PY4.	FY 2019 (PY1)

3.6.2 MCM 6 Implementation Plan

BMP 6A Operation and Maintenance Program for Municipal Facilities and Equipment

Mashpee currently implements an informal Municipal Good Housekeeping Program. The Program provides a consistent framework to aid the Town of Mashpee in preventing or reducing stormwater pollution from municipal operations and identifies municipal activities with a range of pollution potential, provides best management practices, and establishes responsible parties to implement the program. The Town must develop written Town-

Wide Operation and Maintenance Program for municipal facilities and equipment, including:

- Parks and open space;
- Buildings and facilities, including schools, where pollutants are exposed to stormwater runoff; and
- Vehicles and equipment.

This plan will include an inventory of the municipally-owned facilities and equipment. The inventory and written program will be appended to this SWMP.

BMP 6B Operation and Maintenance Program for MS4 Infrastructure

The Town shall include a written program describing MS4 Infrastructure Town-Wide Operation & Maintenance in the plan discussed in BMP 6A. This section of the plan will describe activities and procedures used to maintain MS4 infrastructure in a timely manner to reduce the discharge of pollutants from the MS4. The written program developed under this BMP will be appended to the SWMP.

BMP 6C Stormwater Pollution Prevention Plans

The Town shall prepare and implement a SWPP for the Town's Highway Facility and Transfer Station. SWPPP requirements include "regular" employee training for all members of the Pollution Prevention Team (annually, at a minimum). Additionally, quarterly site inspections are required at these sites according to General Permit Section 2.3.7.b.iii.

BMP 6D.1 Catch Basin Cleaning

The Town must clean and inspect catch basins to make sure that catch basins are no more than 50% full. Develop and implement a program to optimize routine inspections, cleaning, and maintenance of catch basins. If a catch basin is consistently less than 50% full, the Town can reduce the frequency of cleanings. If a catch basin is more than 50% full during two consecutive cleanings/inspections, the Town must investigate the contributing drainage area for sources of excessive sediment loading abate contributing sources when possible. Store and dispose/reuse catch basin cleanings according to MassDEP policies.

BMP 6D.2 Street Sweeping

Establish and implement procedures for sweeping and/or cleaning streets and Town-owned parking lots. All streets must be swept and/or cleaned at least once per year in the spring (excluding rural streets with no curbs or catch basins). More frequent sweeping shall occur in targeted areas based on pollutant load reduction potential. Store and dispose/reuse street sweepings according to MassDEP policies.

For rural streets with no curbs or catch basins, the Town must sweep at least once per year or develop a targeted inspection and sweeping plan for those streets.

BMP 6D.3 Deicing Materials



Establish and implement procedures for winter road maintenance, including the use and storage of salt and sand.

BMP 6D.4 Inspection and Maintenance of Town-Owned BMPs

The Town shall develop inspection and maintenance procedures and frequencies for all stormwater treatment structures. An important first step will be to improve the inventory, mapping, and record keeping procedures for Town-owned or operated stormwater BMPs, such as detention ponds and swales. All town-owned BMPs must be inspected annually at a minimum.

3.6.3 MCM 6 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
6A O&M Program for Municipal Facilities and Equipment		●			
6B O&M Program for MS4 Infrastructure		●			
6C Stormwater Pollution Prevention Plans		●			
6D.1 Catch Basin Cleaning	←●	→	→	→	→
6D.2 Street Sweeping	←	●	→	→	→
6D.3 Deicing Materials	←	→	→	→	→
6D.4 Inspection and Maintenance of Town-Owned BMPs	●	●	●	●	●

 = annual requirement or year due
 = ongoing requirement

3.6.4 MCM 6 Guidelines and Resources

The following links include free or low-cost resources Mashpee can use to supplement the Good Housekeeping and Pollution Prevention program. The Town should also refer to the Oil SPCC Plan for the Mashpee Department of Public Works Municipal Garage.

EPA Stormwater Management Program Resources – Good Housekeeping

<https://www.epa.gov/npdes-permits/stormwater-tools-new-england#gh>

EPA National Menu of BMPs for Stormwater

<https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#poll>

Center for Watershed Protection Municipal Pollution Prevention/Good Housekeeping Practices

http://cdrpc.org/wp-content/uploads/2015/05/CWP_Municipal_Pollution_Prevention.pdf

MassDEP Management of Catch Basin Cleanings

<http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html>

MassDEP Reuse & Disposal of Street Sweepings

<http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf>

MassDEP Snow Disposal Guidance

<https://www.mass.gov/guides/snow-disposal-guidance>

Central Massachusetts Regional Stormwater Coalition SOP: Inspecting Constructed BMPs

http://centralmastormwater.org/Pages/crsc_toolbox/Constructed%20BMP%20Inspection%20SOP_FINAL.pdf

3.6.5 MCM 6 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 6. See Section 5 of this Plan for additional record keeping information.

- ☐ Inventory of municipal facilities and equipment;
- ☐ Plan for optimizing catch basin cleaning and metrics about the number of catch basins, quantity cleaned and inspected, and total volume of material removed from all catch basins;
- ☐ Miles of streets cleaned, and the volume of material removed; and
- ☐ All records associated with SWPPP quarterly site inspections, maintenance activities, and training.

Section 4

BMPs to Address Specific Waterbody Requirements

4.1 Impaired Waterbodies

As described in Sections 2 of the SWMP, several surface waterbodies within Mashpee were identified in the 2014 Integrated List of Waters as Category 5 waters needing a TMDL. Although Waquoit Bay is impaired for dissolved oxygen, Popponesset Creek is impaired for Estuarine Bioassessments and John's and Mashpee Ponds are impaired for mercury, no additional BMPs are required for these waterbodies. Ashumet Pond and Santuit Pond are impaired for phosphorus, however, these waterbodies receive no direct discharges from outfalls within the urbanized area, as such, Mashpee is not subject to the provisions of Appendix H Part II. Despite no direct discharges to Ashumet Pond and Santuit Pond, the Town of Mashpee has decided to include the enhanced BMPs for phosphorus as part of their stormwater management plan and undertake actions necessary to meet the requirements of Appendix H Part II, as described below in section 4.1.1, in an effort to preserve the water quality of the Town's ponds, particularly Santuit Pond, which has recently experienced frequent algal blooms.

Mashpee is listed in the 2014 permit as an MS4 that discharges to a waterbody segment on Table F-8 in Appendix F where a TMDL has been established for bacteria/pathogens, and in Table F-9 in Appendix F where a TMDL has been established for total nitrogen. As such, Mashpee must meet the requirements of Appendix F, part A.III and A.IV with respect to reduction of bacteria and nitrogen discharges from their MS4, as described below in sections 4.1.2 and 4.1.3.

4.1.1 Total Phosphorous

- a. Additional or Enhanced BMPs
 - i. The permittee remains subject to the requirements of part 2.3. of the permit and shall include the following enhancements to the BMPs required by part 2.3 of the permit:
 - 1. Part 2.3.2, Public education and outreach: The permittee shall supplement its Residential and Business/Commercial/Institution program with annual timed messages on specific topics. The permittee shall distribute an annual message in the spring (March/April) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorous-free fertilizers. The permittee shall distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. The permittee shall distribute an annual message in the fall (August/September/October) timeframe encouraging the proper disposal of leaf litter. The permittee shall deliver an annual message on each of these topics, unless the permittee determines that one or more of these issues is not a significant contributor of phosphorous to discharges from the MS4 and the permittee retains documentation of this finding in the SWMP. All public education messages

can be combined with requirements of Appendix H part I and III as well as Appendix F part A.III, A.IV, A.V, B.I, B.II and B.III where appropriate.

2. Part 2.3.6, Stormwater Management in New Development and Redevelopment: the requirement for adoption/amendment of the permittee's ordinance or other regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal; retrofit inventory and priority ranking under 2.3.6.1.b shall include consideration of BMPs that infiltrate stormwater where feasible.
3. Part 2.3.7, Good House Keeping and Pollution Prevention for Permittee Owned Operations: Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall).

b. Phosphorus Source Identification Report

Within four years of the permit effective date the permittee shall complete a Phosphorus Source Identification Report. The report shall include the following elements:

- Calculation of total MS4 area draining to the water quality limited receiving water segments or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6,
- All screening and monitoring results pursuant to part 2.3.4.7.d., targeting the receiving water segment(s)
- Impervious area and DCIA for the target catchment
- Identification, delineation and prioritization of potential catchments with high phosphorus loading
- Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area

c. Potential Structural BMPs

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

- The next planned infrastructure, resurfacing or redevelopment activity planned for the property (if applicable) OR planned retrofit date;
- The estimated cost of redevelopment or retrofit BMPs; and

- The engineering and regulatory feasibility of redevelopment or retrofit BMPs.
- i. The permittee shall provide a listing of planned structural BMPs and a plan and schedule for implementation in the year 5 annual report. The permittee shall plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries within six years of the permit effective date. The demonstration project shall be installed targeting a catchment with high phosphorus load potential. The permittee shall install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year 5 annual report.
- ii. Any structural BMPs installed in the regulated area by the permittee or its agents shall be tracked, and the permittee shall estimate the phosphorus removal by the BMP consistent with Attachment 3 to Appendix F. The permittee shall document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed mass per year by the BMP in each annual report.

4.1.2 Bacteria

Mashpee is listed in the 2014 permit as an MS4 that discharges to a waterbody segment listed on Table F-8 in Appendix F. As such, Mashpee must meet the requirements of Appendix F, part A.III with respect to reduction of bacteria/pathogens discharges. Municipalities listed in Table F-8 and/or that discharge to a waterbody listed on Table F-8 shall comply with the following BMPs in addition to the requirements of part 2.3 of the Permit, as described below:

a. Enhanced BMPs

- i. Enhancement of BMPs required by part 2.3 of the permit that shall be implemented during this permit term:
 - 1. part 2.3.3. Public Education: The permittee shall supplement its Residential program with an annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. The permittee or its agents shall disseminate educational materials to dog owners at the time of issuance or renewal of a dog license, or other appropriate time. Education materials shall describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance. The permittee shall also provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens. All public education messages can be combined with requirements of Appendix H part I, II and III as well as Appendix F part A.IV, A.V, B.I, B.II and B.III where appropriate.
 - 2. part 2.3.4 Illicit Discharge: Catchments draining to any waterbody impaired for bacteria or pathogens shall be designated either Problem Catchments or HIGH priority in implementation of the IDDE program.

At any time during the permit term the permittee may be relieved of additional requirements in Appendix F part A.III.1. as follows:

The permittee is relieved of additional requirements as of the date when the following conditions are met:

- b. The applicable TMDL has been modified, revised or withdrawn and EPA has approved a new TMDL applicable to the receiving water that indicates that no additional stormwater controls for bacteria/pathogens are necessary for the permittee's discharge based on waste load allocations in the newly approved TMDL.
- i. In such a case, the permittee shall document the date of the approved TMDL in its SWMP and is relieved of any additional remaining requirements of Appendix F part A.III.1 as of that date and the permittee shall comply with the following:
 - 1. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix F part A.III.1 to date to reduce bacteria/pathogens in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs
 - 2. The permittee shall continue to implement all requirements of Appendix F part A.III.1 required to be implemented prior to the date of the newly approved TMDL, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural BMPs in accordance with manufacturer or design specifications.

4.1.3 Total Nitrogen

Mashpee is listed in the 2014 permit as an MS4 that discharges to a waterbody segment listed on Table F-9 in Appendix F. As such, Mashpee must meet the requirements of Appendix F, part A.IV with respect to reduction of nitrogen discharges from their MS4. Mashpee remains subject to all the requirements of part 2.3. of the permit and shall include the following enhancements to the BMPs required by part 2.3 of the permit:

a. Additional or Enhanced BMPs

- i. Part 2.3.2, Public education and outreach: The permittee shall supplement its Residential and Business/Commercial/Institution program with annual timed messages on specific topics. The permittee shall distribute an annual message in the spring (April/May) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers. The permittee shall distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. The permittee shall distribute an annual message in the Fall (August/September/October) timeframe encouraging the proper disposal of leaf litter. The permittee shall deliver an annual message on each of these topics, unless the permittee determines that one or more of these issues is not a significant contributor of nitrogen to discharges from the MS4 and the permittee retains documentation of this finding in the SWMP. All public education messages can be combined with requirements of Appendix H part II and III as well as Appendix F part A.III, A.IV, A.V, B.I, B.II and B.III where appropriate.
- ii. Part 2.3.6, Stormwater Management in New Development and Redevelopment: the requirement for adoption/amendment of the permittee's ordinance or other

regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for nitrogen removal; retrofit inventory and priority ranking under 2.3.6.1.b shall include consideration of BMPs to reduce nitrogen discharges.

- iii. Part 2.3.7, Good House Keeping and Pollution Prevention for Permittee Owned Operations: establish requirements for use of slow release fertilizers on permittee owned property currently using fertilizer, in addition to reducing and managing fertilizer use as provided in 2.3.7.1; establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces; increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall).

b. Nitrogen Source Identification Report

- i. Within four years of the permit effective date the permittee shall complete a Nitrogen Source Identification Report. The report shall include the following elements:
 - 1. Calculation of total MS4 area draining to the water quality limited water segments or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6.
 - 2. All screening and monitoring results pursuant to part 2.3.4.7.d., targeting the receiving water segment(s)
 - 3. Impervious area and DCIA for the target catchment
 - 4. Identification, delineation and prioritization of potential catchments with high nitrogen loading
 - 5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment
- ii. The final Nitrogen Source Identification Report shall be submitted to EPA as part of the year 4 annual report.

c. Potential Structural BMPs

- i. Within five years of the permit effective date, the permittee shall evaluate all permittee-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation under permit part 2.3.6.d.ii. or identified in the Nitrogen Source Identification Report that are within the drainage area of the impaired water or its tributaries. The evaluation shall include:
 - 1. The next planned infrastructure, resurfacing or redevelopment activity planned for the property (if applicable) OR planned retrofit date;

2. The estimated cost of redevelopment or retrofit BMPs; and
 3. The engineering and regulatory feasibility of redevelopment or retrofit BMPs
- ii. The permittee shall provide a listing of planned structural BMPs and a plan and schedule for implementation in the year 5 annual report. The permittee shall plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries within six years of the permit effective date. The demonstration project shall be installed targeting a catchment with high nitrogen load potential. The permittee shall install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year 5 annual report.
 - iii. Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents shall be tracked, and the permittee shall estimate the nitrogen removal by the BMP consistent with Attachment 1 to Appendix H. The permittee shall document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP in each annual report.

4.2 Additional Requirements for Discharges to Surface Drinking Water Supplies and Their Tributaries

According to Section 3.0 of the 2016 Small MS4 General Permit, MS4s that discharge to public surface drinking water supply sources or their tributaries should consider these waters a priority in the implementation of the SWMP.

