

Town of Needham, MA

Stormwater Management Program (SWMP): Volume 1

*NPDES Phase II Small MS4 General Permit
August 2023*

STORMWATER MANAGEMENT PLAN



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Town of Needham, MA

NPDES Phase II Small MS4 General Permit

STORMWATER MANAGEMENT PLAN

Prepared by: BETA GROUP, INC.

Prepared for: Town of Needham

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Certification:

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

Signature:



Date:

8/24/2023

Printed Name: Thomas A. Ryder

Title: Town Engineer

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SUMMARY OF REVISIONS

Revision #	Changes	Date/Permit Year
0	SWMP Volumes 1 & 2 Issued, SWMP Volume 3 Drafted	September 2019 / Year 2
1	SWMP Volumes 1, 2 & 3 Updated. Reflects completed BMPs, Self-Audit/Status, Personnel Changes, Reflects 2018/2020 Impaired Waters, IDDE & O&M progress, re-organization of reporting and procedures, finalization and integration of O&M Volume 3, By-law & Regulations updates	June 2023 / Year 5

1.0 EXECUTIVE SUMMARY

Each MS4 community must have a Stormwater Management Plan (SWMP) to guide its activities under the General Permit. This Stormwater Management Plan was developed by the Town of Needham to protect water quality and reduce the discharge of pollutants from the municipality's storm sewer system to the maximum extent practicable as described herein.

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

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

Written plans are to be updated annually as necessary. Volume 4 compiles the documentation required over each reporting period (July 1 to June 30) for assembly of annual reports due September 29th each year.

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

Stormwater Management Webpage is located here:

<https://www.needhamma.gov/323/Stormwater-Management>

Stormwater Bylaw is Article 7 of the General Bylaw located here:

<https://www.needhamma.gov/DocumentCenter/View/1859/General-By-Laws-2019-PDF?bidId=>

1.1 DESCRIPTION OF TOWN AND AREAS SUBJECT TO THE PLAN

Needham has five (5) waterbody segments that receive flow from the MS4 with four (4) designated as Category 5 Waters and one (1) designated as Category 4A. There is a sixth waterbody in Needham on the Massachusetts List of Integrated waters, Kendrick Street Pond (MA72055) which is impaired for turbidity; however, this lake is owned by Department of Conservation & Recreation (DCR). **Table 1-1** lists the waterbodies, the associated impairments and Total Maximum Daily Loads (TMDL) requiring action as described in the permit and this SWMP based on the Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle.

Table 1-1: Integrated Waterbodies in Needham

NEEDHAM WATERBODIES			
Name	Category	Segment ID	Impairment Causes (EPA TMDL No.)
Rosemary Brook	4A	MA72-25	Oxygen, Dissolved (40317) Phosphorus (Total) (40317)
Fuller Brook	5	MA72-18	Escherichia coli (32374) Nutrient/Eutrophication Biological Indicators (40317)
Charles River	5	MA72-06	Excess Algal Growth (40317) Nutrient/Eutrophication Biological Indicators (40317) Phosphorus (Total) (40317)
Charles River	5	MA72-07	Escherichia coli (32370) Harmful Algal Bloom (40317) Nutrient/Eutrophication Biological Indicators (40317) Phosphorus (Total) (40317)
Alder Brook	5	MA72-22	Nutrient/Eutrophication Biological Indicators (40317)
DCR WATERBODIES			
Name	Category	Segment ID	Impairment Causes (EPA TMDL No.)
Kendrick Street Pond (Cutler Lake)	5	MA72055	Turbidity

Appendix B includes a map titled “*Discharges to Impaired Waters*” identifying the impaired water bodies in Needham and the MS4 areas tributary to these water bodies.

Both the Massachusetts Department of Transportation (MassDOT) and the Massachusetts Department of Conservation and Recreation (DCR) own and maintain significant portions of land within Needham. These two (2) departments have their own NPDES MS4 Permits and are therefore not the responsibility of the Town. There are also legally protected conservation lands owned by Federal, State, municipal, or nonprofit enterprises that are not subject to this SWMP.

The Town of Needham’s MS4 is composed of pipes, culverts, swales, Best Management Practices (BMP), and outfalls discharging to wetland areas, streams, lakes, ponds and rivers. A GIS database which contains Town-wide information for all the drainage structures and conduits has been established and includes:

- 4,311 Catch Basins
- 275 Outfalls
- 105 Miles of Storm Drainpipe
- 1,540 Storm Drain Manholes
- 32 Town-Owned Structural BMPs

The Town has several GIS coverages including buildings, pavement edges, parking lots, sidewalks, driveways, waterbodies, two (2) foot contours, sanitary sewer structures, and pipes which assist in evaluating the MS4 and carrying out the SWMP.

1.2 REPORTING REQUIREMENTS

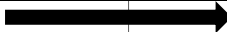
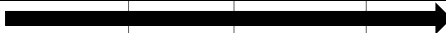
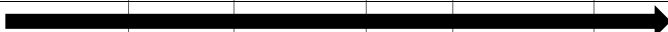
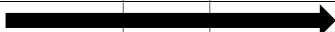
The Town is required to submit annual reports for each year of the July 1 – June 30 permit term. Annual reports are due ninety (90) days from the close of the reporting period. EPA provides an annual report template each year for the Town to use in reviewing compliance with the permit terms and conditions. A description of planned activities for the next reporting cycle and any changes to the program are included. The following data is collected and reported by the Town to support the ongoing efforts mandated by the Permit:

- Public education and outreach materials with date of distribution and recorded number of views for web postings
- Public involvement and participation with date of events and turn-out data
- SSO reporting forms and updated inventory table
- Inventory of catchment investigations, data collected, and illicit connections removed
- IDDE program training attendance log
- Inventory of TV inspection completed
- Outfall screening and sampling data
- O&M inspection and maintenance forms and logs including:
 - Catch basin cleaning and activities
 - Street and parking lot sweeping logs
 - MS4 infrastructure BMP inspection forms and logs
 - Town facilities inspection forms and logs
- Inventory of site plan review and BMP implementation
- Stream and culvert maintenance activities

1.3 IMPLEMENTATION SCHEDULE AND STATUS

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

Table 1-2: MS4 Permit Status and Compliance Implementation Timeline

MS4 Permit Requirement	Permit Year July 1 st – June 30 th (Permit effective July 2018)						
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 7	Yr 10
Notice of Intent (NOI)	Complete						
Stormwater Management Plan (SWMP) - Update	Complete						
SWMP updates: Mapping & Regs							
Include Assessment of local regs (See 5 below)					Complete		
1. Public Education and Outreach					Annually		
2. Public Involvement and Participation	Annually						
3. Illicit Discharge Detection & Elimination (IDDE)							
Written IDDE Program Plan	Complete						
SSO Inventory	Complete						
Written Catchment Investigation Procedure	Complete						
Phase I Mapping (inc. catchment delineation)	Complete						
Phase II Mapping							Jun 30
IDDE Regulatory Mechanism	Complete						
Outfall/Intercon Inventory & Ranking	Complete						
Dry Weather Outfall Screening			Complete				
Follow-up Ranking of Outfalls/Intercon			Complete				
Catchment Investigations – Problem Outfalls		Begin					
Catchment Investigations – CCTV Program							Jun 30
On-going Screening and Composite Sampling for subwatershed areas	Annually as Locations are Identified						
Training	Annually						
4. Construction Site Runoff Control							
Regulation for Sediment & Erosion Controls	Complete				Update		
Written Procedure for Site Insp & Enforce	Jun 30				Update		
Sediment & Erosion Controls (BMPs) Program	Complete				Update		
Waste Control Requirements	Complete				Update		
Written Procedure for Site Plan Rev & Insp	Drafted				Update		
5. New Development and Redevelopment							
Development/Redevelopment Bylaw	Complete				Update		
Identify 5 Owned Properties for BMP Retrofit					Complete		
Assess Street Design, Parking Guidelines and local regs in regards to impervious cover					Complete		
6. Good Housekeeping							
Written O&M Programs –SWPPP & Facilities	Complete						
Inventory Permittee Owned Facilities	Complete						
Written O&M Programs – MS4 Infrastructure	Complete						
Catch basin cleaning	Annually as Needed						
Street Sweeping	Spring & Fall Annually						
Inspections for SWPPP	Quarterly						
Inspection & Maintenance of Structural BMPs	Annually						
Phosphorus Control Plan (PCP)							

2.0 INTRODUCTION & BACKGROUND

The Town of Needham has developed this SWMP plan to address the requirements of the Environmental Protection Agency (EPA) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) including 2020 Modifications in Massachusetts, also known to as the 2016 MS4 Permit. The 2016 MS4 Permit replaces the MS4 2003 Permit. The EPA proposed modifications to the 2016 MA MS4 General Permit on April 23, 2020 and finalized those modifications in December of 2020, making this the most recent iteration of the 2016 MS4 Permit. This SWMP plan describes the measures that will be implemented to meet the terms and conditions of the 2016 MS4 Permit. This document will be modified as necessary and made available at the Town Engineer's office as well as online at www.needhamma.gov during the permit term. The 2016 MS4 Permit covers the following categories:

- Identification of Responsible Parties
- Endangered and Threatened Species and Historic Properties Protection
- Increased Discharges and Discharges Waters with TMDLs or Subject to Additional Requirements
- Implementation of Six (6) Minimum Control Measures
- Sanitary Sewer Overflow Inventory
- Surface Drinking Water Supply Protection
- Annual Program Evaluation

The Town was previously authorized by the 2003 MS4 Permit, which had established six (6) minimum control measures, BMPs, and measurable goals to meet the terms and conditions of that permit. This SWMP is a modification and update to the previous plan and efforts under which the Town of Needham had made great progress.