The Town of Mashpee has four public water supply wells serving the most densely portions of the Town. Because the only source of water to Mashpee is from groundwater, aquifer protection is a priority for the Town of Mashpee for over 30 years. Mashpee has stringent Wellhead protections in place including a Groundwater Protection Overlay District. Mashpee Water District owns or controls the entire Zone 1 for each water supply.

The Town of Mashpee is entirely within the Cape Cod Aquifer, which is not a stressed basin per the most recent Massachusetts Water Resources Commission Stressed Basins Report. The Town is addressing EPA's recharge and infiltration requirements through existing local code and review processes including:

- Mashpee Zoning Bylaws *Section 174 Stormwater Management* establishes post-development stormwater management standards and design criteria. The Stormwater Management section of the bylaw as well as the Town's Subdivision Rules and Regulations requires projects to limit impervious surfaces and provide LID BMPs (targeting nitrogen removal) to treat the first inch of runoff, consistent with the Massachusetts Stormwater Handbook design criteria. The Stormwater Management Zoning Bylaw and Subdivision Rules and Regulation require that post-development conditions match pre-development conditions as feasible, which typically requires infiltration practices.

- Mashpee Wetland Bylaws, requires projects in wetlands jurisdiction to meet the performance standards set forth in the Commonwealth's Wetland Protection Act and associated Regulations, including the Massachusetts Stormwater Handbook. The conservation commissions regulations address adverse impacts on resource areas for both pre and post construction. Adverse impacts include erosion, siltation, loss of groundwater recharge, poor water quality and loss of wildlife habitat.
- Design standards included in the Town's Zoning Bylaw Special Permit regulations, and Subdivision Rules and Regulations require projects to prevent pollution of surface or groundwater and to minimize erosion, sedimentation, impervious surfaces, increased rates of runoff, and potential for flooding. The standards also require an operation and management plan to assure the system functions as designed.

Section 5

Program Evaluation, Record Keeping, and Reporting

5.1 Program Evaluation

The Town will annually self-evaluate its compliance with the terms and conditions of the 2016 General Permit, including the appropriateness of selected BMPs and progress toward defined measurable goals. The self-evaluation will be submitted as part of the Annual Report and maintained as part of the SWMP.

5.2 Record Keeping

The Town will keep all records required by the 2016 General Permit for **at least five years**, including, but not limited to the following key information:

- Monitoring results;
- Copies of reports;
- Records of outfall/interconnection screening;
- Follow-up and elimination of illicit discharges;
- Maintenance records; and
- Inspection records.

Checklists of record keeping items Mashpee should maintain are also included under each BMP in Section 3 of the SWMP. Records relating to the 2016 General Permit, including the SWMP, will be made available to the public, as required by Section 4.2.c of the Permit.

5.3 Annual Reports

The Town will submit annual reports each year of the Small MS4 permit term, 90 days from the close of the reporting period (i.e., September 28). 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 the 2016 General Permit shall also cover the period from May 1, 2018 to the permit effective date, July 1, 2018.

Per Section 4.4.b of the 2016 General Permit, 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.*

5.4 SWMP Modifications

Per Section 4.1 of the 2016 General Permit, the Town shall complete the following tasks:

- a. *The permittee shall annually self-evaluate its compliance with the terms and conditions of this permit and submit each self-evaluation in the Annual Report. The permittee shall also maintain the annual evaluation documentation as part of the SWMP.*
- b. *The permittee shall evaluate the appropriateness of the selected BMPs in achieving the objectives of each control measure and the defined measurable goals. Where a BMP is found to be ineffective the permittee shall change BMPs in accordance with the provisions below. In addition, permittees may augment or change BMPs at any time following the provisions below:*
 - *Changes adding (but not subtracting or replacing) components or controls may be made at any time.*
 - *Changes replacing an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP may be made if the basis for the changes is documented in the SWMP by, at a minimum:*
 - *An analysis of why the BMP is ineffective or infeasible;*
 - *Expectations on the effectiveness of the replacement BMP; and*
 - *An analysis of why the replacement BMP is expected to achieve the defined goals of the BMP to be replaced.*

The permittee shall indicate BMP modifications along with a brief explanation of the modification in each Annual Report.

- c. *EPA or MassDEP may require the permittee to add, modify, repair, replace or change BMPs or other measures described in the annual reports as needed:*
 - *To address impacts to receiving water quality caused or contributed to by discharges from the MS4; or*
 - *To satisfy conditions of this permit*

Any changes requested by EPA or MassDEP will be in writing and will set forth the schedule for the permittee to develop the changes and will offer the permittee the opportunity to propose alternative program changes to meet the objective of the requested modification.

The Town may update or revise the SWMP as needed as the Town's activities are modified, changed, or updated to meet permit conditions during the permit term. If it is necessary to modify or update the SWMP, the Town should follow this procedure to formalize the changes:

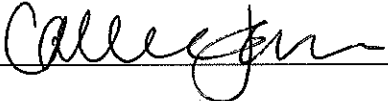
- Keep a log with a description of the modification, the date, and the name and signature of the person making it; and
- Re-sign and date the certification statement in Section 6 of this SWMP.

A SWMP amendment log and additional certification statements are in Appendix G.

Section 6

SWMP Certification

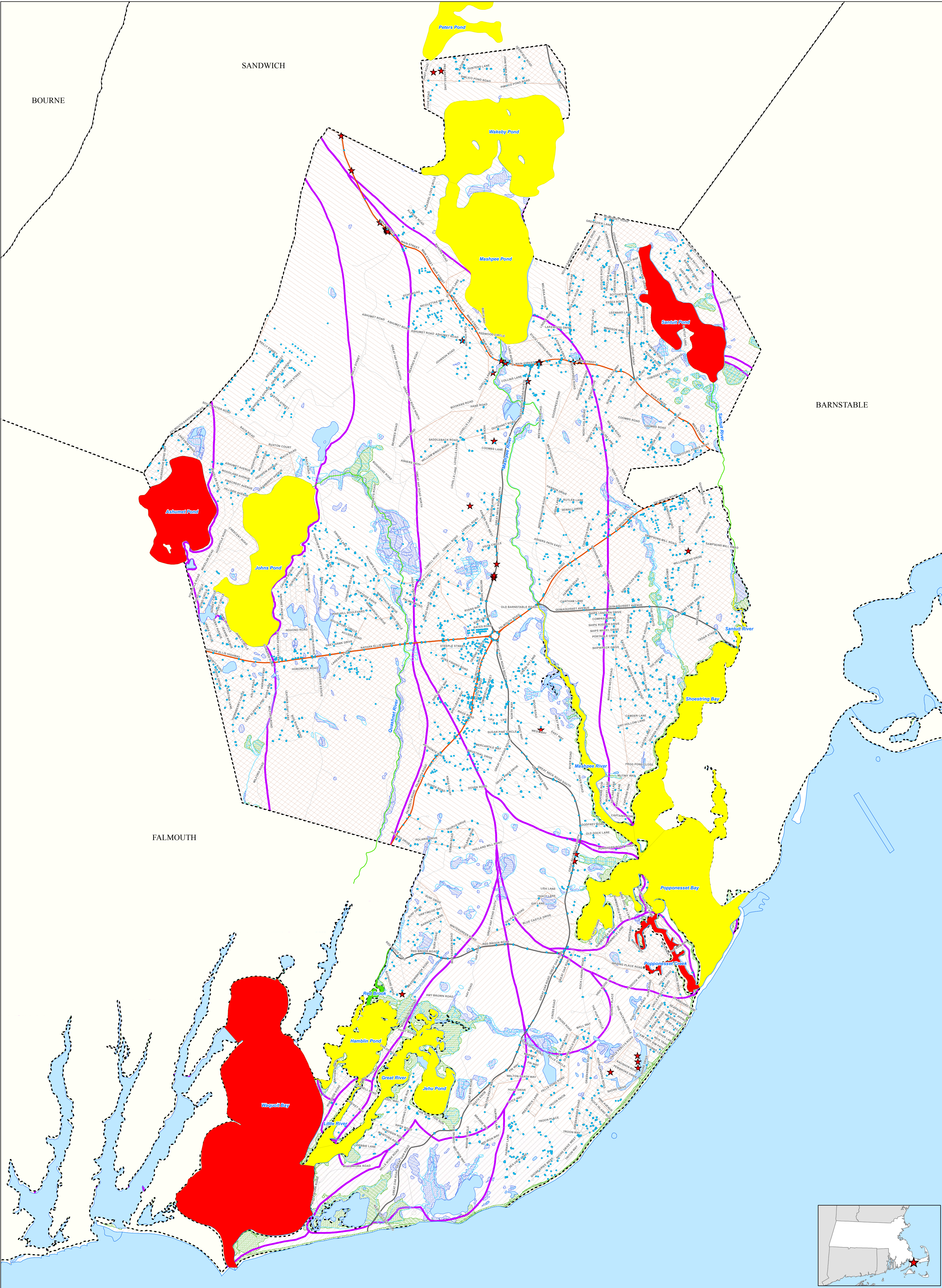
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage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

Name: CAHERINE LAURENT Title: DPW DIRECTOR
Signature:  Date: 6-24-19

A letter that authorizes the Town of Mashpee Department of Public Works Director to sign and certify certain documents prepared under the Small MS4 General Permit is included in Appendix H.

Appendix A

Notice of Intent
and
Authorization to Discharge Letter from EPA



Legend

- Catch Basin

Outfall

Urban Area (Census 2000 and 2010)

Sub-Embayment

2014 Integrated Waters (Rivers)

Category

2 - Attaining some uses; other uses not assessed

2014 Integrated Waters (Lakes, Estuaries)

Category

2 - Attaining some uses; other uses not assessed

4A - Impaired - TMDL is completed

5 - Impaired - TMDL required
- Roads**

CLASS

Limited Access Highway

Multi-Lane Highway, NOT Limited Access

Other Numbered Highway

Major Road - Collector

Minor Street or Road

Town Boundary
- Hydrography**

Lake, Pond, River or Impoundment

Bay Estuary or other Salt Water Feature

Inland Wetlands

Coastal Wetlands

Stream, Brook

1:20,400

0 1,700 3,400

Feet



Based on MassGIS Data

IMPAIRED WATERS

Town of Mashpee, Massachusetts

May 2017

Tighe&Bond
Engineers | Environmental Specialists

Appendix B

Summary of 2003 and 2016 MS4 General Permit BMPs

Appendix B

Summary of 2003 and 2016 MS4 General Permit BMPs

BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the following proposed 2016 General Permit BMPs (BMPs current as of 2017 Annual Report):

PE-1	Zone II Information	Now under BMPs 1A-B
PE-2	Storm Water Information	Now under BMPs 1A-D
PE-3	Storm Drain Stenciling	Now under BMP 2B
PE-4	Storm Water School Program	Now under BMP 1A
PP-1	Community Cleanups	Now under BMP 2B
PP-2	Reciprocal HHP Collections	Now under BMP 2B
PP-3	Permanent HHP Collections	Now under BMP 2B
PP-4	Pooper Scoopers	Now under BMP 2B
PP-5	Fertilizer/Pesticide Use	Now under BMPs 1A-D
PP-6	Regulatory Board Education	Now under BMPs 1A-B
IDD-1	Outfall Identification	Now under BMP 3B
IDD-2	Prohibition of Illicit Discharge	Now under BMP 3A
IDD-3	Reduction of Direct Discharge	Now under BMP 3D
IDD-4	Water Monitoring Program	Now under BMP 2B and 3D
IDD-5	Identification of Illicit Discharge	Now under BMP 3D
CSR-1	Review and Amendment of Existing Regulations	Now under BMP 4A
CSR-2	Inspection Program	Now under BMP 4B
PCR-1	Review of Existing Regulations	Now under BMP 5A
MGH-1	Street Sweeping	Now under BMP 6D
MGH-2	Catch Basin Cleaning	Now under BMP 6D
MGH-3	Spill Training	Now under BMP 6C
MGH-4	Minimization of Road Salt Use	Now under BMP 6D
TMDL-1	Development and Implementation of BMPs	Now under BMP 5C-D and 6D

Appendix C

Endangered Species Act Eligibility Criteria Documentation

Endangered Species Act Eligibility Certification

To: Town of Mashpee
FROM: Tighe & Bond
COPY: Catherine Laurent
DATE: August 20, 2018

Part 1.9.1 of the U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits from Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts, effective July 1, 2018¹, requires communities covered by the Permit to certify eligibility regarding federal Endangered and Threatened Species and Critical Habitat Protection on the Notice of Intent (NOI) due to EPA and MassDEP by October 1, 2018, and to maintain documentation in the Stormwater Management Program records. To certify eligibility, there are three criteria to choose from:

- Criterion A: No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities.
- Criterion B: In the course of formal or informal consultation with the Fish and Wildlife Service, under section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and discharge related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation).
- Criterion C: Using the best scientific and commercial data available, the effect of the stormwater discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

Tighe & Bond has begun the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C (see Attachment A of this memorandum), of the Permit.

Step 1:

Tighe & Bond went to the IPaC website² and created an IPaC Trust Resources Report, included in Attachment B to this memorandum. This Report lists the following species that may occur or could potentially be affected by activities in the Town:

- Northern Long-eared Bat
 - Piping Plover
 - Red Knot, migratory only
 - Roseate Tern
-

¹ Revised effective date according to 6/29/17 EPA memo from EPA Region 1 Acting Regional Administrator

² <http://ecos.fws.gov/ipac/>

This report also documents that there are no critical habitats in Mashpee.

Step 2:

Tighe & Bond then went to the U.S. Fish & Wildlife Service New England Field Office website for Endangered Species Reviews/Consultations³ and selected the Massachusetts state list⁴ to review which Towns have federally-listed species. A copy of the list of Federally Listed Endangered and Threatened Species in Massachusetts is included in Attachment C to this memorandum. Based on review of this list the Northern Long-eared Bat is listed statewide and therefore applies to communities in Barnstable County. The Piping Plover and Red Knot are listed as present in all towns with coastal beaches and the Roseate Tern is listed in coastal towns.

Step 3:

Per the USFWS endangered species consultation guidance, Tighe & Bond visited the Massachusetts Natural Heritage and Endangered Species Program (NHESP) species information and conservation website about the Northern Long-eared Bat⁵. Attachment D includes a map showing there are no roost trees or hibernating locations for the Bat within Mashpee. Piping Plover, Red Knot and Roseate Tern are avian species that are present in Mashpee's coastal habitat areas, however there are no coastal stormwater outfalls and therefore stormwater discharge would not impact the bird habitat.

Based on the results of the NHESP website review and stormwater outfall map there is potential habitat for only listed avian species within the action area but discharge or discharge related activities are not likely to adversely affect listed species.