2.1 MEMORANDUM OF UNDERSTANDING (1996)

The Town of Needham's SWMP began with a Consent Order and Memorandum of Understanding (MOU) from the EPA in 1996 to preserve, protect, and improve national water resources from polluted stormwater runoff. The Needham 1996 Stormwater Pollution and Management Program was then created to focus on ten drainage areas discharging to the Charles River to identify "illicit connections" to the stormwater system. The Town constructed improvements to the stormwater and sanitary sewer systems in 1996 and 1997 to eliminate the illicit discharges to the Charles River. The Town has continued to improve its water quality through stormwater programs and the National Pollutant Discharge Elimination System (NPDES) program.

2.2 TOWN WIDE DISCHARGE POINT INSPECTION, SAMPLING AND TESTING PROGRAM (1999)

In 1999, town wide discharge point inspection, sampling, and testing was conducted under dry weather conditions. The investigation included all discharges at headwalls and pipe ends except for discharges to the State drainage system. Of the 295 outfalls investigated, sixteen (16) were flowing and eight (8) were determined to have elevated levels of fecal coliform bacteria. These eight (8) areas were targeted in the 2003 NPDES MS4 Permit.

2.3 STORMWATER MASTER PLAN (MARCH 2002)

The 2002 Stormwater Master Plan included development of drainage mapping, town-wide outfall inspections, hydrologic/hydraulic analysis, a non-point source pollution study, and preparation of the plan itself. Developing a storm drain network and database of catch basins, manholes, and outfalls in GIS

provided the framework for the current plan and drainage system evaluation. The plan made recommendations related to illicit discharge elimination, hydraulic capacity improvements, and implementing minimum control measures identified by EPA.

Illicit discharge elimination recommendations included development of a standardized catch basin and storm drain inspection program, continued television inspection of the sanitary sewers under the infiltration/inflow (I/I) program, and additional IDDE investigations.

The Plan identified four major drainage basins in Town with two directly discharging to the Charles River and the others tributary to Fuller Brook and Rosemary Brook. Within these four drainage basins, eleven problem areas were identified based on flood complaints. These problem areas were analyzed for capacity through hydraulic modeling using the best available data. At the time, there was insufficient data in the areas of Great Plain Avenue and High Rock Street. The Fuller Brook area was determined to require increased maintenance to address capacity issues. All other areas were recommended for hydraulic capacity improvement projects including Bradford Street, Carey Road, Greendale Avenue, Mackintosh Avenue, Oak Street, Oxbow Street, South Street and West Street. Recommendations were for high level planning purposes and acknowledged that additional analysis would need to be considered to determine feasibility of recommendations.

Since the 2002 Master Plan recommendations, the Town has further evaluated the drainage system and evolved its stormwater management approach to consider updated data and technology, impacts due to climate change, and expanding requirements from EPA. In the Bradford Street and Greendale Ave areas, hydraulic capacity projects which replaced existing pipes with larger pipes have been completed. In others, the Town has explored and implemented projects to address problem areas in ways that also address EPA's mandates for reducing stormwater pollution. These efforts have been detailed in subsequent reports.

Water quality recommendations included implementing the six (6) minimum control measures identified by the EPA and retrofitting existing stormwater drainage/detention systems with structural BMPs for pretreatment to remove total suspended solids prior to discharge.

All recommendations have been incorporated into the Stormwater Management Plan and continue to be consulted and incorporated into watershed management planning and subwatershed projects.

2.4 NPDES MS4 PERMIT (JULY 2003)

In 2003, MS4 Phase II Stormwater Requirements within Urbanized Areas were issued through the NPDES program. The EPA developed six (6) Minimum Control Measures that needed to be addressed through this program. The focus of this program was on implementation of BMPs to meet these measures. The permitted Six (6) Minimum Control Measures for stormwater monitoring are as follows:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

Needham created a 2003 SWMP which identified the proposed BMPs and measurable goals that needed to be implemented to achieve compliance with the Phase II requirements. The goal of the plan was to

reduce the overall effects of stormwater pollutants to Needham water bodies to the maximum extent practicable. This plan was accepted and became the 2003 NPDES MS4 Permit for the Town going forward. The Town has committed to its implementation over the past fifteen (15) years and made great progress as described in the following section.

2.5 PROGRESS SINCE THE 2003 NPDES MS4 PERMIT

Needham has been well ahead of the curve and made significant progress in implementing the six (6) minimum control measures and BMPs throughout the Town. Extensive IDDE efforts have been undertaken and public education and outreach continues for schools, businesses, and residents. BMPs have been installed on Town properties and private developments, which are inspected and maintained annually.

Previous Construction Infiltration BMP Inventory

The Town has been encouraging infiltration and BMPs in development and redevelopment projects in conjunction with stormwater regulations and 2003 NPDES MS4 Permit recommendations. **SWMP Volume 3 – Good Housekeeping and Pollution Prevention (O&M) Plan** and **the Town of Needham Phosphorus Control Plan** contain extensive BMP/LID Inventory Tables and maps of private and public locations that are known to have a BMP or LID installed. The tables and maps are a compilation of information provided from various Town sources including Department of Public Works (DPW), Conservation Commission, and the Building Department. This inventory includes BMPs/LIDs such as drywells for roof runoff, water quality units, and swales to treat runoff from parking areas and roadways, porous pavement and infiltration basins, and subsurface systems for new/redevelopment projects.

IDDE Success

Most notable IDDE work and successes since the 2003 NPDES MS4 Permit include: Richardson Drive Pump Station elimination, 2003 NPDES MS4 Permit Illicit connection removals, and 1410 Great Plain Ave Illicit connection removal. The Town has completed two (2) full CCTV inspections of the entire drainage system in which no additional illicit connections were detected.

Richardson Drive Pump Station elimination

The Town demolished the failing Richardson Drive Pump Station, which had been identified as a source of sewage exfiltration into the environment. The direction of groundwater flow from the station was toward Farley Pond and the Charles River. The project also included new gravity sewer and some I/I rehabilitation work. The direction of groundwater flow was to Farley Pond and the Charles River.

2003 NPDES MS4 Permit Illicit connection removals

Needham's 1996 SWMP conducted inspection and testing in ten (10) drainage areas identified by EPA (through the Charles River Watershed Association) as contributing significant fecal coliform bacteria to the Charles River. Improvements to the stormwater and sanitary sewer systems were constructed by the Town in 1996 and 1997 to eliminate the illicit discharges to the Charles River. In 1999 town wide discharge point inspection, sampling and testing was conducted under dry weather conditions. Of the 295 outfalls investigated, sixteen (16) were flowing and eight (8) were determined to have elevated levels of fecal coliform bacteria. These eight areas (8) were targeted in the 2003 NPDES MS4 Permit. Following the initial testing results, the Town made the following efforts to reduce contributing factors to the elevated levels of fecal coliform bacteria:

- Reducing quantity of geese droppings through site aversion techniques
- Removal of a discovered family of raccoons from a main drainage pipe

- Removal of septic system connection to a stormwater drain
- Elimination of Richardson Drive Pumping Station
- CCTV work of the entire stormwater collection system

The eight (8) areas were re-tested in 2008 and all samples came back below action levels.

Great Plain Ave Illicit connection removal

During work on the Downtown Improvements project, an illegal connection was found at 1410 Highland Avenue where the sewer was connected to the drain. The connection was identified on May 2, 2016 and removed on May 26, 2016.

Stormwater Bylaw (2018 with updates pending)

The Town established a stormwater bylaw (Article 7) to prohibit illicit discharges to the MS4, establish standards to promote the removal of pollutants from stormwater, encourage recharging of stormwater, develop methods to maintain functional operation of stormwater BMPs, and improve stormwater quality in the environment. The bylaw was approved at the Fall 2018 Town meeting. All persons required to obtain a building Permit for new construction and/or additions greater than 25% of the existing building footprint are subject to the requirements of the bylaw. The Bylaw prohibits any pipe connection to the Town's MS4 system or point source discharge onto a public way. The Bylaw also allows the Select Board to adopt Stormwater Regulations to effectuate the purposes of the Bylaw. Regulations meeting the requirements of the MS4 Permit for new and redevelopment standards and construction phase erosion control requirements were drafted in 2018 but not adopted. The Bylaw threshold and regulations are currently being reviewed and updates considered to ensure compliance with the MS4 permit and to help facilitate the Town's Phosphorus Control Plan.

Planning Board, Zoning Board of Appeals, or Conservation Commission, Department of Public Works and Building Department are all responsible for administration of this bylaw through their permit review process. A list of key requirements included in the 2018 Bylaw are:

- A minimum of one (1) inch of stormwater runoff over all impervious areas on a property shall be recharged into the ground.
- A Stormwater Management and Erosion Control plan must be submitted as part of the Plot Plan to a Building Permit prior to any land disturbance.
- An Operation and Maintenance Plan, yearly inspection requirements and as-built drawings of stormwater management systems for multi-family and commercial properties with more than 4,000 sf of total impervious area.
- No illicit discharges or connections are allowed into the MS4 or the Waters of the Commonwealth nor are obstructions of normal stormwater flow into or out of the MS4.
- DPW enforcement of the bylaw.

The regulations provide recommendations on how to comply with the recharge requirements, such as installing drywells on one (1) or more corners of single-family homes and commercial buildings with less than 4,000 sf impervious area where properties are located within an area of suitable soils. Where soils are unsuitable for infiltration and the property is within 100' of a drain, the roof leaders can connect to Town system with a six-inch drainpipe. Where soils are unsuitable for infiltration and the property is greater than 100' from a drain, payment can be made to a stormwater fund for the Town to construct a communal infiltration system within the same sub-watershed that the property is located. The payment amount is determined by the Select Board.

Watershed Management Plan (February 2018)

The focus in watershed management has shifted to stormwater quality improvements with more regulatory mechanisms and requirements based on impaired waterbodies. Needham has developed a Watershed Management Plan to position the Town for the ultimate goal of Total Watershed Management. This plan is intended as a guidance tool in capital improvement planning. The approach is based on the EPA's high priority concerns and the Town's desires for watershed improvements. A major component is the delineation of the Town into sixteen (16) subwatersheds. The plan prioritizes the subwatersheds based on needs and opportunities and provides recommendations and watershed management techniques tailored to each individual subwatershed.

This Plan was created with the new MS4 permit in mind and the goals of the two are closely integrated. Common goals include:

- Stormwater System data collection and assessment
- Creation/Improvement of Town stormwater regulations and bylaws
- Outfall sampling and monitoring
- Improve receiving water quality
- Inventory of Town BMPs/LIDs
- Identify opportunities to implement infiltration/BMPs/LIDs
- Public Education
- Operation and Maintenance of MS4 infrastructure

The Watershed Management Plan currently in effect in Needham is an important first step in the achievement of Total Watershed Management. Total Watershed Management is a systems management approach intended to mimic the undeveloped natural environment. Nature has an inherent cycle of water, earth and growth that Needham intends to strive to balance with the increased demand for development. The holistic approach of Total Watershed Management is Needham's long-term solution to successful stormwater management.

Watershed Analysis (2021-Present)

Consistent with the approach outlined in the 2018 Watershed Management Plan, the Town is in the process of analyzing each of the sixteen watersheds identified. The analysis reviews the watershed areas with respect to the six minimum control measures of the MS4 permit and provides watershed specific recommendations for implementation. Watersheds are also analyzed for development of the Town's Phosphorus Control Plan (PCP) including: evaluating the sources of phosphorus, recommending the inclusion of best management practices (BMPs), and documenting the required reduction of phosphorus loads to the Charles River. To date, Analysis has been completed for Watershed No. 2 (March 2022).

3.0 IDENTIFICATION OF RESPONSIBLE PARTIES FOR IMPLEMENTATION OF PROGRAM

The implementation of this program is the responsibility of the Town of Needham Department DPW, specifically the DPW Director and DPW Town Engineer as follows:

DPW Director: Carys Lustig

DPW Town Engineer: Tom Ryder, P.E.

Additional detail on program responsibilities and assisting parties are summarized in **Table 3-1** below:

Table 3-1: SWMP Responsibilities

Program	Responsible Party	Assisting Division/Party
Public Education and Outreach	DPW	
Public Inv. and Participation	DPW	
IDDE	DPW	Consultant, Health, Water & Sewer
Construction Site SW Control	Town Engineer	Planning, Building Dept, Conservation Commission
New/Re Develop SW Mgmt	Town Engineer	Planning, Building Dept, Conservation Commission, Engineering
Good Housekeeping	DPW	Parks & Forestry, Parks & Recreation, PPBC, RTS
Reporting	Compliance Coordinator	Conservation Commission, Building Dept, Engineering, Planning, Health, Water & Sewer

4.0 RESOURCE PROTECTION

4.1 ENDANGERED AND THREATENED SPECIES

The MS4 permit requires applicants to assess the impacts of their stormwater discharges and discharge related activities on federally listed endangered and threatened species and designated critical habitat.

The Northern Long-eared Bat is the only endangered species of concern located in the Town of Needham. There is no reason to believe that the stormwater discharges, allowable non-stormwater discharges, and discharge related activities will have any effect on the Northern Long-eared Bat or any other listed species or critical habitat.

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

4.2 HISTORIC PROPERTIES

The MS4 Permit requires applicants to consider 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 proposed BMPs outlined in this program have no potential effect on any historic because no changes are proposed to the existing MS4 infrastructure.

The Environmental Overview Map in **Appendix A** includes the Massachusetts Historical Commission's (MHC) inventory of historic points and areas. Future stormwater projects and activities proposed in and around these properties should be referenced against this map as well as the state register. The state register provides a comprehensive list of significant buildings, structures, objects, and sites that have received local, state, or national designations.

4.3 SUMMARY OF RECEIVING WATERS & IMPAIRMENTS, REQUIRED ACTIONS

Surface Water Quality Standards (SWQS) are determined for a water body's designated use. The SWQS designate the uses that surface waters are protected for. An assessment is performed to determine if the designated uses are met by the water bodies. The use is not assessed in instances when there is insufficient data or information. Assessment information is provided and maintained by the DEP in the Water Body System (WBS) database, which is updated every two (2) years. Designated uses include:

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

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

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

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

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

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

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

The Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Integrated Report (2018/2020 IR), assigns five (5) categories for water quality assessment depending on status with respect to the support of designated use:

- Category 1 — Waters attaining all designated uses
- Category 2 — Attaining some uses; other uses not assessed
- Category 3 — No uses assessed
- Category 4A — All TMDLs are Completed
- Category 4B — Impairment controlled by alternative pollution control requirements
- Category 4C — Impairment not caused by a pollutant – TMDL not required
- Category 5 — Waters requiring one or more TMDL(s) (i.e. the 303(d) List)

4.4 NEEDHAM'S IMPAIRMENTS AND REQUIRED ACTION

As described in **Section 1.1**, Needham has five (5) waterbody segments that receive flow from the MS4 with four (4) designated as Category 5 Waters and one (1) designated as Category 4A. There is a sixth waterbody in Needham on the Massachusetts List of Integrated waters, Cutler Lake (MA72055) which is impaired for turbidity; however, this lake is owned by Department of Conservation & Recreation (DCR). **Table 1-1** identifies and lists their impairments and TMDLs. **Appendix A** includes a map, "*Discharges to Impaired Waters*," identifying the impaired water bodies in Needham, the MS4 areas tributary to these water bodies, and the impairments requiring action. This map also includes the sixteen (16) watersheds and their sampling points identified in Needham's Watershed Management Plan. There are six (6) large areas of Town excluded on the map for various reasons. They are labeled as DOT Property, DCR Property, Ridge Hill Reservation, Charles River Natural Valley Storage Area, High Rock Town Forest, and Town Water Land. Both MassDOT and the Massachusetts DCR own and maintain significant portions of land within Needham. These agencies have their own NPDES MS4 Permits and are not the responsibility of the Town. Ridge Hill Reservation, Charles River Natural Valley Storage Area, High Rock Town Forest, and Town Water

Land were all excluded based on their open space level of protection designation. These conservation lands are legally protected in perpetuity or protected under limited use and other legal means such as requirement of a majority municipal vote for any change in status. These uninhabited areas are used for conservation only and are legally protected from any type of development on the land in the near future. It is assumed there will be no unnatural change to these areas in regard to stormwater within their limits, allowing the Town to focus its efforts on the sixteen (16) designated subwatersheds.

The 2016 MS4 Permit identifies specific requirements within Appendix H for a Water Quality Limited Waterbody (WQLW) in five (5) categories of impairments (Nitrogen, Phosphorus, Bacteria/Pathogens, Chloride and Solids, oils and grease or metals). These requirements apply to waterbodies and their tributaries that do not meet applicable water quality standards, including waters listed in categories 5 or 4b, and that are without an EPA approved TMDL. There are not impairments for Nitrogen, Chloride, Metals, Oil, and Grease in Needham's receiving waters. There is an impairment for solids (Turbidity) in Kendrick Street Pond. Impairments for Phosphorus and Bacteria/Pathogens are identified for various waterbodies in Needham, however, in each case there is an approved TMDL. Requirements for discharges to impaired waters or their tributaries with an approved TMDL are identified within Appendix F of the permit. The requirements specific to impairments and TMDLs of Needham's receiving waters are summarized as follows:

Solids, oils and grease or metals Impairment Requirements

Applicable Receiving Waters: Kendrick Street Pond (Cutler Lake) (MA72055)

Requirement: Any catchment area that discharges to a water body impaired for turbidity must comply with enhanced BMPs in addition to the requirements to reduce pollutants to the maximum extent practicable outlined in Section 2.3 of the permit and covered in **Section 5.0** of this report. Required additional and enhanced BMPs include:

Stormwater Management in New Development and Redevelopment – Stormwater management systems designed on commercial and industrial land draining to the WQLW shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in case of an emergency spill or other unexpected event. It is also encouraged to require any stormwater management system designed to infiltrate stormwater on these properties to provide a high level of pollutant removal (equivalent to biofiltration) prior to infiltration.