Town's Action

To confirm the Town of Mashpee can meet **Criterion B**, the Town must submit a letter to the USFWS to initiate consultation and obtain either a "no jeopardy" opinion by the USFWS (for formal consultation) or concurrence by the USFWS that Town activities would be "not likely to adversely affect" listed species or critical habitat (for informal consultation).

If the consultation is conditioned upon measures, the Town must agree to implement those measures.

Finally, if during the course of the permit term, Mashpee plans to install a structural BMP not identified in the NOI that Mashpee will re-initiate informal or formal consultation with USFWS as necessary.

³ https://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm

⁴ <https://www.fws.gov/newengland/pdfs/MA%20species%20by%20town.pdf>

⁵ <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-mammals/northern-long-eared-bat.html>

Attachment A

Appendix C of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts

APPENDIX C ENDANGERED SPECIES GUIDANCE

A. Background

In order to meet its obligations under the Clean Water Act and the Endangered Species Act (ESA), and to promote the goals of those Acts, the Environmental Protection Agency (EPA) is seeking to ensure the activities regulated by this general permit do not adversely affect endangered and threatened species or critical habitat. Applicants applying for permit coverage must assess the impacts of their stormwater discharges and discharge-related activities on federally listed endangered and threatened species (“listed species”) and designated critical habitat (“critical habitat”) to ensure that those goals are met. Prior to obtaining general permit coverage, applicants must meet the ESA eligibility provisions of this permit by following the steps in this Appendix¹.

Applicants also have an independent ESA obligation to ensure that their activities do not result in any prohibited “take” of listed species¹². The term “Take” is used in the ESA to include harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. “Harass” is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Many of the measures required in this general permit and in these instructions to protect species may also assist in ensuring that the applicant’s activities do not result in a prohibited take of species in violation of section 9 of the ESA. If the applicant has plans or activities in an area where endangered and threatened species are located, they may wish to ensure that they are protected from potential take liability under ESA section 9 by obtaining an ESA section 10 permit or by requesting formal consultation under ESA section 7. Applicants that are unsure whether to pursue a section 10 permit or a section 7 consultation for takings protection should confer with the appropriate United States Fish and Wildlife Service (USFWS) office or the National Marine Fisheries Service (NMFS), (jointly the Services).

Currently, there are 20 species of concern for applicants applying for permit coverage, namely the Dwarf wedgemussel (*Alasmodonta heterodon*), Northeastern bulrush (*Scirpus ancistrochaetus*), Sandplain gerardia (*Agalinis acuta*), Piping Plover (*Charadrius melodus*), Roseate Tern (*Sterna dougallii*), Northern Red-bellied cooter (*Pseudemys rubriventis*), Bog Turtle (*Glyptemys muhlenbergii*), Small whorled Pogonia (*Isotria medeoloides*), Puritan tiger beetle (*Cicindela puritana*), American burying beetle (*Nicrophorus americanus*), Northeastern beach tiger beetle (*Cicindela dorsalis*), Northern Long-eared Bat (*Myotis septentrionalis*), Atlantic Sturgeon (*Acipenser oxyrinchus*), Shortnose Sturgeon (*Acipenser brevirostrum*), North Atlantic Right Whale (*Eubalaena glacialis*), Humpback Whale (*Megaptera novaengliae*), Fin Whale (*Balaenoptera physalus*), Kemp’s Ridley Sea Turtle (*Lepidochelys kempii*), Loggerhead Sea Turtle (*Caretta caretta*), Leatherback Sea Turtle (*Dermochelys coriacea*), and the Green Turtle (*Chelonia*

¹ EPA strongly encourages applicants to begin this process at the earliest possible stage to ensure the notification requirements for general permit coverage are complete upon Notice of Intent (NOI) submission.

² Section 9 of the ESA prohibits any person from “taking” a listed species (e.g. harassing or harming it) unless: (1) the taking is authorized through an “incidental take statement” as part of completion of formal consultation according to ESA section 7; (2) where an incidental take permit is obtained under ESA section 10 (which requires the development of a habitat conversion plan; or (3) where otherwise authorized or exempted under the ESA. This prohibition applies to all entities including private individuals, businesses, and governments.

mydas). The Atlantic Sturgeon, Shortnose Sturgeon, North Atlantic Right Whale, Humpback Whale, Fin Whale, Loggerhead Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle and Green Turtle are listed under the jurisdiction of NMFS. The Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle are listed under the jurisdiction of the U.S. Fish and Wildlife Service.

Any applicant seeking coverage under this general permit, must consult with the Services where appropriate. When listed species are present, permit coverage is only available if EPA determines, or the applicant determines and EPA concurs, that the discharge or discharge related activities will have "no affect" on the listed species or critical habitat, or the applicant or EPA determines that the discharge or discharge related activities are "not likely to adversely affect" listed species or critical habitat and formal or informal consultation with the Services has been concluded and results in written concurrence by the Services that the discharge is "not likely to adversely affect" an endangered or threatened species or critical habitat.

EPA may designate the applicants as non-Federal representatives for the general permit for the purpose of carrying out formal or informal consultation with the Services (See 50 CFR §402.08 and §402.13). By terms of this permit, EPA has automatically designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the U.S. Fish and Wildlife Service. EPA has not designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the National Marine Fisheries Service. EPA has determined that discharges from MS4s are not likely to adversely affect listed species or critical habitat under the jurisdiction of the National Marine Fisheries Service. EPA has initiated informal consultation with the National Marine Fisheries Service on behalf of all permittees and no further action is required by permittees in order to fulfill ESA requirements of this permit related to species under the jurisdiction of NMFS

B. The U.S. Fish and Wildlife Service ESA Eligibility Process

Before submitting a notice of intent (NOI) for coverage by this permit, applicants must determine whether they meet the ESA eligibility criteria by following the steps in Section B of this Appendix. Applicants that cannot meet the eligibility criteria in Section B must apply for an individual permit.

The USFWS ESA eligibility requirements of this permit relating to the Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle may be satisfied by documenting that one of the following criteria has been met:

USFWS Criterion A: No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities.

USFWS Criterion B: In the course of formal or informal consultation with the Fish and Wildlife Service, under section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and

discharge related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation).

USFWS Criterion C: Using the best scientific and commercial data available, the effect of the stormwater discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have “no affect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

1. The Steps to Determine if the USFWS ESA Eligibility Criteria Can Be Met

To determine eligibility, you must assess the potential effects of your known stormwater discharges and discharge related activities on listed species or critical habitat, PRIOR to completing and submitting a Notice of Intent (NOI). You must follow the steps outlined below and document the results of your eligibility determination.

Step 1 – Determine if you can meet USFWS Criterion A

USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC.

If you have met USFWS Criterion A skip to Step # 4.

If you have not met USFWS Criterion A, go to Step # 2.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer “Yes” to **all** of the following questions:

- 1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?
AND
- 2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities “may affect” or are “not likely to adversely affect” listed species or critical habitat?
AND
- 3) Did you contact the USFWS and did the formal or informal consultation result in either a “no jeopardy” opinion by the USFWS (for formal consultation) or concurrence by the

USFWS that your activities would be “not likely to adversely affect” listed species or critical habitat (for informal consultation)?

AND

- 4) Do you agree to implement all measures upon which the consultation was conditioned?
- 5) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will re-initiate informal or formal consultation with USFWS as necessary?

Use the guidance below Step 3 to understand effects determination and to answer these questions.

If you answered “Yes” to all four questions above, you have met eligibility USFWS Criteria B. Skip to Step 4.

If you answered “No” to any of the four questions above, go to Step 3.

Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C

USFWS Criterion C: You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer “Yes” to both of the following question:

- 1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and **does not** contain one any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?³
- OR
- 2) Did the assessment of your discharge and discharge related activities and indicate that there would be “no affect” on listed species or critical habitat and EPA provided concurrence with your determination?
- 3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will to conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity “may affect” or is “not likely to adversely affect” listed species or critical habitat under the jurisdiction of the USFWS.

Use the guidance below to understand effects determination and to answer these questions.

If you answered “Yes” to both the question above, you have met eligibility USFWS Criterion C. Go to Step 4.

If you answered “No” to either of the questions above, you are not eligible for coverage by this permit. You must submit an application for an individual permit for your stormwater discharges. (See 40 CFR 122.21).

USFWS Effects Determination Guidance:

If you are unable to certify eligibility under USFWS Criterion A, you must assess whether your stormwater discharges and discharge-related activities “may affect”, will have “no affect” or are “not likely to adversely affect” listed species or critical habitat. “Discharge-related activities” include: activities which cause, contribute to, or result in point source stormwater pollutant discharges; and measures to provide treatment for stormwater discharges including the siting, construction and operational procedures to control, reduce or prevent water pollution. Please be aware that no protection from incidental take liability is provided under this criterion.

The scope of effects to consider will vary with each system. If you are having difficulty in determining whether your system is likely to cause adverse effects to a listed species or critical habitat, you should contact the USFWS for assistance. In order to complete the determination of effects it may be necessary to follow the formal or informal consultation procedures in section 7 of the ESA.

Upon completion of your assessment, document the results of your effects determination. If your results indicate that stormwater discharges or discharge related activities will have “no affect” on threatened or endangered species or critical habitat and EPA concurs with your determination, you are eligible under USFWS Criterion C of this Appendix. Your determination may be based on measures that you implement to avoid, eliminate, or minimize adverse effects.

If the determination is “May affect” or “not likely to adversely affect” you must contact the USFWS to discuss your findings and measures you could implement to avoid, eliminate, or minimize adverse effects. If you and the USFWS reach agreement on measures to avoid adverse effects, you are eligible under USFWS Criterion B. Any terms and/or conditions to protect listed species and critical habitat that you relied on in order to complete an adverse effects determination, must be incorporated into your Storm Water Management Program (required by this permit) and implemented in order to maintain permit eligibility.

If endangered species issues cannot be resolved: If you cannot reach agreement with the USFWS on measures to avoid or eliminate adverse effects then you are not eligible for coverage under this permit. You must seek coverage under an individual permit.

Effects from stormwater discharges and discharge-related activities which could pose an adverse effect include:

- *Hydrological:* Stormwater discharges may cause siltation, sedimentation, or induce other changes in receiving waters such as temperature, salinity or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.
- *Habitat:* Excavation, site development, grading and other surface disturbance activities, including the installation or placement of treatment equipment may adversely affect listed species or their habitat. Stormwater from the small MS4 may inundate a listed species habitat.

- *Toxicity:* In some cases, pollutants in the stormwater may have toxic effects on listed species.

Step 4 - Document Results of the Eligibility Determination

Once the USFWS ESA eligibility requirements have been met, you shall include documentation of USFWS ESA eligibility in the Storm Water Management Program required by the permit. Documentation for the various eligibility criteria are as follows:

- USFWS Criterion A: A copy of the IPaC generated preliminary determination letter indicating that no listed species or critical habitat is present within your action area. You shall also include a statement on how you determined that no listed species or critical habitat are in proximity to your stormwater system or discharges.
- USFWS Criterion B: A dated copy of the USFWS letter of concurrence on a finding of “no jeopardy” (for formal consultation) or “not likely to adversely affect” (for informal consultation) regarding the ESA section 7 consultation.
- USFWS Criterion C: A dated copy of the EPA concurrence with the operator’s determination that the stormwater discharges and discharge-related activities will have “no affect” on listed species or critical habitat.

C. Submittal of Notice of Intent

Once the ESA eligibility requirements of Part C of this Appendix have been met, you may submit the Notice of Intent indicating which Criterion you have met to be eligible for permit coverage. Signature and submittal of the NOI constitutes your certification, under penalty of law, of eligibility for permit coverage under 40 CFR 122.21.

D. Duty to Implement Terms and Conditions upon which Eligibility was Determined

You must comply with any terms and conditions imposed under the ESA eligibility requirements to ensure that your stormwater discharges and discharge related activities do not pose adverse effects or jeopardy to listed species and/or critical habitat. You must incorporate such terms and conditions into your Storm Water Management Program as required by this permit. If the ESA eligibility requirements of this permit cannot be met, then you may not receive coverage under this permit and must apply for an individual permit.

E. Services Information

United States Fish and Wildlife Service Office

National websites for Endangered Species Information:

Endangered Species home page: <http://endangered.fws.gov>

ESA Section 7 Consultations: <http://endangered.fws.gov/consultation/index.html>

Information, Planning, and Conservation System (IPAC): <http://ecos.fws.gov/ipac/>

U.S. FWS – Region 5

Supervisor

New England Field Office
U.S. Fish and Wildlife Services
70 Commercial Street, Suite 300
Concord, NH 03301

Natural Heritage Network

The Natural Heritage Network comprises 75 independent heritage program organizations located in all 50 states, 10 Canadian provinces, and 12 countries and territories located throughout Latin America and the Caribbean. These programs gather, manage, and distribute detailed information about the biological diversity found within their jurisdictions. Developers, businesses, and public agencies use natural heritage information to comply with environmental laws and to improve the environmental sensitivity of economic development projects. Local governments use the information to aid in land use planning.

The Natural Heritage Network is overseen by NatureServe, the Network's parent organization, and is accessible on-line at:
http://www.natureserve.org/nhp/us_programs.htm, which provides websites and other access to a large number of specific biodiversity centers.

U.S. Fish and Wildlife IPaC system instructions

Use the following protocol to determine if any federally listed species or designated critical habitats under USFWS jurisdiction exist in your action area:

Enter your project specific information into the “Initial Project Scoping” feature of the Information, Planning, and Conservation (IPaC) system mapping tool, which can be found at the following location:

<http://ecos.fws.gov/ipac/>

- a. Indicate the action area¹ for the MS4 by either:
 - a. Drawing the boundary on the map or by uploading a shapefile.
Select “Continue”
- c. Click on the “SEE RESOURCE LIST” button and on the next screen you can export a trust resources list. This will provide a list of natural resources of concern, which will include an Endangered Species Act Species list. You may also request an official species list under “REGULATORY DOCUMENTS” Save copies and retain for your records

¹ The action area is defined by regulation as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action (50 CFR §402.02). This analysis is not limited to the "footprint" of the action nor is it limited by the Federal agency's authority. Rather, it is a biological determination of the reach of the proposed action on listed species. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

The documentation used by a Federal action agency to initiate consultation should contain a description of the action area as defined in the Services' regulations and explained in the Services' consultation handbook. If the Services determine that the action area as defined by the action agency is incorrect, the Services should discuss their rationale with the agency or applicant, as appropriate. Reaching agreement on the description of the action area is desirable but ultimately the Services can only consult when an action area is defined properly under the regulations.

For storm water discharges or discharge related activities, the action area should encompass the following:

- The immediate vicinity of, or nearby, the point of discharge into receiving waters.
- The path or immediate area through which or over which storm water flows from the municipality to the point of discharge into the receiving water. This includes areas in the receiving water downstream from the point of discharge.
- Areas that may be impacted by construction or repair activities. This extends as far as effects related to noise (from construction equipment, power tools, etc.) and light (if work is performed at night) may reach.

The action area will vary with the size and location of the outfall pipe, the nature and quantity of the storm water discharges, and the type of receiving waters, among other factors.

Attachment B

Mashpee IPaC Trust Resources Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Barnstable County, Massachusetts



Local office

New England Ecological Services Field Office

☎ (603) 223-2541

📠 (603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

<http://www.fws.gov/newengland>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.

5. Click REQUEST SPECIES LIST.

Listed species¹ are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Roseate Tern <i>Sterna dougallii dougallii</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2083	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any activity that results in the ~~take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct)~~ of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service³. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data <http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The migratory birds species listed below are species of particular conservation concern (e.g. [Birds of Conservation Concern](#)) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special

attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the [AKN Histogram Tools](#) and [Other Bird Data Resources](#). To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
American Bittern <i>Botaurus lentiginosus</i> https://ecos.fws.gov/ecp/species/6582	On Land: Breeding
American Oystercatcher <i>Haematopus palliatus</i> https://ecos.fws.gov/ecp/species/8935	On Land: Breeding
Bald Eagle <i>Haliaeetus leucocephalus</i> https://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Black Skimmer <i>Rynchops niger</i> https://ecos.fws.gov/ecp/species/5234	On Land: Year-round
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> https://ecos.fws.gov/ecp/species/9399	On Land: Breeding
Blue-winged Warbler <i>Vermivora pinus</i>	On Land: Breeding
Canada Warbler <i>Wilsonia canadensis</i>	On Land: Breeding
Fox Sparrow <i>Passerella iliaca</i>	On Land: Wintering
Hudsonian Godwit <i>Limosa haemastica</i>	At Sea: Migrating
Least Bittern <i>Ixobrychus exilis</i> https://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Least Tern <i>Sterna antillarum</i>	On Land: Breeding
Peregrine Falcon <i>Falco peregrinus</i> https://ecos.fws.gov/ecp/species/8831	On Land: Wintering
Pied-billed Grebe <i>Podilymbus podiceps</i>	On Land: Year-round
Prairie Warbler <i>Dendroica discolor</i>	On Land: Breeding
Purple Sandpiper <i>Calidris maritima</i>	On Land: Wintering
Rusty Blackbird <i>Euphagus carolinus</i>	On Land: Wintering
Saltmarsh Sparrow <i>Ammodramus caudacutus</i>	On Land: Breeding
Seaside Sparrow <i>Ammodramus maritimus</i>	On Land: Breeding
Short-eared Owl <i>Asio flammeus</i> https://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Egret <i>Egretta thula</i>	On Land: Breeding
Upland Sandpiper <i>Bartramia longicauda</i> https://ecos.fws.gov/ecp/species/9294	On Land: Breeding
Willow Flycatcher <i>Empidonax traillii</i> https://ecos.fws.gov/ecp/species/3482	On Land: Breeding

Wood Thrush *Hylocichla mustelina*

On Land: Breeding

Worm Eating Warbler *Helmitheros vermivorum*

On Land: Breeding

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?**Landbirds:**

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAA/NCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAA/NCCOS models: the models were developed as part of the NOAA/NCCOS project: [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#). The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the [Northeast Ocean Data Portal](#), which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?**Landbirds:**

The [Avian Knowledge Network \(AKN\)](#) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the [Migratory Bird Programs AKN Histogram Tools](#) webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA/NCCOS [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project](#) webpage.

Facilities

Wildlife refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuges:

REFUGE

ACRES

Mashpee National Wildlife Refuge

606.39 acres

☎ (978) 443-4661

📠 (978) 443-2898

C/o Eastern Massachusetts Nwr Complex
73 Weir Hill Road
Sudbury, MA 01776-1420

<https://www.fws.gov/refuges/profiles/index.cfm?id=53518>

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Attachment C
Federally Listed Endangered and Threatened Species in
Massachusetts

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Suffolk	Piping Plover	Threatened	Coastal Beaches	Revere, Winthrop
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

¹Migratory only, scattered along the coast in small numbers

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.

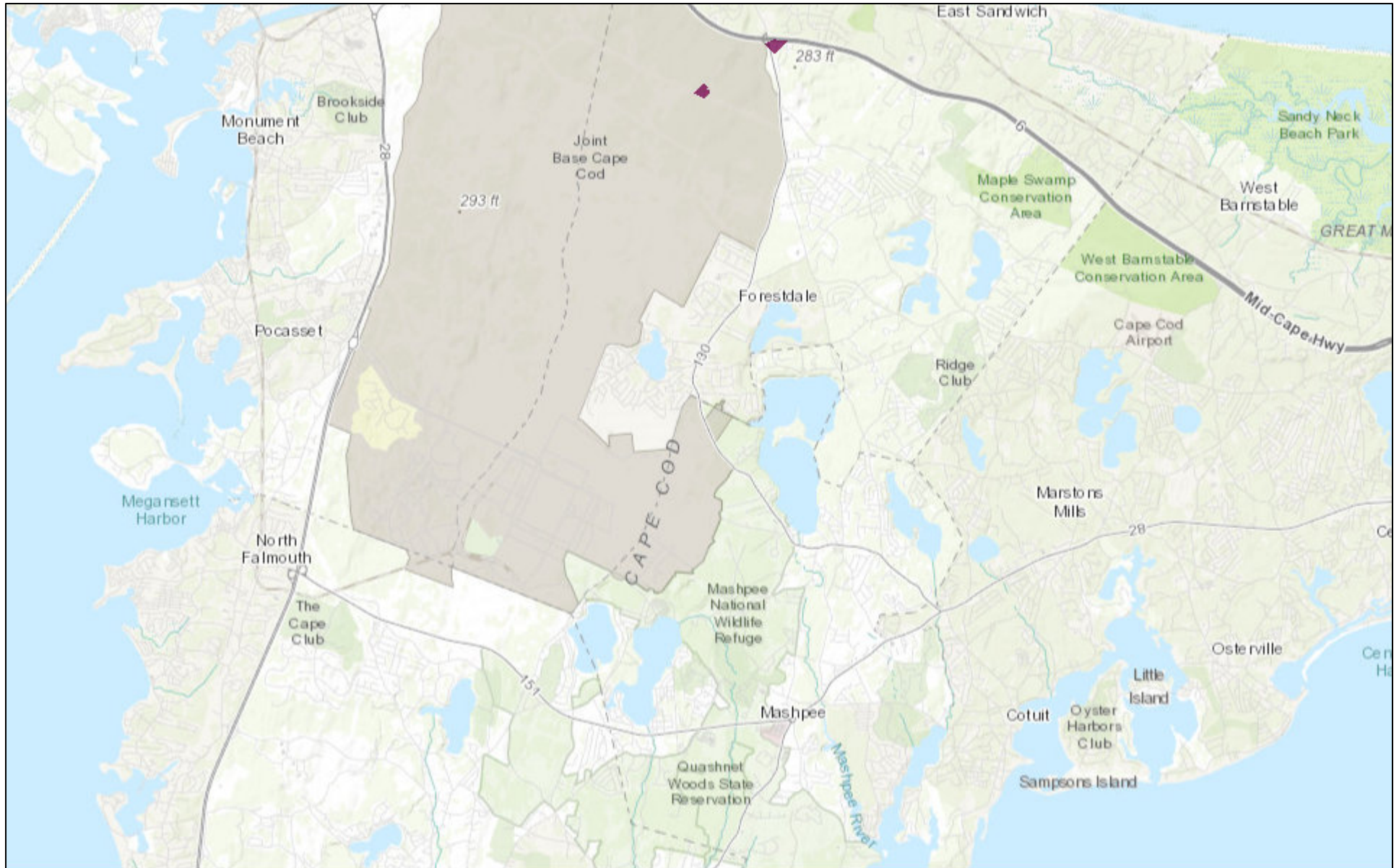
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.

-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Attachment D

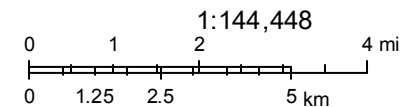
Northern Long-eared Bat Location Map

NHESP Northern Long-eared Bat Locations



June 19, 2017

MA Northern Long-eared Bat Maternity Roost Trees (with 150ft buffer)



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

Attachment E
U.S. Fish and Wildlife Review Letter



Town of Mashpee

Department of Public Works

*350 Meetinghouse Road
Mashpee, Massachusetts 02649
Telephone - (508) 539-1420
Fax - (508) 539-3894*

M-0799
August 2, 2017

Supervisor
U.S. Fish and Wildlife Service
70 Commercial St., Suite 300
Concord, NH 03301

Re: **Mashpee MS4 NPDES Phase II USFWS Formal Consultation**

To Whom It May Concern:

The Town of Mashpee is seeking coverage under the U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits from Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts, expected to be effective July 1, 2018, and is required to determine that the Town's stormwater discharges and discharge related activities do not negatively impact any federally listed endangered and threatened species and designed critical habitat.

The Town of Mashpee is currently authorized to discharge Stormwater from its MS4 per the 2003 general permit and the Notice of Intent submitted to EPA made the determination that the Town's stormwater discharges did not negatively impact any endangered species at that time.

Enclosure A provides a figure of Mashpee's MS4 regulated urban area seeking coverage under this permit and a map of all of the known stormwater discharges in Town.

On behalf of the Town of Mashpee, Tighe & Bond has initiated the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of the 2016 Small MS4 General Permit and has determined that a formal consultation with U.S. Fish and Wildlife is required based on the data presented in the enclosed memorandum and documents (Enclosure B).

We are respectfully requesting that the USFWS make a determination that Mashpee's Stormwater discharges from its MS4 are not likely to adversely affect the Northern Long-eared Bat, Piping Plover, Red Knot or Roseate Tern for the following reasons:

1. Mashpee has been operating its MS4 continuously since before 2003, when EPA Region 1's first Small MS4 General Permit became effective;
2. Mashpee has been taking measures to reduce the discharge of pollutants to waterbodies and wetlands by implementing provisions of the 2003 MS4 general permit and will be continuing to manage Stormwater runoff under the 2016 MS4 general permit; and

3. During the course of the permit term if the Town of Mashpee plans to install a structural BMP or make a substantial modification to its MS4, the Town agrees to re-initiate informal or formal consultation with USFWS.

Please contact me for any clarification or comments at 508-539-1402.

Very truly yours,



Catherine Laurent
Director

Enclosures List

- Enclosure A – MS4 Urban Area Map and Stormwater Infrastructure Map
- Enclosure B – Memorandum from Tighe & Bond

Copy: Gabrielle Belfit, Tighe & Bond

Appendix D

Historic Properties Eligibility Criteria Documentation

National Historic Preservation Act Eligibility Certification

TO: Town of Mashpee
FROM: Tighe & Bond
COPY: Catherine Laurent, Department of Public Works Director
DATE: August 20, 2018

Tighe & Bond has completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits from Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2018¹, and determined that the **Town of Mashpee** meets **Criterion A: The discharges do not have the potential to cause effects on historic properties.**

Tighe & Bond followed the screening process included in Appendix D. Because Mashpee can answer "Yes" to Question 1 (Is the facility an existing facility authorized by the previous permit or a new facility and the applicant is not undertaking any activity involving subsurface land disturbance less than an acre?), the Town can:

1. certify that fact in writing and file the statement with the EPA and maintain the certification as part of the records associated with the permit; and
2. certify eligibility for this permit using Criterion A on the Notice of Intent for permit coverage.

Mashpee does not need to contact the state Historic Commission.

Based on this screening process, the Town of Mashpee's stormwater discharges, allowable non-stormwater discharges, and stormwater discharge-related activities will not have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP) and no further action is necessary at this time. EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

Attachment B to this memorandum includes a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures downloaded from the Massachusetts Cultural Resource Information System (MACRIS) that is current as of June 19, 2017. Based on review of the National Register of Historic Places website², there are multiple federally listed historic places in Mashpee including:

- Old Indian Meeting House
- Avant House

¹ Revised effective date according to 6/29/17 memo from EPA Regional Acting Regional Administrator

² <https://www.nps.gov/nr/research/>

If the Town undertakes construction on or around a property that is listed or eligible for listing, the Town will coordinate with the State Historic Preservation Officer (SHPO) (i.e. the Massachusetts Historical Commission) by submitting a Project Notification Form and associated documentation for the project. As applicable for each project, the Town will implement measures to avoid or minimize adverse impacts on places listed, or eligible for listing, on the NRHP, including any conditions imposed by the SHPO or THPO. If the Town fails to document and implement such measures, those discharges are ineligible for coverage under EPA's Small MS4 General Permit.

Attachment 1

Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits from Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts

Appendix D

National Historic Preservation Act Guidance

Background

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of Federal “undertakings” on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term federal “undertaking” is defined in the NHPA regulations to include a project, activity, or program of a federal agency including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license or approval. See 36 CFR 800.16(y). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. See 36 CFR 800.16(1).

EPA’s issuance of a National Pollutant Discharge Elimination System (NPDES) General Permit is a federal undertaking within the meaning of the NHPA regulations and EPA has determined that the activities to be carried out under the general permit require review and consideration, in order to be in compliance with the federal historic preservation laws and regulations. Although individual submissions for authorization under the general permit do not constitute separate federal undertakings, the screening processes provides an appropriate site-specific means of addressing historic property issues in connection with EPA’s issuance of the permit. To address any issues relating to historic properties in connection with the issuance of this permit, EPA has included a screening process for applicants to identify whether properties listed or eligible for listing on the National Register of Historic Places are within the path of their discharges or discharge-related activities (including treatment systems or any BMPs relating to the discharge or treatment process) covered by this permit.

Applicants seeking authorization under this general permit must comply with applicable, State, Tribal, and local laws concerning the protection of historic properties and places and may be required to coordinate with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) and others regarding effects of their discharges on historic properties.

Activities with No Potential to Have an Effect on Historic Properties

A determination that a federal undertaking has no potential to have an effect on historic properties fulfills an agency’s obligations under NHPA. EPA has reason to believe that the vast majority of activities authorized under this general permit will have no potential effects on historic properties. This permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility. EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA’s issuance of this general permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties.

In addition, the overwhelming majority of sources covered under this permit will be facilities that are seeking renewal of previous permit authorization. These existing dischargers should have already addressed NHPA issues in the previous general permit as they were required to certify that they were either not affecting historic properties or they had obtained written agreement from

the applicable SHPO or THPO regarding methods of mitigating potential impacts. To the extent this permit authorizes renewal of prior coverage without relevant changes in operations the discharge has no potential to have an effect on historic properties.