Good Housekeeping and Pollution Prevention for Permittee Owned Operations – Increase street sweeping frequency of all municipal owned streets and parking lots to target areas with potential for high pollutant loads. This may include increased street sweeping frequency in commercial and high-density residential areas or drainage areas with a large amount of impervious area. Prioritize inspection and maintenance for catch basins in these areas and clean more frequently as needed. Include street sweeping schedule targeting high pollutant load areas in annual reports.

Status: The Town has incorporated these enhancements into the BMPs in **Section 6.0** of this report.

Charles River Watershed Phosphorus TMDL Requirements

Applicable Receiving Waters: Charles River (MA72-07 & MA72-06), Rosemary Brook (MA72-25)

Requirement: To address the discharge of phosphorus from its MS4, the permittee shall develop a Phosphorus Control Plan (PCP) to reduce the amount of phosphorus in stormwater discharges from its MS4 to the Charles River and its tributaries. This PCP is to be completed in phases. A written Phase 1 plan

is to be completed and included as an attachment to the SWMP within five (5) years of the permit effective date. Table F-2 and F-3 of Appendix F of the Permit identifies a 55% reduction requirement for the Town of Needham.

Status: The Town has developed draft stormwater regulations aimed at promoting infiltration to reduce phosphorus loading. Preliminary calculations indicate that requiring roof infiltration through drywells as part of the building permitting process, coupled with non-structural controls, will allow the Town to fulfill the 55% stormwater percent reduction in phosphorus load over time. This approach constitutes the Town's PCP as described further in **Section 4.5**.

Bacteria and Pathogen TMDL Requirements

Applicable Needham Receiving Waters: Charles River (MA72-06 & 07), Fuller Brook (MA72-18), Rosemary Brook (MA-72-25) *

**Note that Rosemary Brook is included as a tributary as it is not itself identified with the bacteria/pathogen impairment however it is included in Table F-8 of Appendix F of the Permit.*

Requirement: Any catchment area that discharges to a water body impaired for bacteria or pathogens must comply with enhanced BMPs in addition to the requirements to reduce pollutants to the maximum extent practicable outlined in Section 2.3 of the permit and covered in Section 6.0 of this report. Required enhancement of BMPs include:

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

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

Status: The Town has incorporated these enhancements into the BMPs in **Section 6.0** of this report.

4.5 PHOSPHORUS CONTROL PLAN (PCP)

The entire Town of Needham is within the Charles River Watershed which has a TMDL for Phosphorus. To address the TMDL the Town is required to develop a Phosphorus Control Plan (PCP) designed to reduce the amount of phosphorus in stormwater discharges from its MS4 to the Charles River and its tributaries. The MS4 Permit specifies the annual stormwater phosphorus load requirements for each permittee based on nutrient loading calculation. The Phosphorus Load requirements for the Town of Needham for the Charles River Watershed are as follows (per Appendix F Table F-2 of the permit):

Phosphorus (P)	Baseline P Load	P Load Reduction	Allowable P Load	Stormwater Percent Reduction
kg/yr	1,771	974	797	55%
lb/yr	3,904	2,147	1757	55%

Consistent with the approach outlined in the 2018 Watershed Management Plan, the Town is following a watershed-based approach for its PCP. As shown on the MS4 Discharges to Impaired Waters Map in **Appendix A** the Town has been delineated into sixteen (16) watersheds contributing stormwater through its MS4. The Town has a plan and schedule for analyzing and implementing structural controls systematically by watershed to reduce phosphorus loading. Each analysis reviews the watershed area

with respect to the six minimum control measures of the MS4 permit and provides watershed specific recommendations for implementation including: evaluating the sources of phosphorus, recommendations for structural best management practices (BMPs), and documentation of the required reduction of phosphorus loads. The recommendations are then completed through design and construction contracts that are planned for as part of the Town's capital improvements plan. This approach is documented in the Town's PCP drafted in Year 5 (2023) of the Permit term and is summarized below in **Tables 4-1 & 4-2**.

Table 4-1: Needham Watershed Evaluation Proposed Schedule

Area	Watershed Size (ac)	Impervious Area (ac)	Primary Dev Land Use	PLoad Rate (lb/ac/yr)	Phosphorus Removed (lbs/yr)		Analysis Year	Design Year	Construct Year
					Low (40% removal)	High (80% removal)			
2	954	114.5	LDR	1.52	53	140	Complete	2023	2024
4	698	223.4	HDR/COM	2.05	184	367	2024	2024	2025
6	306	107.1	MHDR	2.14	92	184	2024	2025	2026
5	527	131.8	HDR	2.32	123	245	2025	2026	2027
7	338	121.7	HDR	2.32	113	226	2026	2027	2028
10	590	118.0	MHDR	2.14	102	203	2027	2028	2029
9	412	103.0	MHDR	2.14	89	177	2028	2029	2030
13	313	100.2	MDR	1.96	79	158	2029	2030	2031
12	420	142.8	MHDR/COM	2.02	116	231	2030	2031	2032
11	217	97.7	MHDR/COM	2.02	79	158	2031	2032	2033
8	348	226.2	COM/IND	1.78	162	323	2032	2033	2034
14	402	60.3	LMHDR	1.74	42	84	2033	2034	2035
15	327	49.1	HDR	2.32	46	92	2034	2035	2036
3	348	52.2	LDR	1.52	32	64	2035	2036	2037
1	417	37.5	LDR	1.52	23	46	2035	2036	2037
16	81	4.1	LDR	1.52	3	5	2035	2036	2037

Table 4-2: Needham Phosphorus Control Implementation Required Schedule

Required Reduction	Lbs P Removed*	Lbs To next goal	Lbs/Yr To next goal	Ave Lbs /Yr goal	By Year
Current**	50				2024
20%	429	379	190	153	2026
25%	537	107	54	153	2028
35%	751	215	72	153	2031
50%	1,074	322	161	153	2033
70%	1,503	429	143	153	2036
100%	2,147	644	322	153	2038

*Based on EPA 2005 Baseload

**Conservative Estimate of Lbs/Yr removed based on existing BMPs and O&M practices currently in place

As shown in these tables, the intent of the Town's PCP plan is to identify phosphorus load reduction feasible for each watershed and evaluate implementation methods while meeting the MS4 Permit prescribed PCP schedule. Prioritization of watersheds for analysis, design and implementation is based on land use and acres of impervious area to meet phased milestones required by the Permit. The plan and schedule will be updated on an annual basis to show progress and evaluate performance and is posted and maintained on the Town's stormwater webpage.

5.0 DISCHARGES

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

5.1 INCREASED DISCHARGES AUTHORIZATION

The Massachusetts Stormwater Management regulations, current site development review practices, and new stormwater regulations drafted by the Town prohibit increased discharges. They all require that any new development or re-development (including new impervious area) is subject to the Post-Construction Stormwater Management requirements, which include infiltration standards that are intended to mimic pre-development conditions. As a result, new impervious area is required to employ BMPs that must minimize any increase in surface runoff. In a case where these conditions cannot be met, authorization for an increased discharge may be required.

All discharges in Town are to impaired waters listed in categories 5 or 4b on the Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle. This SWMP incorporates the required actions outlined in Appendix F and H of the permit aimed at decreasing pollutants causing impairments to those waterbodies. These actions combined with the implementation of post construction stormwater requirements will decrease the overall pollutant loading to all receiving waters over time. Town compliance with these requirements of the permit, including all reporting and documentation, demonstrates no net increase in pollutant loading from the MS4.

5.2 DISCHARGES TO TMDL OR WQLW

As previously noted, all discharges in Town are to either TMDL or WQLW waters. **Table 1-1** highlights the TMDL(s) and/or Water Quality Limitations for each of Needham's water bodies. The MS4 area tributary to each waterbody is subject to the TMDL and/or WQLW requirements based on that waterbody's stormwater related impairments. **Appendix A** includes a map of the MS4 discharge locations (i.e. outfalls and interconnections), the MS4 area tributary to each receiving water and the TMDL and/or Water Quality Limitation triggering additional requirements to reduce pollutant loading and protect water quality.

6.0 IMPLEMENTATION OF MINIMUM CONTROL MEASURES

The 2016 MS4 Permit states that upon adoption of the new (September 2019) MS4 SWMP, the previous SWMP and all related deadlines and expectations are superseded. As indicated in the 2003 and 2016 MS4 permits, the permittee shall reduce the discharge of pollutants from the MS4 to the maximum extent practicable using these six (6) minimum control measures (MCMs) as detailed in the permits:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post-Construction Runoff Control)
6. Pollution Prevention/Good Housekeeping

The Town has already established many BMPs to meet and exceed the goals of the 2003 and 2016 permit. However, there are measures that still to need to be implemented and others that have been evaluated and revised to achieve compliance to the maximum extent practicable. Revisions and status updates have been incorporated this section of the plan. The Town continues to be committed to aggressively pursuing funding and accomplishing as many of the goals as feasible. The goal is to reduce the overall effects of stormwater pollutants to Needham water bodies to the maximum extent practicable. For each of the six (6) control measures, this section of the SWMP describes the practices currently in place and those proposed to achieve compliance including:

- The person or department responsible for the measure
- The BMPs for the control measure or permit requirement
- The measurable goal for each BMP (including milestones and timeframe for its implementation and have a quantity or quality associated with its endpoint, each goal to have a measure of assessment associated with it)

Reporting forms and logs to document efforts on each MCM can be found on the Town's Stormwater Webpage under the "Municipal Separate Storm Sewer System (MS4) Compliance Documents" page.