Activities with Potential to Have an Effect on Historic Properties

EPA believes this permit may have some potential to have an effect on historic properties the applicant undertakes the construction and/or installation of control measures that involve subsurface disturbance that involves less than 1 acre of land. (Ground disturbances of 1 acre or more require coverage under the Construction General Permit.) Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. Therefore, if the applicant is establishing new or altering existing control measures to manage their discharge that will involve subsurface ground disturbance of less than 1 acre, they will need to ensure (1) that historic properties will not be impacted by their activities or (2) that they are in compliance with a written agreement with the SHPO, THPO, or other tribal representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Examples of Control Measures Which Involve Subsurface Disturbance

The type of control measures that are presumptively expected to cause subsurface ground disturbance include:

- Dikes
- Berms
- Catch basins, drainage inlets
- Ponds, bioretention areas
- Ditches, trenches, channels, swales
- Culverts, pipes
- Land manipulation; contouring, sloping, and grading
- Perimeter Drains
- Installation of manufactured treatment devices

EPA cautions applicants that this list is non-inclusive. Other control measures that involve earth disturbing activities that are not on this list must also be examined for the potential to affect historic properties.

Certification

Upon completion of this screening process the applicant shall certify eligibility for this permit using one of the following criteria on their Notice of Intent for permit coverage:

Criterion A: The discharges do not have the potential to cause effects on historic properties.

Criterion B: A historic survey was conducted. The survey concluded that no historic properties are present. Discharges do not have the potential to cause effects on historic properties.

Criterion C: The discharges and discharge related activities have the potential to have an effect on historic properties, and the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Authorization under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above. Small MS4s that cannot meet any of the eligibility criteria in above must apply for an individual permit.

Screening Process

Applicants or their consultant need to answer the questions and follow the appropriate procedures below to assist EPA in compliance with 36 CFR 800.

Question 1: Is the facility an existing facility authorized by the previous permit or a new facility and the applicant is not undertaking any activity involving subsurface land disturbance less than an acre?

YES - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

The applicant should certify eligibility for this permit using Criterion A on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has “no potential to cause effects” (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

NO- Go to Question 2.

Question 2: Is the property listed in the National Register of Historic Places or have prior surveys or disturbances revealed the existence of a historic property or artifacts?

NO - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

The applicant should certify eligibility for this permit using Criterion B on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has “no potential to cause effects” (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

YES - The applicant or their consultant should prepare a complete information submittal to the SHPO. The submittal consists of:

- Completed Project Notification Form- forms available at <http://www.sec.state.ma.us/mhc/mhcform/formidx.htm>;

- USGS map section with the actual project boundaries clearly indicated; and
- Scaled project plans showing existing and proposed conditions.

(1) Please note that the SHPO does not accept email for review. Please mail a paper copy of your submittal (Certified Mail, Return Receipt Requested) or deliver a paper copy of your submittal (and obtain a receipt) to:

State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Blvd.
Boston MA 02125.

(2) Provide a copy of your submittal and the proof of MHC delivery showing the date MHC received your submittal to:

NPDES Permit Branch Chief
US EPA Region 1 (OEP06-1)
5 Post Office Square, Suite 100
Boston MA 02109-3912.

The SHPO will comment within thirty (30) days of receipt of complete submittals, and may ask for additional information. Consultation, as appropriate, will include EPA, the SHPO and other consulting parties (which includes the applicant). The steps in the federal regulations (36 CFR 800.2 to 800.6, etc.) will proceed as necessary to conclude the Section 106 review for the undertaking. **The applicant should certify eligibility for this permit using Criterion C on their Notice of Intent for permit coverage.**

Attachment 2

Massachusetts Cultural Resource Information System (MACRIS)
List of federal- and state-listed historic areas, buildings, burial
grounds, objects, and structures

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Mashpee; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
MAS.A	Mashpee Town Center Area		Mashpee	
MAS.B	Old Indian Meeting House		Mashpee	
MAS.C	Camp Farley		Mashpee	
MAS.D	Great Neck Road Area		Mashpee	
MAS.E	Lower Main Street Area		Mashpee	
MAS.F	Popponesset Beach Area		Mashpee	
MAS.G	Seconsett Island		Mashpee	
MAS.H	Mashpee Historic District		Mashpee	
MAS.902	Fox 2 Site		Mashpee	
MAS.903	Fox 3 Site		Mashpee	
MAS.904	Fox 4 Site		Mashpee	
MAS.905	Fox 5A Site		Mashpee	
MAS.912	Young, Sophronia House Site		Mashpee	
MAS.108		4 Bayview Rd	Mashpee	r 1935
MAS.109		5 Bayview Rd	Mashpee	r 1935
MAS.110		31 Bayview Rd	Mashpee	r 1925
MAS.111		32 Bayview Rd	Mashpee	r 1925
MAS.112		35 Bayview Rd	Mashpee	r 1925
MAS.113		61 Bayview Rd	Mashpee	r 1935
MAS.160		2-12 Center St	Mashpee	2005
MAS.136		9-11 Center St	Mashpee	2005
MAS.137		19-27 Center St	Mashpee	2005
MAS.17	Collins, Clara House and Store	Collins Ln	Mashpee	1800
MAS.76	Coombs, Oaksander A. House	2 Coombs Ln	Mashpee	r 1850
MAS.18		Great Neck Rd	Mashpee	c 1890
MAS.20		Great Neck Rd	Mashpee	c 1967
MAS.907	Mashpee Civil War - World War I Memorial	Great Neck Rd North	Mashpee	r 1950

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Inv. No.	Property Name	Street	Town	Year
MAS.14	Mashpee Public Library	13 Great Neck Rd North	Mashpee	c 1965
MAS.15	Davis, Samuel Gross School	16 Great Neck Rd North	Mashpee	1939
MAS.16	Mashpee Baptist Church	27 Great Neck Rd North	Mashpee	1936
MAS.31	Amos, Lysander Z. House	28 Great Neck Rd North	Mashpee	c 1875
MAS.32	Pells, Ambrose House	50 Great Neck Rd North	Mashpee	c 1850
MAS.77	Mingo, Walter R. House	218 Great Neck Rd North	Mashpee	r 1865
MAS.78	Haynes, Ernest - Averett, Hannah Peters House	251 Great Neck Rd North	Mashpee	r 1940
MAS.79	Oakley, Floyd - Bingham, Amelia House	280 Great Neck Rd North	Mashpee	1923
MAS.80	Oakley, Claude - Peters, Nathan House	296 Great Neck Rd North	Mashpee	r 1925
MAS.21	Amos, Horatio House	701 Great Neck Rd South	Mashpee	c 1881
MAS.24		701 Great Neck Rd South	Mashpee	
MAS.25		701 Great Neck Rd South	Mashpee	
MAS.93	Pocknet, Nathan S. House	Harbor Ridge Rd	Mashpee	r 1850
MAS.26	Bourne, Nathan - Jones, Isaac House	59 Jones Rd	Mashpee	r 1775
MAS.27	Bourne, Nathan - Jones, Isaac Building	59 Jones Rd	Mashpee	
MAS.138		1 Juniper Dr	Mashpee	1990
MAS.139		4 Juniper Dr	Mashpee	1987
MAS.906	Attaquin Park	Lake Ave	Mashpee	1953
MAS.140	Flume Restaurant	13 Lake Ave	Mashpee	1972
MAS.33	Brown, Sally House	36 Lovell's Ln	Mashpee	c 1870
MAS.40	Camp Farley Office and Bathrooms	Main St	Mashpee	1990
MAS.41	Camp Farley - Lawton Pavilion	Main St	Mashpee	1990
MAS.42	Camp Farley Barnyard Chicken Coop	Main St	Mashpee	r 1950
MAS.43	Camp Farley Barnyard Shed	Main St	Mashpee	r 1950
MAS.44	Camp Farley Stable	Main St	Mashpee	1965
MAS.45	Camp Farley Office	Main St	Mashpee	r 1950
MAS.46	Camp Farley - Fuller Building	Main St	Mashpee	r 1950
MAS.47	Camp Farley Dining Hall	Main St	Mashpee	1937
MAS.48	Camp Farley Utility Shed	Main St	Mashpee	c 1990
MAS.49	Camp Farley Council Lodge	Main St	Mashpee	1958
MAS.50	Camp Farley - Nature's Classroom	Main St	Mashpee	c 1940
MAS.51	Camp Farley Boys' Cabin #1	Main St	Mashpee	c 1940
MAS.52	Camp Farley Boys' Cabin #2	Main St	Mashpee	c 1940
MAS.53	Camp Farley Boys' Cabin #3	Main St	Mashpee	c 1940
MAS.54	Camp Farley Boys' Cabin #4	Main St	Mashpee	c 1940
MAS.55	Camp Farley Boys' Cabin #5	Main St	Mashpee	c 1940
MAS.56	Camp Farley Boys' Cabin #6	Main St	Mashpee	c 1940
MAS.57	Camp Farley - Boys' Bathhouse	Main St	Mashpee	c 1940

Inv. No.	Property Name	Street	Town	Year
MAS.58	Camp Farley Guest House	Main St	Mashpee	c 1940
MAS.59	Camp Farley Library	Main St	Mashpee	c 1940
MAS.60	Camp Farley Boathouse	Main St	Mashpee	c 1940
MAS.61	Camp Farley Heath Center	Main St	Mashpee	c 1940
MAS.62	Camp Farley Staff Housing	Main St	Mashpee	c 1940
MAS.63	Camp Farley - Girls' Bathhouse	Main St	Mashpee	c 1940
MAS.64	Camp Farley Girls' Cabin #1	Main St	Mashpee	c 1940
MAS.65	Camp Farley Girls' Cabin #2	Main St	Mashpee	c 1940
MAS.66	Camp Farley Girls' Cabin #3	Main St	Mashpee	c 1940
MAS.67	Camp Farley Girls' Cabin #4	Main St	Mashpee	c 1940
MAS.68	Camp Farley Girls' Cabin #5	Main St	Mashpee	c 1940
MAS.69	Camp Farley Girls' Cabin #6	Main St	Mashpee	c 1940
MAS.70	Camp Farley Girls' Cabin #7	Main St	Mashpee	c 1940
MAS.71	Camp Farley Girls' Cabin #8	Main St	Mashpee	c 1940
MAS.72	Camp Farley Girls' Cabin #9	Main St	Mashpee	c 1940
MAS.73	Camp Farley Girls' Cabin #10	Main St	Mashpee	c 1940
MAS.74	Camp Farley Girls' Cabin #11	Main St	Mashpee	c 1940
MAS.75	Camp Farley - Ewing-Fraser Hall	Main St	Mashpee	1959
MAS.802	Avant - Coombs Burial Ground	Main St	Mashpee	1838
MAS.909	Mashpee World War II Memorial	Main St	Mashpee	r 1950
MAS.910	Pocknet, Douglas Memorial Field	Main St	Mashpee	c 1948
MAS.911	Camp Farley Amphitheatre	Main St	Mashpee	r 1950
MAS.3	Sanford, J. House	46 Main St	Mashpee	c 1900
MAS.2	Jackson House	56 Main St	Mashpee	1870
MAS.83		84 Main St	Mashpee	c 1940
MAS.84		91 Main St	Mashpee	c 1940
MAS.85		94 Main St	Mashpee	c 1940
MAS.86	Green, Abbie M. House	111 Main St	Mashpee	c 1910
MAS.87	Jonas, Frederick D. - Peters, Mary House	116 Main St	Mashpee	r 1880
MAS.88	Brown, George A. - Thaxton, Eleanor Peters House	147 Main St	Mashpee	c 1910
MAS.89	Hendricks House	161 Main St	Mashpee	c 1900
MAS.90	Coombs, Kenneth C. House	169 Main St	Mashpee	c 1920
MAS.91		201 Main St	Mashpee	c 1940
MAS.141		223 Main St	Mashpee	2003
MAS.92	Mills, Earl H. House	224 Main St	Mashpee	1926
MAS.142		227 Main St	Mashpee	1940
MAS.5	U. S. Post Office - Mashpee Branch	231 Main St	Mashpee	c 1940

Inv. No.	Property Name	Street	Town	Year
MAS.143		234 Main St	Mashpee	1955
MAS.144		235 Main St	Mashpee	1988
MAS.145		237 Main St	Mashpee	1960
MAS.146		241 Main St	Mashpee	2004
MAS.147		249 Main St	Mashpee	2004
MAS.148		255 Main St	Mashpee	1988
MAS.6	Mashpee First Pentecostal Church of Jesus Christ	258 Main St	Mashpee	1930
MAS.7	Jones, Mary House	262 Main St	Mashpee	r 1850
MAS.149		264 Main St	Mashpee	1997
MAS.150		268 Main St	Mashpee	1997
MAS.151		272 Main St	Mashpee	1958
MAS.94		273 Main St	Mashpee	c 1930
MAS.95	Johnson, Lisbon House	278 Main St	Mashpee	c 1841
MAS.96	Johnson, Lisbon Barn	278 Main St	Mashpee	c 1841
MAS.152		281 Main St	Mashpee	2000
MAS.153		282 Main St	Mashpee	1973
MAS.154		287 Main St	Mashpee	1983
MAS.155		290 Main St	Mashpee	1957
MAS.156		293 Main St	Mashpee	1925
MAS.157		302 Main St	Mashpee	1954
MAS.158		303 Main St	Mashpee	1980
MAS.159		310 Main St	Mashpee	1968
MAS.161	KenMark Office Supplies	340-342 Main St	Mashpee	2006
MAS.162		348 Main St	Mashpee	1955
MAS.913	Fisherman's Landing State Boat Ramp	351 Main St	Mashpee	
MAS.914	Collins Lot - Veterans Memorial Garden	364-368 Main St	Mashpee	
MAS.34	Hicks, Frank E. House	379 Main St	Mashpee	1940
MAS.35	Ockry Trading Post	387 Main St	Mashpee	c 1915
MAS.36	Attaquin, Solomon - Oakley, Irving C. House	389 Main St	Mashpee	c 1860
MAS.163	Dunkin' Donuts	401 Main St	Mashpee	1999
MAS.915	Main Street Cranberry Bog	406 Main St	Mashpee	
MAS.9	Avant House	414 Main St	Mashpee	c 1830
MAS.908	Main Street Herring Run	423 Main St	Mashpee	r 1920
MAS.10	Mashpee Methodist Church Parsonage	431 Main St	Mashpee	c 1849
MAS.164		442 Main St	Mashpee	1958
MAS.165	Mr. T's Auto Repair	446 Main St	Mashpee	1953
MAS.11	Jones - Pocknet House	460 Main St	Mashpee	c 1850

Inv. No.	Property Name	Street	Town	Year
MAS.801	Attaquin Burial Ground	461 Main St	Mashpee	1849
MAS.166	Ma Glockner's Store	470 Main St	Mashpee	1937
MAS.37		481 Main St	Mashpee	c 1940
MAS.38	Camp Edwards Building	520 Main St	Mashpee	c 1950
MAS.39	Arlington House	525 Main St	Mashpee	r 1850
MAS.167		36 Meetinghouse Rd	Mashpee	2005
MAS.19	Indian Meetinghouse	410 Meetinghouse Rd	Mashpee	c 1684
MAS.23	South Mashpee School	410 Meetinghouse Rd	Mashpee	1831
MAS.800	Old Indian Meeting House Burial Ground	410 Meetinghouse Rd	Mashpee	1783
MAS.803	Mashpee Indian Burial Ground (Jonas)	17 Mizzenmast Rd	Mashpee	
MAS.916	Nantucket Sound	Nantucket Sound	Mashpee	
MAS.169	Otis Air National Guard Base - Maintenance Bldg.	Otis Air Base	Mashpee	1956
MAS.917	Otis Air National Guard Base - Target Butt	Otis Air Base	Mashpee	1943
MAS.97	Popponeset Marketplace	Popponeset Beach	Mashpee	r 1940
MAS.98	Armstrong, Nora House and Store	Popponeset Beach	Mashpee	r 1935
MAS.99	Popponeset Beach Double Cottage	Popponeset Beach	Mashpee	r 1935
MAS.100	Popponeset Beach Double Cottage	Popponeset Beach	Mashpee	r 1935
MAS.101	Popponeset Beach Double Cottage	Popponeset Beach	Mashpee	r 1935
MAS.102	Popponeset Beach Double Cottage	Popponeset Beach	Mashpee	r 1935
MAS.103	Popponeset Beach Double Cottage	Popponeset Beach	Mashpee	r 1935
MAS.104	Popponeset Inn	Popponeset Beach	Mashpee	c 1940
MAS.105	Popponeset Laundromat	Popponeset Beach	Mashpee	r 1935
MAS.106	Popponeset Real Estate Office	Popponeset Beach	Mashpee	r 1935
MAS.107	Poppy's Bike Shop	Popponeset Beach	Mashpee	r 1935
MAS.900	Popponeset Island Road Bridge over Spinnaker Cove	Popponeset Rd	Mashpee	1941
MAS.114		63 Private Way	Mashpee	r 1925
MAS.115		63 Private Way	Mashpee	r 1925
MAS.81		24 Quashnet Rd	Mashpee	c 1910
MAS.82		38 Quashnet Rd	Mashpee	c 1920
MAS.901	Quinaquisset Avenue Bridge over Santuit River	Quinaquisset Ave	Mashpee	1945
MAS.22	Pocknett House	Red Brook Rd	Mashpee	c 1780
MAS.28	South Sandwich School	65 Red Brook Rd	Mashpee	c 1850
MAS.29	Aiken, Gertrude House	66 Red Brook Rd	Mashpee	r 1935
MAS.30	Aiken, Gertrude Indian Village and Gift Shop	66 Red Brook Rd	Mashpee	c 1940
MAS.135	Camp Edwards Air National Guard Vehicle Storage	Reilly St	Mashpee	1955
MAS.116		12 Riverside Rd	Mashpee	c 1940

Inv. No.	Property Name	Street	Town	Year
MAS.117		12 Riverside Rd	Mashpee	
MAS.118	Little River Boatyard Office Building	15 Riverside Rd	Mashpee	c 1900
MAS.119	Little River Boatyard Storage Facility	15 Riverside Rd	Mashpee	c 1900
MAS.120	Little River Boatyard Boat Shop	15 Riverside Rd	Mashpee	c 1900
MAS.121	Little River Boatyard Building	15 Riverside Rd	Mashpee	r 1935
MAS.122	Little River Boatyard Building	15 Riverside Rd	Mashpee	r 1935
MAS.123	Little River Boatyard Building	15 Riverside Rd	Mashpee	r 1935
MAS.124		50 Riverside Rd	Mashpee	r 1925
MAS.125		50 Riverside Rd	Mashpee	r 1925
MAS.1	Harvard College Missionary Home	Rt 130	Mashpee	1800
MAS.4	Brown, George House	Rt 130	Mashpee	1840
MAS.8	Gooch House	Rt 130	Mashpee	r 1750
MAS.12	Hammond, Watson House	Rt 130	Mashpee	1880
MAS.13	Mashpee Town Hall and Police Department	Rt 130	Mashpee	c 1940
MAS.126		52 Seconsett Island Rd	Mashpee	r 1925
MAS.127		56 Seconsett Island Rd	Mashpee	r 1925
MAS.128		62 Seconsett Island Rd	Mashpee	r 1935
MAS.129		76 Seconsett Island Rd	Mashpee	r 1935
MAS.130		26 Seconsett Point Rd	Mashpee	r 1925
MAS.131		45 Seconsett Point Rd	Mashpee	r 1925
MAS.132		53 Seconsett Point Rd	Mashpee	r 1925
MAS.133		81 Seconsett Point Rd	Mashpee	r 1935
MAS.134		4 Snug Harbor Cir	Mashpee	r 1925
MAS.168		4 South Sandwich Rd	Mashpee	1985
MAS.918	Mashpee Manufacturing Company Bog Complex	Tobisset St	Mashpee	c 1869

Appendix E

Reference Documents

Pollutant Impacts on Water Quality	
Sediment	Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
Nutrients	Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. For example, nutrients have led to a loss of water clarity in Lake Tahoe. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.
Bacteria and Viruses	Bacteria and viruses are common contaminants of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.
Oil and Grease	Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal.
Metals	Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies.
Organics	Organics may be found in stormwater at low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.
Pesticides	Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for biomagnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds.
Gross Pollutants	Gross Pollutants (trash, debris and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic "eye sore" in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes and estuaries sometimes causing fish kills.
Vector Production	Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMP's for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002).

Source: California Stormwater Quality Association, Stormwater BMP Handbook, 2003.

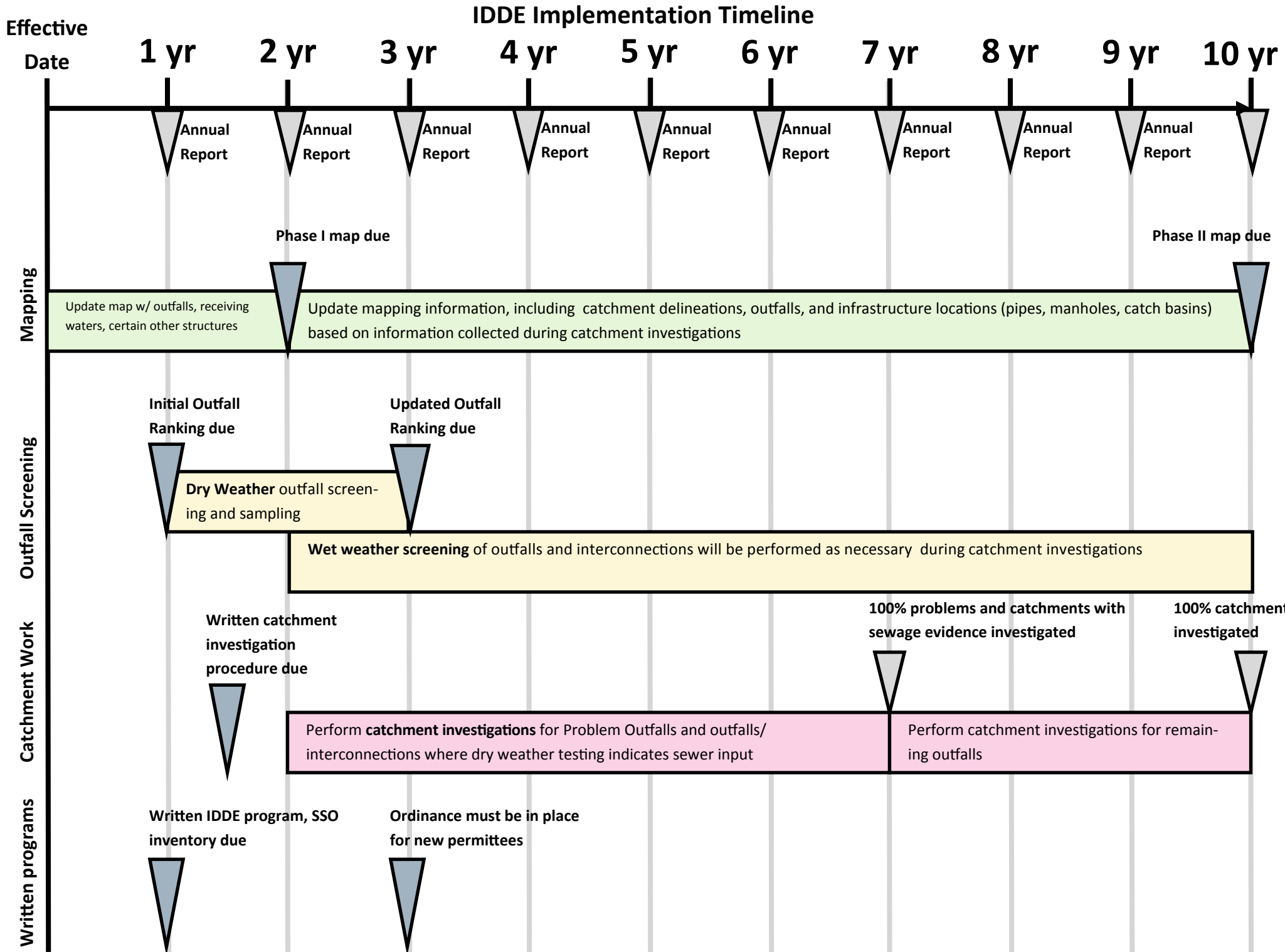
Potential pollutants likely associated with specific *municipal facilities*

[illegible]

Potential pollutants likely associated with *municipal activities*

Municipal Program	Activities	Potential Pollutants								
		Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Roads, Streets, and Highways Operation and Maintenance	Sweeping and Cleaning	X		X	X		X			X
	Street Repair, Maintenance, and Striping/Painting	X		X	X		X	X		
	Bridge and Structure Maintenance	X		X	X		X	X		
Plaza, Sidewalk, and Parking Lot Maintenance and Cleaning	Surface Cleaning	X	X			X	X			X
	Graffiti Cleaning	X	X		X			X		
	Sidewalk Repair	X		X						
	Controlling Litter	X		X		X	X			X
Fountains, Pools, Lakes, and Lagoons Maintenance	Fountain and Pool Draining		X					X		
	Lake and Lagoon Maintenance	X	X	X		X			X	X
Landscape Maintenance	Mowing/Trimming/Planting	X	X	X		X			X	X
	Fertilizer & Pesticide Management	X	X						X	
	Managing Landscape Wastes			X					X	X
	Erosion Control	X	X							
Drainage System Operation and Maintenance	Inspection and Cleaning of Stormwater Conveyance Structures	X	X	X		X		X		X
	Controlling Illicit Connections and Discharges	X	X	X	X	X	X	X	X	X
	Controlling Illegal Dumping	X	X	X	X	X	X	X	X	X
	Maintenance of Inlet and Outlet Structures	X		X	X		X			X
Waste Handling and Disposal	Solid Waste Collection		X	X	X	X	X	X		X
	Waste Reduction and Recycling			X	X					X
	Household Hazardous Waste Collection			X	X		X	X	X	
	Controlling Litter			X	X	X		X		X
	Controlling Illegal Dumping	X		X		X	X		X	X
Water and Sewer Utility Operation and Maintenance	Water Line Maintenance	X				X	X			
	Sanitary Sewer Maintenance	X				X	X			X
	Spill/Leak/Overflow Control, Response, and Containment	X	X			X		X		X

Source: California Stormwater BMP Handbook (<http://www.cabmphandbooks.com/>)



Tips for Organizing and Conducting Volunteer Clean-up Events

By: Jen Drociak –Acting Coordinator / Volunteer, Manchester Urban Ponds Restoration Program (UPRP)

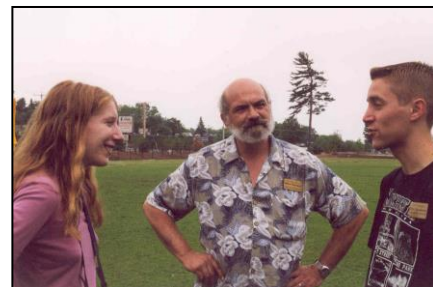
Step 1: Plan Your Clean-Up Event

- A. Land and / or Shore? Determine the Location(s):** Determine where, in proximity to the waterbody, your group wishes to concentrate its efforts on during a clean-up event. To find heavily-littered areas, and / or areas that are prone to illegal dumping, walk along the shore, in advance, to identify location(s) for the clean-up event. Identify accessible paths along the shoreline and / or on public trails that are easy for people to walk. The location(s) may be largely determined by public (or lake / homeowner association) access points such as a public beach, boat-launch, or park. If the location is large, consider identifying smaller locations within the larger location which can be managed by individual group leaders and groups. Determining the location(s) will provide you with an idea of the footwear that may be needed for the task based upon the terrain. If the clean-up event will be located at a beach or a dry area, sandals or sneakers may be adequate. If it will be located in a wetland or mucky area, knee-boots may be appropriate. If it will be located in water, hip-boots may be most appropriate. Determining the location(s) will also provide you with a sense of how many volunteers your group is seeking for the clean-up event.



The UPRP typically focuses clean-up efforts in the parks adjacent to the ponds by skirting around the ponds themselves. This involves differing terrain, and thus footwear. There have been occasions, however, where one or more volunteers have also used a small fishing boat to retrieve trash from the water that is too deep to obtain via hip-waders.

- B. Obtain Landowner Permission:** Whether the location(s) of your clean-up event is / are municipally-owned or privately-owned, determine who owns the property in advance in order to obtain permission. If you do not know who the property owner is, visit your municipality's on-line assessor's website to review the tax map(s) and property card(s) associated with the area. It is typically easy to obtain permission to organize a clean-up on municipally-owned / public land. If the location(s) are on privately-owned land, talk to the land owner(s) and explain why you are organizing a clean-up in that area, along with the benefits of doing so. Obtain permission from them in writing, if you can, by considering they sign a form. Verbal permission may be adequate, however.



The UPRP organizes clean-up events on land owned by Public Works and Parks, Recreation, and Cemetery Departments. We have not had to seek private landowner permission. We simply notify the Manchester Public Works Department and Parks, Recreation, and Cemetery Department of the dates of the clean-up events.

- C. Determine the Task(s) at Hand:** Determine what you will request of your volunteers. Will it be the removal of trash only? If so, will it be the removal of large items only or all items including the minutia? Will it be the removal of yard waste only? Graffiti removal or other vandalism? All of the above? Determining the task(s) at hand will provide you with an idea of the supplies (and hours) you will need to perform the task(s).

The UPRP typically removes trash only. We typically do not pick up the minutia (cigarette butts, bottle caps, etc.) due to the large volume of trash we collect and the limited amount of time and volunteers we have at each clean-up event.



- D. Determine the Check-In Location:** Based upon the chosen location(s) of the clean-up event, consider and determine the most appropriate location for volunteers to initially gather to check in and obtain supplies, as well as to reconvene at the end of the clean-up event. This may be a kiosk, boat-launch, or specific location on a beach or in a park. Try to stay away from busy roads or areas that are difficult to access.