6.1 PUBLIC EDUCATION AND OUTREACH (MCM 1)

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals.

Objective and Requirements

The main objective of this control measure is to implement an education program to targeted audiences and provide information about stormwater and how human behavior may impact it. The Town is required to provide educational material to four (4) audiences which include residents, industries, commercial, and construction with a goal to change learned behavior so that pollutants in stormwater are reduced.

The minimum permit requirements in accordance with MS4-2016 section 2.3.2 are as follow:

1. Continue the public education program required by the MS4 2003 permit.
2. Distribute at a minimum two (2) educational messages over the five (5) year permit term to each audience identified in part MS4-2016 2.3.2.b. Message shall focus on topics most relevant to the community.

3. Document in each annual report the message for each audience, method of distribution, the measures/methods used to assess the effectiveness of the messages, and the method/measures used to assess the overall effectiveness of the education program.
4. Comply with enhanced requirements related to approved TMDL for Bacteria and Pathogens which includes:
 - Supplement residential education program with an annual message encouraging proper management of pet waste.
 - Distribute education materials to dog owners at the time of licensing.
 - Provide information to owners of septic systems about proper maintenance.

Current Practices

The Town of Needham has distributed first and second education messages to the required audiences as described below to comply with the MS4 Public Education and Outreach minimum control measures. The Town has found social media and the Town web site as the most practical and effective way to facilitate communication and education to the public. The Town has established a routine of annual messaging to continue educating residents beyond the first five years of the permit term. In addition, the DPW is pursuing working with the Needham Public School's Production Department and other organizations in town to create and disseminate stormwater education materials to reach a wider and more diverse community audience.

Best Management Practices and Measurable Goals

BMP-1.1. Educate Residents I

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

Media/Location:	Posted on Facebook, Twitter and Town Website.
Responsible Party:	DPW
Measurable Goal(s):	• Distributed message to all residents regarding Lawn care and leaf collection/disposal, Think Blue Fowl Water video, Clear-a-Basin, hazardous waste day • Recorded number of hits on social media • Completed in 2019

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

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

Media/Location:	Advertisement on Facebook
Responsible Party:	DPW
Measurable Goal(s):	• Distributed Think Blue Fowl Water video and Clear-a-basin message to business, institution, and commercial facility property owners • Recorded number of hits on social media • Completed in 2019

BMP-1.3. Educate Industrial Facility Owners, Developers and Contractors I

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

Media/Location:	Posted on Facebook, YouTube Ad, Spanish Language
Responsible Party:	DPW
Measurable Goal(s):	• Distributed message to Industrial facilities and developers/contractors regarding Think Blue Fowl Water video • Recorded number of hits on social media • Completed in 2021

BMP-1.4. Educate Residents II

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

Media/Location:	Posted on Facebook, Twitter and Town Website.
Responsible Party:	DPW
Measurable Goal(s):	• Distributed message to all residents regarding Lawn care and leaf collection/disposal, Think Blue Fowl Water video, Clear-a-Basin, Street Sweeping, Keep it Clean, Arbor Day Tree Planting, hazardous waste day • Recorded number of hits on social media • Completed in 2020, 2021, 2022 & annually

BMP-1.5. Educate Businesses, Institutions, and Commercial Facilities II

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

Media/Location:	Advertisement on Facebook
Responsible Party:	DPW
Measurable Goal(s):	• Distribute Think Blue Fowl Water video and Clear-a-basin message to business, institution, and commercial facility property owners • Recorded number of hits on social media • Completed in 2019, 2020, 2021, 2022

BMP-1.6. Educate Industrial Facility Owners, Developers and Contractors II

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

Media/Location:	Posted on Facebook
Responsible Party:	DPW
Measurable Goal(s):	• Distributed message to Industrial facilities and regarding clear-a-basin • Recorded number of hits on social media • Completed in 2021 & 2022

Appendix F of the Permit requires implementation of the following BMPs due to Bacteria and Pathogen TMDL Requirements:

BMP-1.7. Educate Residents Annually on Proper Management of Pet Waste with Dog License Applications

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

Media/Location:	Brochures posted on website and distributed with annual dog license
Responsible Party:	DPW
Measurable Goal(s):	• Distributed message to all residents when they (re)apply for a dog license • Record number of hard copies distributed, and locations posted. • Completed annually since 2019 (ongoing)

BMP-1.8. Educate Residents Annually on Proper Management of Septic Systems

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

Media/Location:	Brochures at Health Department
Responsible Party:	DPW
Measurable Goal(s):	• Distributed message to all residents applying for septic system permits as part of Certificate of Compliance. • Record number of hard copies distributed • Completed annually since 2018 (ongoing)

6.2 PUBLIC INVOLVEMENT AND PARTICIPATION (MCM 2)

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals.

Objective and Requirements

The main objective of this control measure is for the Town to provide at least annually an opportunity for the public to participate in the development/implementation of their Stormwater Management Program (SWMP).

The minimum permit requirements in accordance with MS4-2016 section 2.3.3 are as follow:

1. Public involvement activities shall comply with state notice requirements (MGL Chapter 30A, Section 18-25 effective 7/10/2010). The SWMP and all annual reports shall be available to the public.
2. Annually provide the public opportunity to participate in the review and implementation of the SWMP.
3. Report on the activities undertaken to provide public participation opportunities including compliance with part 2.3.3.a of the MS4-2016. Public participation opportunities pursuant to part 2.3.3.b of the MS4-2016 may include, but are not limited to, websites; hotlines; clean-up teams; monitoring teams; or an advisory committee.

Current Practices

The Town of Needham posts the SWMP to the town website for review and comment at <https://www.needhamma.gov/323/Stormwater-Management>. An annual internal review of the SWMP is completed at the end of the permit term. The review assesses the adequacy of the current plan and take into consideration comments, if any, received from the community. A copy of the SWMP and all procedures, processes and data related to Stormwater Management, including Annual Reports are available in full on the town website to be inclusive and transparent to the community regarding MS4 Permit compliance.

Needham is a member town in the Charles River Watershed Association and the Charles River Stormwater Collaborative. In collaboration with these entities, our community participates in events and activities that directly affect the Charles River Watershed and contribute to our Stormwater Management efforts and goals. In addition, the DPW is pursuing working with in-town organizations to disseminate stormwater education materials at town events such as sponsored clean-up days, farmers markets and Arbor Day Tree distribution events to reach a wider and more diverse community audience.

Best Management Practices and Measurable Goals

BMP-2.1. Public Review of Stormwater Management Program

Make SWMP available to review by Town residents.

Media/Location:	Website, social media posts and in person through Compliance Coordinator
Responsible Party:	Department of Public Works
Measurable Goal(s):	• Opportunity for residents to view the SWMP online and provide public access to the printed document. • Record web page hits and requests to view printed

	document. • Update posted plan annually
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BMP-2.2. Public Participation and Comment of Stormwater Management Program

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

Media/Location:	Email Address provided on Website with SWMP posting and through Compliance Coordinator
Responsible Party:	Department of Public Works
Measurable Goal(s):	• Keep a log of comments for review and consideration when annually updating the SWMP. • Include comment log in the annual report.

BMP-2.3. Public Participation Activities

Public participation activities may include meetings, cleanup teams, monitoring teams, hazmat drop off events, watershed organization events, hotlines, or an advisory committee. The Town has invested in an interactive Watershed model that can be used at Conservation events such as the Harvest Fair, Library, Presentations at schools, etc.

Media/Location:	Press release, social media post, web page
Responsible Party:	Department of Public Works
Measurable Goal(s):	• Advertise at least one (1) activity per year. • Record method of advertising. Record the number of attendees and/or quantity of cleanup achieved.

6.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM (MCM 3)

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals.

Objective and Requirements

The main objective of this control measure is to systematically find and eliminate sources of non-stormwater from the storm sewer system. The permit requires a proactive rather than a reactive approach. The Town is expected to methodically look at the drainage system for non-stormwater sources and remove them.

The minimum permit requirements in accordance to MS4-2016 section 2.3.4 are as follows:

1. Develop and implement a regulatory mechanism to provide adequate legal authority to the Town to implement and enforce the IDDE Program.
2. Develop an SSO inventory covering the previous five (5) years within one (1) year of the effective date of the permit.
3. Develop a system wide storm sewer system map within ten years of permit effective date.
4. Develop an Illicit Discharge Detection and Elimination Program within one (1) year of the effective date of the permit.
5. Develop a priority ranking of outfalls/interconnections within one (1) year of the effective date of the permit.
6. Develop a catchment investigation program within 18 months of the effective date of the permit.
7. Record and report in each annual report about the IDDE program progress and overall effectiveness.
8. Ongoing screening plan of outfalls once every five (5) years.
9. Provide training to employees involved in the IDDE program annually. The training frequency and type shall be reported in the annual report.
10. Comply with enhanced requirements related to approved TMDL for Bacteria and Pathogens which includes:
 - Automatic designation of either “Problem Catchment” or “HIGH Priority” in the implementation of the IDDE program for catchments discharging to waters with a TMDL for Bacteria or Pathogens. In Needham this includes Charles River (MA72-06 & 07), Fuller Brook (MA72-18) & Rosemary Brook (MA-72-25).