The UPRP typically requests that volunteers meet in one central / well-known location such as a kiosk in a parking lot or boat-launch. We have kept the initial meeting location at each clean-up event consistent over the years.



- E. Determine the Most Appropriate Age(s) of Your Volunteers:** Based upon the task(s) at hand, determine the most appropriate age(s) of your volunteers. Are you seeking adults only? Children? Both? Do you have tasks that all can partake in, or are the tasks age-specific?

The UPRP generally seeks volunteers of all ages for clean-up events and encourage everyone, despite their age or ability, to participate in a manner of how they most feel comfortable.

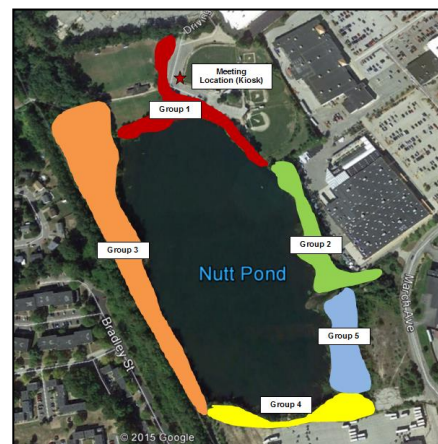


- F. Determine the Desired Number of Volunteers:** Based upon the number and location(s) that are chosen for the clean-up event, determine the desired number of volunteers to partake in the event.

The UPRP typically splits the area adjacent to the ponds into several areas, or groups of volunteers.

- G. Create Map(s) of the Location(s) OR Plan on Designating a “Group Leader” for Each Location:** If the location(s) is / are large enough to break into more than one group during the clean-up event, consider making aerial photographic “maps” (or using topographic maps) of each group’s area, indicating on the map the original meeting location, and the group’s start and end point.

The UPRP has created aerial maps to use in the past. However, what we consider to be more helpful is having a “group leader” (returning volunteer or someone familiar with the area) lead a small group of other volunteers in each designated area.



Step 2: Schedule Your Clean-Up Event

- A. Choose a Date:** Choose a date for the clean-up event at a time of year that makes the most sense to your group. Keep in mind that while lakes and ponds have year-round residents, the majority of residents are likely seasonal and may not arrive for the season, or on or around Memorial Day weekend. Thus, a late-spring or late-fall cleanup may not be the most appropriate time as it may not garner the most volunteers. An early or mid-summer cleanup may be the most appropriate. Consider, perhaps, scheduling the event in conjunction with an annual lake association meeting or holiday barbeque. Also consider scheduling the date of the clean-up event at least a month in advance to allow time to prepare (gather supplies and recruit volunteers). Lastly, consider a rain date.



The UPRP typically schedules annual pond and park cleanups on Saturday mornings during the last two weeks in April and the first one or two weeks in May. This is because a) this time of year is typically after the snow has melted and b) this time of year is typically before “leaf-in” (and in the case of some of these areas, this is important, as the areas are overtaken with thick stands of invasive species). We do not offer rain dates.

- B. Choose a Time:** Determine the amount of time it may take to clean up the area(s) of your choosing. Will it take one hour? Two hours? More? This is also a factor of the number of volunteers that attend (typically the more volunteers that attend the least amount of time the clean-up will take). If you believe the area(s) may take more than two hours, it may be best to schedule a two-part clean-up event. Also consider the time of day most appropriate to your group, especially if it is scheduled in conjunction with (or before or after) another event such as an annual meeting or holiday barbeque.



The UPRP has realized that 1 ½ - 2 hours is a sufficient amount of time to allot to clean-up events. We also realize that volunteers typically do not have the time or patience to commit to any more time in one day than that. We have also typically scheduled the clean-up events from 9:00AM to 11:00AM, with a meeting time of no later than 8:50AM. Early-morning clean-up events afford volunteers to have the remainder of the day for other things.

Step 3: Determine and Obtain Necessary Supplies

- A. Determine the Necessary Supplies:** Determining the task(s) at hand will determine your necessary supplies. If your clean-up event is strictly a trash removal cleanup, you may only need to obtain latex gloves and trash bags. If your clean-up event also includes yard-waste removal, you may need to obtain paper yard-waste bags, rakes and / or other tools.

Since the UPRP clean-up events are strictly focused on trash-removal, the only supplies we must procure are latex gloves (medium sized) and trash bags. We also have a few hand-held trash-grabbers since some volunteers find them helpful in reaching difficult areas and / or to prevent excessive bending.



- B. Obtain the Necessary Supplies:** Determine how you will obtain the necessary supplies. Does your group have a budget? Will your group be purchasing your supplies? Will your group fundraise to purchase supplies? Will your group borrow supplies, from perhaps the town or city?

The UPRP typically obtains supplies from the Manchester Parks, Recreation, and Cemetery Department. These supplies typically only include latex gloves and trash bags, but have included, in the past, rakes, other tools and yard waste bags. We also typically have a large container of hand-sanitizer available.

- C. Obtain a First-Aid Kit:** Consider obtaining one or more First Aid kits (for one or more groups of volunteers) in case it is needed. It is better to be proactively safe!

The UPRP has one First-Aid kit for use.

- D. Consider Providing Water and Snacks:** If your group has the financial means, consider providing water and snacks to your volunteers for afterwards. If your group does not have the financial means, consider soliciting donations from local establishments or having your group bake some treats, and bring a large cooler of ice water (or iced-tea) and some paper (or reusable plastic) cups.

The UPRP does not regularly provide water and snacks to volunteers since we do not have a budget to do so. On occasion, we have been able to obtain donations for yogurt snacks from Stonyfield Farm. On occasion we have also brought or made a baked good.



Step 4: Determine Your Waste Disposal Options

- A. Determine Your Waste Disposal Options:** At the end of your clean-up event, determine how and where you will dispose of the trash that was collected. Is there a dumpster on site that your group has permission to use? Are there already trash and / or recycling carts on site that your group has permission to use? If not, consider contacting your municipality's Highway Department, Parks & Recreation Department, or Road Agent, at least a month in advance, who may be able to coordinate trash and / or recycling pickup from your municipality's vendor (i.e. Waste Management, Pinard, etc.). Determine when the trash and / or recycling will be picked up and what the requirements for pickup are (especially with items such as vehicular tires and batteries, etc.). In addition, consider recruiting volunteers with pick-up trucks, especially if your group is cleaning multiple areas, and trash must be stockpiled in one area at the end of the event. Similarly, if you cannot obtain trash pick-up services, volunteers with pick-up trucks, and a municipal sticker (or permission) may be able to haul the trash and / or recycling to your local landfill or transfer station for free.



The UPRP typically sends notification of the clean-up schedule to the Manchester Public Works Director as soon as the dates are calendared. The Public Works Director, or staff, has coordinated with Manchester's solid waste collection staff to collect the trash on the Monday following the cleanup event (which have been held on Saturdays). While there have been a few times the Public Works Department has made one or more 95-gallon recycling carts available for the clean-up events, they are generally not available, and therefore, recycling is not typically sorted from other debris. All (tied / secure) bags of trash have been neatly placed in the same locations over the years; typically underneath or adjacent to the informational kiosks. Trash collected that does not fit into bags is also neatly placed adjacent to the bagged trash. We also recruit volunteers with pick-up trucks so that trash from different areas of the cleanup can be taken to one designated location at the end of the event. In addition, one of our volunteers separates steel and other scrap metal and takes it to a scrap metal recycling facility.

Step 5: Advertise Your Clean-Up Event / Recruit Volunteers

- A. Determine Any Project Partners:** In addition to volunteers who live around the waterbody, and any other residents of the town, determining any existing local groups or clubs that may be able to assist with the clean-up event is always helpful. Is there a local middle school, high school, or even college (if nearby) environmental club? A local chapter of the Student Conservation Association (SCA)? Any other organization, volunteer group, or club? A lot of these groups and / or clubs seek new community service projects and can help you garner additional / new volunteers.



The UPRP has partnered with the Student Conservation Association, local high school ecology clubs, local boy-scout troops, trout-fishing clubs, geo-caching groups, and others in the past. This has helped garner additional / new volunteers.

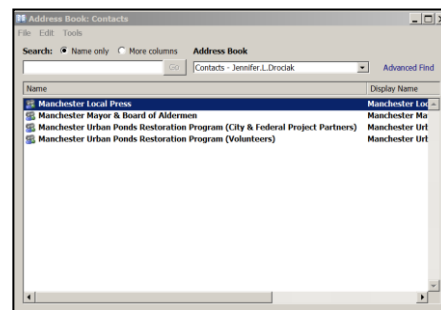
- B. Determine the Best Way(s) to Advertise Your Clean-Up Event:** Determine the target audience of volunteers and consider the best way(s) to advertise your clean-up event. Is it by e-mail? Website? Post-card? Posting of a flyer on a community bulletin board and / or kiosk? An annual lake association newsletter? An advertisement in a local newspaper? TV? Radio? facebook / social media? All of the above? Remember, printed materials and postage cost money, as typically do newspaper and radio advertisements. If your group has available funds for this, that is one thing. If not, instead of



simply placing a paid advertisement in a newspaper, try reaching out to a local news reporter to see if s/he will write a story about your cleanup (or write and submit an op-ed piece). This is usually good, free, advertisement. Also determine the most appropriate time to advertise for the clean-up event. Will you be advertising only once, or multiple times before the event?

The UPRP has typically advertised clean-up events in the following manners: 1) The UPRP webpage, 2) The City of Manchester website "Calendar of Events", 3) the UPRP facebook page, and 4) E-newsletter / e-mail. Local newspapers are also always gracious to cover the event(s) in a story beforehand. The UPRP typically sends posts the clean-up events on the website, and sends out an e-mail approximately three weeks in advance of the cleanup. The UPRP will then send weekly e-mails.

C. Create an E-Mail Distribution List: If you don't already have an e-mail distribution list, consider creating one. This may include names and e-mail addresses of lake association members, conservation commissioners, selectmen, municipal employees / department heads and others you know who may be interested. You can add to this with each clean-up event your group coordinates. If you have access to Constant Contact, Mailer, Mail Chimp, or other similar e-mail platform, this may be easier and more appropriate to use. If not, e-mail is a good starting place.



The UPRP has an e-mail distribution list which consists of approximately 200 individuals consisting of city aldermen, city department heads, conservation commissioners, media contacts, active school groups and other environmental organizations, and former volunteers. With every e-mail sent, an option is sent to opt-out of receiving e-mails by having a name and e-mail address removed from the list. This list is updated at least twice a year.

D. Before You Mail, Post, (or Hit the Send Button): Before you mail or post your flyer, or hit the send button to your e-mail distribution list, be sure to include the Who, What, Where, When, Why, and How to ensure all information is readily available. Why are you seeking volunteers? Who are you seeking as volunteers? What tasks are you seeking of volunteers? Where (general location and specific meeting location) are you seeking volunteers? When (date / time) are you seeking volunteers? Is there a rain date? How will the tasks be conducted? What should the volunteers wear or bring? What will be provided? Are you requesting an RSVP? For more information, who should they contact? Prepare your volunteers by letting them know what time to arrive, what to wear (clothes that can get dirty or wet, long pants, work gloves, boots or sturdy shoes, etc.), what to bring (sunscreen, insect repellent, water) and what to do in case of bad weather (rain date or cancellation information / phone number).



For Example: Seeking volunteers of all ages to assist in an annual trash clean-up at Black Brook and Blodget Park in Manchester on Saturday, April 23, 2016 from 9:00AM – 11:00AM. Volunteers will partner to clean the park and skirt the edges of the brook and wetland complex to remove accumulated trash. Please dress appropriately for weather as no rain date is scheduled. Latex gloves and trash bags will be provided, but please wear knee-boots, or hip-waders if you have them. No RSVP necessary. For more information, please visit www.manchesternh.gov/urbanponds or contact Jen Drociak email@gmail.com or (603) ### - ####. We look forward to seeing you there!

Step 6: Conduct Your Clean-Up Event

A. Arrive Early: Consider arriving 15 minutes to one hour earlier than your volunteers so that you can set up at your check in location. Consider setting up the following: "Clean-Up Attendance Sheet", water and / or refreshments, first aid and safety, trash bags and clean-up supplies, organizational information (flyers, fact sheets, reports, etc.). Consider also walking around the location(s) to identify any new trash and / or safety concerns that may have accrued / arisen since your last visit.

The UPRP coordinator(s) typically meet on-site approximately 15-30 minutes in advance of volunteers to set up trash bags, latex gloves, and the “Clean-Up Attendance Sheet”. We also survey the site to identify any new trash or safety hazards to relay to volunteers.

B. Welcome Your Volunteers and Ask Them to Sign-In:

Welcome each volunteer upon arrival and ask that they sign a “Clean-Up Attendance Sheet” so that your group may account for number of volunteers and volunteer hours contributed to the clean-up event. Consider leaving the “Clean-Up Attendance Sheet” at the check-in location for those volunteers who may have to leave (and sign out) earlier than the full allotted time.

The UPRP “Clean-Up Attendance Sheet” typically notes the location and date of the event, and has room to tally the number of volunteers, number of volunteer hours, number of bags of trash and other debris. It also has fields for volunteers to print their name, address, and e-mail, and note the time they checked in, and the time they checked out.

Manchester Urban Ponds Restoration Program 2016 Clean-Up Attendance Sheet					
Location: _____		Date: _____	Hours at Event: _____	# Volunteers: _____	# Volunteer Hours: _____
Name (Please Print)	Address	E-Mail	Time In	Time Out	
1					
2					
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F. Provide Necessary Supplies to Your Volunteers: Ensure your volunteers have ample supplies for the duration of the clean-up event. If they did not bring their own work gloves, request that they take two pairs of Latex gloves (in case one pair rips), and more than one trash bag, depending on the designated location(s). If your group is also removing yard waste, provide your volunteers with rakes and lawn-waste bags. Request that they return any unused pair of gloves, trash bags, and any supplies to you at the end of the clean-up event. Consider also leaving supplies out in a designated location along with the “Clean-Up Attendance Sheet” for volunteers who may show up late.



Many of the UPRP bring their own work gloves. We then issue two pairs of Latex gloves to each volunteer as well as multiple trash bags, depending on the specific area they will be cleaning up. We request that all unused supplies be returned at the end of the clean-up.

G. Provide Your Volunteers with Instructions for the Clean-Up Event: Provide your volunteers with instructions for the clean-up event such as what they will be retrieving (large trash only, all trash, etc.) what not to pick up (hypodermic needles, cigarette butts, etc.), if they are to separate trash from recycling or not (in which case they may carry two bags at once – different colors may be helpful - one for trash and one for recycling), what is considered recyclable if they are separating recycling from trash (this differs in each community and some vendors may not accept unclean / dirty recyclables from clean-up events), etc. Also provide your volunteers with safety tips and a general schedule of the clean-up event including the location to reconvene at the end and where to place trash. Ensure everyone knows there to focus their efforts and then to stop.