Current Practices

Needham is primarily serviced by separate municipal sewer and drainage systems. There are currently 390 properties with private septic systems, with the majority concentrated in the southwest part of town.

Appendix B contains a table of septic system locations. The municipal sewer system and septic systems are also shown on the “Water Supply, Sewer and Septic Systems” Map in **Appendix B**.

The Town developed a written IDDE program which is Volume 2 of the SWMP. The IDDE program includes an inventory of 285 outfalls/interconnections that were screened and sampled in 2021 (within the first three (3) years of the permit effective date) in accordance with MS4 dry weather requirements of the permit. 195 of the outfalls/interconnections were identified as jurisdictional under the MS4 permit for the IDDE program.

As discussed in the Volume 2 IDDE Program, the Town's approach includes a storm drain infrastructure cleaning and CCTV inspection program, follow-up on dry weather screening and sampling data with watershed analysis recommendations and catchment investigation, and annual screening and sampling at 19 composite locations throughout Town. These locations are based on the discharge points of the 16 subwatersheds in the Watershed Management Plan and are intended to provide TMDL and WQLW monitoring and evaluation metrics. Catchment investigations are to be conducted as warranted based on the composite sampling results. The Town continues its current CCTV inspection program with a goal of inspecting ten percent (10%) of the entire system annually to proactively identify illicit connections. This program has been ongoing since 2003 and is extremely effective in locating illicit discharge connections in the storm sewer system. If an illicit connection is found, the Town responds immediately to locate and eliminate the source as quickly as possible.

BMP-3.1. Best Management Practices and Measurable Goals IDDE Legal Authority

The IDDE Legal Authority was adopted within the General bylaw "Article 7: Stormwater" at the Fall 2018 Town meeting. The stormwater Bylaw prohibits illicit connections and unauthorized discharges to the MS4 and require removal of all such illicit connections. It also provides the legal authority to the Town DPW to enforce the bylaw.

Media/Location:	Article 7: Stormwater Bylaw/ Town website
Responsible Party:	Department of Public Works
Measurable Goal(s):	Bylaw Adopted (Fall 2018 Town Meeting)

BMP-3.2. Sanitary Sewer Overflow (SSO) Inventory

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

Media/Location:	The inventory is included as an Appendix of the SWMP Volume 2: IDDE Plan/ Town website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	- Inventory completed (Year 1). - In the event of an overflow or bypass, provide notification with 24 hours to MassDEP & EPA followed by a written report within 5 calendar days. - Update annually.

BMP-3.3. Storm Sewer System Map

Update storm sewer system map in accordance permit mapping requirements.

Media/Location:	The map is included as an Appendix of the SWMP Volume 2: IDDE Plan/ Town website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	- Updated mapping completed within 2 years of effective date of permit for Phase 1 mapping - Update annually as new/corrected information is discovered.

	Complete full system map (Phase 2) within 10 years of effective date of permit
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BMP-3.4. Written IDDE program

Develop/update written IDDE program.

Media/Location:	SWMP Volume 2: IDDE Plan/website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	- Written program completed (Year 1). - Update as required.

BMP-3.5 Implement IDDE Program

The Town implemented the IDDE program including dry and wet weather screening, TV inspection and catchment investigations as discussed above.

Media/Location:	SWMP Volume 2: IDDE Plan/website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	- Completed dry weather screening within three (3) years of permit effective date. - Ongoing CCTV inspection of 10% of the drainage system annually. - Conduct catchment investigations if screening or sampling indicates issues and as recommended during watershed analysis.

BMP-3.6 Ongoing screening of outfalls

As locations are identified and confirmed through the watershed analysis efforts, the Town will conduct annual outfall screening and dry and wet weather sampling at 19 composite locations as discussed above and in the SWMP Volume 2 IDDE Plan. Media/Location:	SWMP Volume 2: IDDE Plan/website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	Conduct screening and sampling at 19 designated locations annually and provide a table of cumulative monitoring results each year in the annual report.

	• Conduct Screening and sampling of all outfalls every 5 years
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BMP-3.7 Employee Training

The Town will provide training opportunities to employees on IDDE implementation.

Media/Location:	Posted on Town's internal TEAMS Stormwater Page for Employee Access
Responsible Party:	Department of Public Works
Measurable Goal(s):	• Conduct training annually and record in annual log

6.4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

The Town Engineer is responsible for ensuring the implementation of proposed BMPs and measurable goals.

Objective and Requirements

The objective of this control measure is to minimize or eliminate erosion and maintain sediments on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S during construction activities. The construction site stormwater runoff control program required by this permit is a separate and distinct program from EPA's stormwater construction permit program.

The minimum permit requirements in accordance with MS4-2016 section 2.3.5 are as follow:

1. Implement and enforce a program to reduce pollutants in stormwater runoff discharge to the MS4 from all construction activities that result in land disturbance greater than or equal to one (1) acre within regulated area.
2. Develop and implement a construction site runoff control program with written procedures and a regulatory mechanism for site plan review and enforcement within one (1) year from effective date of the permit. Program must include the following elements for sediment and erosion control:
 - a. Regulatory mechanism that requires the use of sediment and erosion control practices at construction sites
 - b. Written procedures for site inspection and enforcement
 - c. Sediment and erosion control requirements for construction site operators performing land disturbance activities
 - d. Requirements to control waste from construction sites
 - e. Written procedures for site plan review and inspection and enforcement

Current Practices

The DPW's Engineering Division currently reviews Building Department permit application plans for all new house construction/additions and plans that require Site Approval for Planning Board and for Zoning Board of Appeals. During this review process, the Engineering Division ensures that there is enough detail on the plans is provided to mitigate discharges from construction activities. In 2020 the Town launched Online Permitting for Building and DPW where requirements for Construction Site Stormwater Runoff Control and Stormwater Management in New and Redevelopment Requirements can be posted to and acknowledged by applicants for construction projects.

- Properties involving a building permit only require erosion control, even if less than an acre of construction activity. Infiltration of roof runoff is required to statically contain at least one (1) inch of the site's impervious area for new construction or additions greater than 25% of the existing building. An engineering design required for total impervious areas greater than 4,000 square feet for a site with minimum containment of one (1) inch of impervious area runoff.
- Properties involving Planning Board or Zoning Board permits require submittals showing that the ten (10) Massachusetts Stormwater Standards are met for all sites. The minimum infiltration for new construction is one (1) inch of runoff over entire impervious area.
- All properties through the building permit or Planning/Zoning Board process require inspections at various times through the construction process. As-built certifications from the applicant's engineer and/or surveyor are required to be submitted prior to final occupancy.

Best Management Practices and Measurable Goals**BMP-4.1 Provide a regulatory mechanism for implementation and enforcement of construction stormwater runoff control programs**

The Town has a stormwater bylaw, approved at the Fall 2018 Town Meeting, that provides a regulatory mechanism for implementation and enforcement of sediment and erosion control practices at construction sites. It provides legal authority to the Town DPW to enforce the bylaw.

Media/Location:	Stormwater Bylaw posted on Town Stormwater Webpage
Responsible Party:	Department of Public Works
Measurable Goal(s):	Stormwater bylaw adopted at Town Meeting Fall 2018

BMP-4.2 Site inspection and enforcement of Erosion and Sediment Control measures

The Town has measures in place for inspection and enforcement and is currently working on formalizing standard operating procedure documents to meet the requirement for written procedures of site inspections and enforcement procedures.

Media/Location:	Town Stormwater Webpage and through On-Line Permitting for Building and DPW
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	Complete within 1 year of the effective date of permit

BMP-4.3 Site Plan Review

The Town's stormwater bylaw requires site plan review and inspection and enforcement including preconstruction review by the Town DPW of the site design, the planned operations during construction, planned BMPs during construction phase, and the planned BMPs to be used to manage runoff created after development. The stormwater bylaw outlines the site plan requirements and identifies enforcement procedures. The Town is currently working to revise the thresholds for site plan review for stormwater management and adopt companion regulations with detailed stormwater standards.

Media/Location:	Stormwater Bylaw posted on Town Stormwater Webpage and through On-Line Permitting for Building and DPW
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	- Stormwater bylaw adopted at Town Meeting Fall 2018 - Update bylaw threshold and adopt drafted regulations planned for Permit Year 6

BMP-4.4 Erosion and Sediment Control

The Town's stormwater bylaw requires construction operators to implement a sediment and erosion control program.

Media/Location:	Stormwater Bylaw posted on Town Stormwater Webpage
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	and through On-Line Permitting for Building and DPW
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	• Stormwater bylaw adopted at Town Meeting Fall 2018 • Update bylaw threshold and adopt drafted regulations planned for Permit Year 6

BMP-4.5 Waste Control

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

Media/Location:	Stormwater Bylaw posted on Town Stormwater Webpage and through On-Line Permitting for Building and DPW
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	• Stormwater bylaw adopted at Town Meeting Fall 2018 • Update bylaw threshold and adopt drafted regulations planned for Permit Year 6

6.5 STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST CONSTRUCTION)

Town Engineer is responsible for ensuring the implementation of proposed BMPs and measurable goals.

Objective and Requirements

The objective of this control measure is to reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites.

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

1. Develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites that disturb one (1) or more acres and discharge into the permittees MS4 at a minimum. Permittees authorized under the 2003 MS4 Permit shall continue to implement and enforce their program and modify as necessary to meet the requirements 2016 MS4 Permit.
2. Develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover within four (4) years from effective date of the permit.
3. Develop a report assessing existing local regulation to determine if green infrastructures are allowable when appropriate site conditions exist. This report shall be completed within four (4) years from the effective date of the permit.
4. Identify within four (4) years from the effective date of the permit a minimum of five (5) permittee-owned properties that could potentially be modify or retrofitted with BMPs.
5. Comply with enhanced requirements related to WQLW Impairment Requirements for solids, oils and grease, or metals which includes:
 - Stormwater management systems designed on commercial and industrial land draining to the WQLW shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in case of an emergency spill or other unexpected event. It is also encouraged to require any stormwater management system designed to infiltrate stormwater on these properties to provide a high level of pollutant removal (equivalent to biofiltration) prior to infiltration. In Needham this includes Cutler Lake (MA72055) for solids (turbidity).

Current Practices

The Town has been encouraging infiltration and BMPs in development and redevelopment projects in conjunction with stormwater regulations and in preparation for the new MS4 permit. **SWMP Volume 3 – Good Housekeeping and Pollution Prevention (O&M) Plan** and **the Town of Needham Phosphorus Control Plan** contain extensive BMP/LID Inventory Tables and maps of private and public locations that are known to have a BMP or LID installed. As noted in **Section 6.4**, the DPW's Engineering Division currently reviews Building Department permit application plans for all new house construction/additions and plans that require Site Approval for Planning Board and for Zoning Board of Appeals and any special permits for construction projects through any Town Boards. During this review process, the Engineering Division ensures that stormwater standards are met and stormwater BMPs are included to the maximum extent practicable. In 2020 the Town launched Online Permitting for Building and DPW where requirements for Construction Site Stormwater Runoff Control and Stormwater Management in New and Redevelopment Requirements can be posted to and acknowledged by applicants for construction projects.

Best Management Practices and Measurable Goals**BMP-5.1 Develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites.**

In anticipation of the 2016 MS4 Permit, the Town has adopted a stormwater bylaw that address the requirement of this control measure and goes beyond to include new and redevelopment under one (1) acre of disturbance. Among other things they require as-built plans for on-site stormwater control. The Town is currently working to revise the thresholds for site plan review for stormwater management and adopt companion regulations with detailed stormwater standards.

Media/Location:	Stormwater Bylaw posted on Town Stormwater Webpage and through On-Line Permitting for Building and DPW
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	- Stormwater bylaw adopted at Town Meeting Fall 2018 - Update bylaw threshold and adopt drafted regulations planned for Permit Year 6

BMP-5.2 Street design and parking lot guidelines

The Town has developed a report assessing requirements that affect the creation of impervious cover and assessing existing local regulation to determine if green infrastructures are allowable when appropriate site conditions exist. The assessment identifies where changes to design standards can be modified to support low impact design options.

Media/Location:	Post on Town Stormwater Webpage and DPW Offices
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	- Drafted May 2023, under review by Town for implementation - Finalize and implement recommendations of report as bylaws and regulations are updated

BMP-5.3 Target properties to reduce impervious areas

In the Watershed Management Plan and through subsequent individual watershed analysis work the Town has identified properties (at least five (5) permittee-owned properties) and right-of-way projects that could be modified or retrofitted with BMPs to reduce impervious areas. This work is also included in the Phosphorus Control Plan.

Media/Location:	Posted on Town Stormwater Webpage and DPW Offices
Responsible Party:	Department of Public Works
Measurable Goal(s):	Listing of properties has been completed. Continue to update and maintain list of five (5) retrofitted

	properties.
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BMP-5.4 Allow green infrastructure

Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.

Media/Location:	Post on Town Stormwater Webpage and DPW Offices
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	• Drafted May 2023, under review by Town for implementation • Finalize and implement recommendations of report as bylaws and regulations are updated

BMP-5.5 Comply with enhanced requirements related to WQLW Impairment Requirements for solids in the watershed tributary to Kendrick Street Pond.

Stormwater management systems designed on commercial and industrial land draining to the WQLW shall incorporate enhanced removal of solids prior to infiltration or discharge off-site. There is one industrial and two commercial properties that fall completely or partially in the Kendrick Street Pond tributary area. These properties are fully developed. Any re-development of these properties will require a special permit including stormwater review by the Department of Public Works for compliance with this requirement.

Media/Location:	Stormwater and permitting requirements posted on the Town webpage and DPW Offices
Responsible Party:	Department of Public Works/Permitting Authority
Measurable Goal(s):	• Enhanced removal of solids will be considered in stormwater control practice and site design review for all new and redevelopment projects within Kendrick Street Pond watershed.

6.6 GOOD HOUSEKEEPING AND POLLUTION PREVENTION FOR PERMITTEE OWNED OPERATIONS

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals.

Objective and Requirements

The objective of this control measure is to 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.

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

1. Develop an Operations and Maintenance Program for Permittee Owned Facilities within two (2) years from effective date of the permit.
2. Inventory of all Town owned facilities within two (2) years from the effective date of the permit.
3. Develop an Infrastructure Operations and Maintenance Program within two (2) years from the effective date of the permit.
4. Optimize Routine inspections, cleaning and maintenance of catch basins.
5. Establish and implement procedures for sweeping and/or cleaning streets and permittee-owned parking lots.
6. Ensure proper storage of catch basins cleanings and street sweepings prior to disposal.
7. Establish and implement procedures for winter road maintenance.
8. Establish and implement inspections and maintenance of stormwater treatment structures.
9. Comply with enhanced requirements related to WQLW Impairment Requirements for Solids, oils and grease, or metals which includes:
 - Increase street sweeping frequency of all municipal owned streets and parking lots to target areas with potential for high pollutant loads. This may include increased street sweeping frequency in commercial and high-density residential areas or drainage areas with a large amount of impervious area. Prioritize inspection and maintenance for catch basins in these areas and clean more frequently as needed. Include street sweeping schedule targeting high pollutant load areas in annual reports. In Needham this includes Kendrick Street Pond (MA72055) for solids (turbidity)
10. Develop a Stormwater Pollution Prevention Plans (SWPPP) within two (2) years from effective date of the permit.

Current Practices

For years, Needham has been implementing a three-line defense approach for maintaining its MS4 infrastructure. This approach has proven very successful in preventing the discharge of pollutants from the MS4 system. The three (3) lines of defense include: (1) catch basin cleaning, (2) drain pipe CCTV inspection and cleaning and (3) a culvert maintenance program. The Town's good housekeeping and pollution prevention is detailed in its SWMP Volume 3: O&M Plan document and through standard operation procedures and action logs available on the Town's Stormwater Webpage.

Best Management Practices and Measurable Goals

BMP-6.1 Municipal Stormwater Operations and Maintenance (O&M) Program

The permit requires a written program detailing the activities and procedures the Town will implement so that the permittee owned facilities and MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. A Municipal Stormwater Operations and Maintenance (O&M) Program has been developed

by the Town. This O&M Program has been prepared to address the good housekeeping and pollution prevention for permittee owned operations requirements (Part 2.3.7.a.) of permit. It provides an inventory of all permittee (Town) owned facilities within the categories of parks and open space, buildings and facilities, and vehicles and equipment. Procedures have been developed and included in this plan to maintain these facilities and the Town's MS4 stormwater infrastructure such as catch basins and treatment structures and the impervious surfaces, streets and parking lots that are tributary to them. The plan also includes an inventory of Town-owned BMPs and maps and maintenance logs for record keeping and reporting. This plan fulfills the requirements 1-9 listed above for Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

Media/Location:	SWMP Volume 3: O&M Plan/ website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	• Implement written Municipal Stormwater O&M program for town owned Facilities annually • Update Town-owned facility inventory annually • Implement written Municipal Stormwater O&M program for MS4 Infrastructure annually • Establish schedule for catch basin cleaning based on the Infrastructure O&M plan and implement within two (2) years of the permit effective date, report annually on number of catch basins cleaned and volume of material removed • Sweep all streets and permittee-owned parking lots twice per year (in the spring and fall) or more in accordance with permit conditions including those specified above for impairments and as identified in the Infrastructure O&M plan • Implement salt use optimization during deicing season annually • Inspect and maintain stormwater treatment structures at least annually

BMP-6.2 Stormwater Pollution Prevention Plans (SWPPP)

The Town has also developed Stormwater Pollution Prevention Plans (SWPPP) for the Town DPW facility and the Recycling and Transfer Station facility. These plans have been prepared to meet the requirements (Part 2.3.7.b) of the permit. The plans include maps and maintenance logs for record keeping and reporting and fulfills requirement 10 listed above for Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

Media/Location:	SWMP Volume 3: O&M Plan/ website & DPW Office
Responsible Party:	Department of Public Works
Measurable Goal(s):	• Implement SWPPPs, perform quarterly inspections and report annually

7.0 SANITARY SEWER OVERFLOWS (SSO) INVENTORY

The Town has identified and inventoried all known locations where SSOs have discharges to the MS4 within the previous five (5) years. This inventory is provided and maintained as part of **SWMP Volume 2: IDDE Plan**.