The UPRP typically only picks up large items, and does not typically separate trash from recycling, due to limited means. However, we have done so in the past and have provided volunteers with two trash bags – one for recycling, and one for trash.

H. Make It Fun! Play One or More Games While You’re at It! Why not make things fun while you’re out there picking up trash? Consider playing one or more games (especially if some of the volunteers are children) such as a scavenger hunt, who can find the most interesting or unusual piece of trash, who can find the largest piece of trash, who collects the most trash, etc. Consider offering a prize and / or certificate to the winner(s) of one or more of the games you play.

The UPRP has, for many years, asked volunteers to find the “Most Interesting or Unusual Piece of Trash” at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for “judging” by the coordinator(s) of the clean-up event. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken. We have found some really interesting and unusual pieces of trash over the years, and have kept a list!



I. Relinquish Groups of Volunteers / Group Leader(s) to Designated Area(s): If you are separating volunteers into more than one group for your clean-up event, relinquish the groups to their designated location(s). If you don’t have a group leader for each group, relinquish them with their maps in hand. If you have a group leader be sure to introduce the volunteers in each group to their group leader before relinquishing them to their designated location(s). Remember to consider that not all locations may need the same number of volunteers.

The UPRP typically asks one or more returning volunteers if they would agree to be group leaders. Not all locations require the same amount of volunteers, however. This is decided based upon the area of the designated location(s), as well as the amount of trash to be removed in the designated location(s). For example, one small area along the shoreline may only require two volunteers, but a larger area in another location with a lot of trash may require 4-6 or more volunteers.



- J. Reconvene at Initial Check-In Area at Designated Time:** After the allotted period of time has elapsed for the clean-up event, reconvene at your initial check-in area. Account for all volunteers that did not sign out early.

The UPRP always meets at our initial check-in area. We then account for each group leader and group of volunteers (who did not sign out early) to ensure all have safely returned.



- K. Count Full Bags of Trash (or Weigh All Trash):** Count all full bags of trash that were collected and returned. If one or more bags are returned and are not considered full, consider consolidating them to make full bags of trash. That way, your measurements of “full bags” collected for this, and any other clean-up events, are consistently measured / counted. If your group has access to a scale, you consider weighing your bags of trash, and any other trash, to account for pounds of trash collected. Another option is to ask if the vendor who is charged with collecting the trash after the event can inform your group of the weight of the collection when the truck enters the scale at the weigh-station before drop-off at the refuse facility.



Since trash collected at UPRP clean-up events has not been weighed by a scale, and trash has been weighed by vendor truck only occasionally, to be consistent, we always count full bags at the site, and consolidate bags of trash that are returned not full in order to make full bags.

- L. Account for and Count Other Items:** Account for and count the quantity of other items of trash collected that cannot fit into bags.

The UPRP always accounts for and counts any trash that is collected that cannot be bagged. This typically includes vehicular tires, shopping carts, wood debris, construction debris, or any other items that have been illegally dumped.



- M. Share the Data with Volunteers:** Once you have tallied the final numbers of bags of trash and other items collected during the clean-up event, announce them to your volunteers so they know just how much trash and other debris they removed from the area, know how important their contribution of time and efforts were, and have immediate results of their work!



- N. Tally Final Numbers on Clean-Up Attendance Sheet:** Once you have tallied everything collected, write these numbers on your “Clean-Up Attendance Sheet”.

- O. Take Photographs:** To commemorate the success of your clean-up event, take a photo of the trash collected, and of the group of volunteers who helped collect it!

The UPRP always photographs the trash collected (in and out of bags), as well as takes a group photograph in front of or aside the trash collected.



- P. Award a Prize, or Two, or Three:** If you played one or more games during the clean-up event, consider awarding a certificate or prize to your winner(s) and photographing them with their winning piece of trash!

The UPRP has, for many years, asked volunteers to find the “Most Interesting or Unusual Piece of Trash” at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for “judging” by the coordinator(s) of the clean-up. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken.



- Q. Thank the Volunteers:** Before parting ways, be sure to thank your volunteers for their assistance! Encourage them to volunteer again. Be sure to individually thank any special guests (aldermen / selectmen, city employees, media, etc.).

At the end of each clean-up event, the UPRP notes upcoming clean-up events in order to encourage volunteers to return for the next event.



Above Left: Volunteers at the 100th Cleanup of the Manchester Urban Ponds Restoration Program.

Above Right: Cake served to volunteers at the 100th official cleanup of the Manchester Urban Ponds Restoration Program .

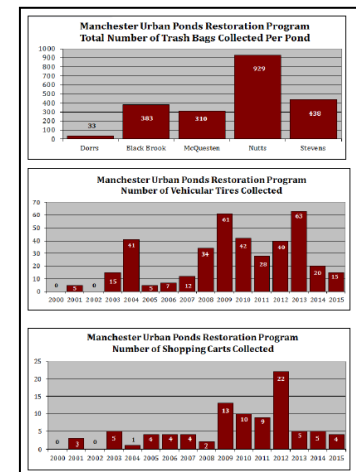
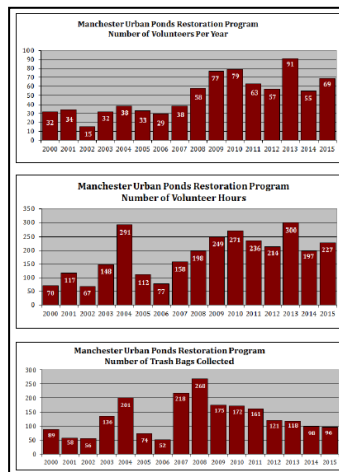
- R. Consider Having a Picnic / Cookout / or Lunch:** If you have the financial means, consider having a picnic / cookout / lunch afterwards to celebrate your accomplishment. Or, consider soliciting local vendors for food donations in exchange for sponsor / partnership recognition at your clean-up event. If you're not able to make or supply lunch, consider encouraging volunteers to bring a brown-bag lunch for afterwards.

Step 7: Follow Up After the Clean-Up Event

- A. Update Your Electronic Records:** Now is the time to transpose the information collected on the “Clean-Up Attendance Sheet” into an electronic record-retention system if you have access to one. Perhaps you have access to a database. If not, consider using a Microsoft Excel workbook / spreadsheet system to track measurements from your clean-up events. Now is also the time to update your existing e-mail distribution list with the names and e-mail addresses of those volunteers who participated in your clean-up event.

The UPRP has consistently used Microsoft Excel to track clean-up measurements. In the first worksheet of the workbook, we account for the number of our clean-up event, the location, date, hours spent at the event, numbers of bags of trash collected at the event, number of volunteers at the event, number of volunteer hours at the event, total value of volunteer time for the event, and other items retrieved at the event. For each year tracked, we created a “total” line with auto-calculations to account for the total of each year. To account for the value of volunteer time, we use figures taken from www.independentsector.org. In the second worksheet of the workbook, we account for pond cleanup attendees, where, for each clean-up event, we list the location, date, names (in alphabetical order), address, and hours at event. Similarly, for each year tracked, we created a “total” line. In the third worksheet of the workbook, we have created graphs based upon each year’s total metrics. We then transpose these graphs to a Microsoft Word document, then an Adobe PDF document, and post on our website, and at the kiosks.

Manchester Urban Ponds Restoration Pond Cleanup Measurements									
#	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time (\$22.50/hr)	Other Items Retrieved	
5	Manchester Pond (NPRC)	6/30/2013	12	12	121	127 (Counted Only Once)	285.75	\$4,741.83	
2013									
8	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time (\$22.50/hr)	Other Items Retrieved	
101	Black Brook	4/30/2013	2	16	70	140	\$3,150.00	5 tires, 1 vacuum pump, 2 large plastic coils	
102	Revere Pond	4/30/2013	2	16	61	122	\$2,767.50	5 tires, 1 vacuum pump, 1 television, 3 lbs	
103	Nash Pond	7/2/2013	2	16	74	148	\$3,330.00	wind socks, 1 shopping bag, 1	
104	Manchester Pond (NPRC)	9/10/2013	4	32	138	276	\$6,195.00	27 tires, 7 compressed buckets, 4 car tires	
105	Manchester Pond (NPRC)	9/10/2013	4	32	138	276	\$6,195.00	27 tires, 7 compressed buckets, 4 car tires	
5				10	100	100 (Counted Only Once)	225.00	\$3,465.75	
2014									
8	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time (\$22.50/hr)	Other Items Retrieved	
106	Black Brook	6/30/2014	2	16	61	122	\$2,767.50	wind socks, plastic chair	
107	Revere Pond	9/3/2014	2	16	74	148	\$3,330.00	3 tires, 1 vacuum pump, 1 television, 3 lbs	
108	Concord Lake (EPA)	9/3/2014	2	16	74	148	\$3,330.00	3 tires, 1 vacuum pump, 1 television, 3 lbs	
109	Nash Pond	9/3/2014	2	16	74	148	\$3,330.00	3 tires, 1 vacuum pump, 1 television, 3 lbs	
110	Manchester Pond (NPRC)	9/3/2014	4	32	138	276	\$6,195.00	27 tires, 7 compressed buckets, 4 car tires	
111	Manchester Pond (NPRC)	9/3/2014	4	32	138	276	\$6,195.00	27 tires, 7 compressed buckets, 4 car tires	
5				10	100	100 (Counted Only Once)	225.00	\$4,527.85	
2015									
8	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time (\$22.50/hr)	Other Items Retrieved	
112	Black Brook	6/30/2015	2	16	61	122	\$2,767.50	30 gallon drums, 30 gallon plastic garbage	
113	Revere Pond	9/3/2015	2	16	74	148	\$3,330.00	4 tires, 1 TV, 1 TV stand, wood debris	
114	Nash Pond	9/3/2015	2	16	74	148	\$3,330.00	3 tires, 2 shopping carts, 1 tire pump, and 1	
115	Manchester Pond (NPRC)	9/3/2015	4	32	138	276	\$6,195.00	compressed bucket, 5 tires, 2 car	
116	Manchester Pond (NPRC)	9/3/2015	4	32	138	276	\$6,195.00	compressed bucket, 5 tires, 2 car	
5				10	100	100 (Counted Only Once)	225.00	\$4,527.85	
101				2095	800	2095.50	\$54,254.80		
TOTALS									



- B. Follow Up With an E-mail or Thank-You Note:** It is always nice to follow up with your new (and / or returning) volunteers by sending them a formal personalized thank-you via e-mail or US Postal Service. Besides, who doesn't like receiving a letter in the letter box, especially in this electronic day-in-age?

The UPRP, has, on occasion, sent personalized thank-you cards in the mail. Typically, however, we send a group thank-you via e-mail and attach photographs taken at the event(s), as well as re-cap tallies from the clean-up event(s).



- C. Consider Writing an Article for Your Newsletter or the Newspaper:** Consider writing an article for your newsletter, if you have one, or a local newspaper or newspaper, summarizing the event with photographs and tallies from the event. Volunteers who helped out at your clean-up event will feel proud of their accomplishment and the results. This is a good way to garner publicity about your group and its event as well as garner additional volunteers in the future.

The UPRP has often written newspaper articles and / or shared summary information about the clean-up events (at the end of the season) listing sponsors / project partners and volunteers, and including photographs of volunteers at the event, via an electronic newsletter.



From 2000 - 2005 **The Manchester Urban Ponds Restoration Program** (UPRP) was part of the Supplemental Environmental Projects Plan (SEPP) which was part of an agreement between the City of Manchester, NH Department of Environmental Services, and the US Environmental Protection Agency to address combined sewers in the City. Seven (7) waterbodies in Manchester have been evaluated and monitored for restoration potential. Specific restoration projects to meet the program's goals have also been identified, funded, and completed through this project. Since 2000, the Manchester Urban Ponds Restoration Program has organized 101 clean-up events. Over the past 15 years, 800 volunteers have spent 2,298.50 hours collecting 2,093 bags of trash! This does not include the items illegally “dumped” such as shopping carts (91), tires (388), car batteries, other car parts, construction debris, and other items. In addition, the value of volunteer time spent at these clean-ups has amounted to over \$54,000 over the past 15 years! The Manchester Urban Ponds Restoration Program was awarded an EPA “Environmental Merit Award” in 2011. More information on the Manchester Urban Ponds Restoration Program can be found by visiting www.manchesternh.gov/urbanponds.



Jen Drociak lives in Manchester, NH and holds a Bachelor of Science degree in Environmental Conservation from the University of New Hampshire. She is employed with the New Hampshire Department of Environmental Services where she has worked as a program specialist for the Pollution Prevention Program, a restoration specialist for the NH Coastal Program where she established a monitoring program for pre- and post-restoration projects in NH's salt marshes, and as the Volunteer River Assessment Program Coordinator

where she provided technical assistance to approximately 200 volunteers who collected water quality samples for surface water quality assessments on NH's rivers and streams. Jen has also worked for the Wastewater Engineering Bureau as a grants management specialist and is currently working for the Land Resources Management Bureau as a compliance specialist. Since 2000, Jen has also been involved with the Manchester Urban Ponds Restoration Program, and has served as acting coordinator since 2006 where she largely coordinates annual clean-up events and water quality monitoring.

Appendix F

Record Keeping

Appendix G

Plan Amendment Log

STORMWATER MANAGEMENT PLAN

AMENDMENT LOG

Tighe&Bond

Amend. No.	Description of the Amendment	Date of Amendment	Amendment Prepared by (Name/Signature)
1	Section 2.2.1 and 2.2.2 were updated to reflect changes in the 2018-2020 Final Integrated List of Waters for Massachusetts	June, 20, 2022	Gabrielle Belfit Tighe & Bond
2			
3			
4			
5			
6			
7			
8			
9			
10			

Appendix H

Delegation of Authority Documentation

"Preserving public trust, providing professional services"



Rodney C. Collins
Town Manager
508-539-1401
rccollins@mashpeema.gov

Office of the Town Manager
Mashpee Town Hall
16 Great Neck Road North
Mashpee, MA 02649

June 20, 2019

Ms. Thelma Murphy
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

Re: NPDES MA Small MS4 General Permit
Delegating an "Authorized Representative"

Dear Ms. Murphy:

This letter serves to designate the Town of Mashpee **Department of Public Works (DPW) Director** as an authorized person for signing the Stormwater Management Plan (SWMP), stormwater pollution prevention plans (SWPPPs), inspection reports, annual reports, monitoring reports, reports on training and other information required under the General Permit. This authorization cannot be used for signing a NPDES permit application (e.g., Notice of Intent (NOI)) in accordance with 40 CFR 122.22.

By signing this authorization, I confirm that the Town Manager meets the following requirements to make such a designation as set forth in Appendix B, Subparagraph 11 of the Small MS4 General Permit:

For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Rodney C. Collins
Town Manager