8.0 SURFACE DRINKING WATER SUPPLY SOURCES

Section 3.0 of the permit addresses requirements for MS4 systems that discharge to public surface drinking water supply sources (Class A and Class B surface waters used for drinking water) or their tributaries. According to 314 CMR 4.00, Massachusetts Surface Water Quality Standards, 4.05: Classes and Criteria and 4.06: Basin Classification and Maps, Needham does not have any Class A or tributaries to Class A surface waters. The Charles River is a Class B surface water in and downstream of Needham.

While the majority of Needham's MS4 does discharge to the Charles River and its tributaries, these Class B surface waters are not used for public drinking water supply. The implementation of control measures described in Section 5 of this report, which will be applied throughout the Town, are intended to avoid and minimize impacts to all surface waters including the Charles River and its tributaries.

9.0 ANNUAL PROGRAM EVALUATION

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

The Town is required to submit annual reports each year of the permit term. The reporting period is a one-year period commencing on the permit effective date (July 1, 2018) and each anniversary thereafter. Annual reports are due ninety days from the close of the reporting period (September 28). The annual reports will review compliance with the Permit terms and conditions including assessment of selected BMPs, status and progress assessment of planned activities, description of IDDE and O&M program activities, evaluation of construction and post construction stormwater management, and the method/measures used to assess the overall effectiveness of the education program. Description of activities for the next reporting cycle and any changes in identified BMPs or measurable goals will be included. The following data will be collected and reported by the Town using the Annual report Logbook which is posted to the Town Stormwater Management Webpage at the end of each permit term to support the ongoing efforts mandated by the Permit:

- Public education and outreach log (inc. description, audience, responsible party, method of delivery, date, measure)
- Public involvement and participation logs
 - SWMP, SWPPP & IDDE posting & review (inc. date, responsible party, location, comments)
 - Public Participation Activities (inc. date, responsible party, description, measure)
- IDDE Program logs
 - Employee training (inc. date, # attendees, location, presenter, topic)
 - SWPPP Inspection (inc. report #, date, reporter, location, status & comments)
 - SSO inventory (inc. report #, date, reporter, location, status & comments)
 - Illicit discharge inventory (inc. report #, date, reporter, location, status & comments)
 - Record of mapping updates (inc. type, date, by, location, description)
 - Outfall screening and sampling data (inc. type, date, ID, Location, Comments)
 - Catchment investigations (inc. category, date, inspector, location, description/results)
- Construction Site Runoff Control logs
 - Construction Inspection (inc. report #, date, inspector, project/location, status & comments)
 - Construction Site Enforcement Action (inc. project/location, date, action taken, status/comments)
- Stormwater Management in New Development and Redevelopment log
 - Site Plan Review (inc. project/location, filing date, reviewer, requirements met, status)
- Good Housekeeping logs
 - Catch basin cleaning (inc. date, location, # CB cleaned, inches removed, volume)
 - Catch basins more than 50% full at cleaning (inc. CB ID, date, address, location description)
 - Sand Removal- Sweeping (inc. date, truck type, status & comments, Tons collected)
 - BMP Inspections (inc. Category, type, date, department, location, description/results)
 - Town facilities inspection forms and logs

EPA develops a report template each year for MS4s which will populate information from the NOI and includes reporting requirements specific to that year in the form of an electronic fillable .pdf. The Town uses this template for annual report submissions.

APPENDIX A – Environmental Overview Map

Town of Needham, Massachusetts

Environmental Overview Map

Map Legend

Stormwater Structures

BMP

Catch Basin

Manhole

Inlet

Outfall

Conveyance

Pipe

Culvert

Swale/Channel

Conservation

NHESP Certified Vernal Pools

NHESP Estimated Habitat of Rare Wildlife

NHESP Priority Habitat of Rare Species

Historic Data

Historic - Point

Historic - Area

Hydrography

Hydrologic Connection

Open Water

Wetland

Major Watershed Boundary

***MassDEP 2018/2020 Integrated List of Waters**

Rivers: Category 4A

Lakes, Estuaries: Category 4A

Rivers: Category 4C

Lakes, Estuaries: Category 4C

Rivers: Category 5

Lakes, Estuaries: Category 5

Roadway Owner

State

Town

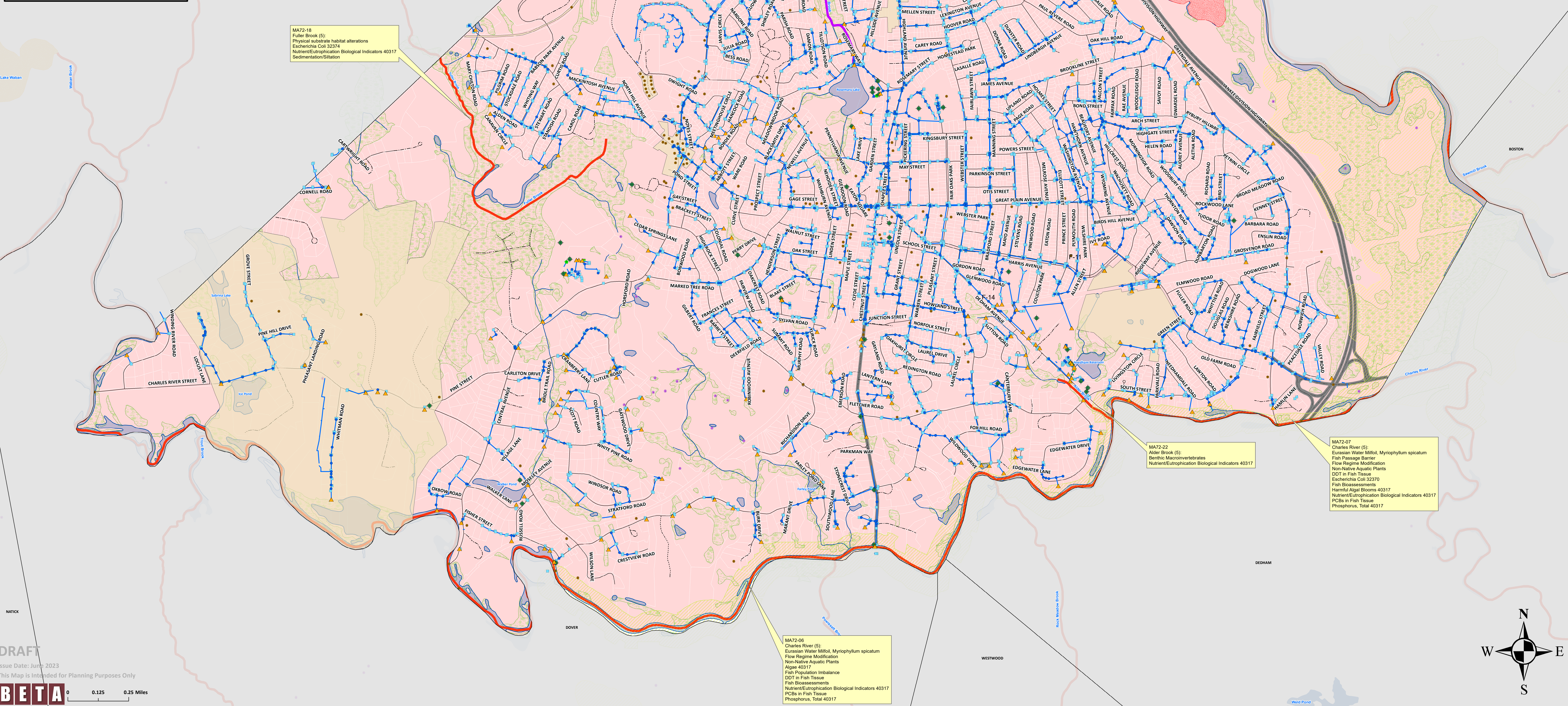
Other

Regulated Areas

MA M54 Urban Area

*Category 1: Unimpaired and not threatened for all designated uses;
Category 2: Unimpaired for some uses and not assessed for others;
Category 3: Insufficient information to make assessments for any uses;
Category 4: Impaired for one or more uses;
but not requiring the calculation of a Total Maximum Daily Load (TMDL).
(Impairment due to "pollution" such as low flow, habitat alterations or non-native species introductions).
Category 5: Impaired for one or more uses and requiring a TMDL. (Impairment due to pollutant(s) such as nutrients, metals, pesticides, solids and pathogens).

Data Source: Town of Needham, MassGIS, BETA Drainage Field Inspections (2000) and BETA Outfall Screening/Sampling (2021)



Map Legend

Stormwater Structures

- BMP
- Catch Basin
- Manhole
- Inlet
- Outfall

Conveyance

- Pipe
- Culvert
- Swale

Subwatershed Boundary

- Watershed Management Plan Subwatershed Boundary

Hydrography

- Hydrologic Connection
- Open Water
- Wetland
- Major Watershed Boundary

***MassDEP 2018/2020 Integrated List of Waters**

- Rivers: Category 4A
- Lakes, Estuaries: Category 4A
- Rivers: Category 4C
- Lakes, Estuaries: Category 4C
- Rivers: Category 5
- Lakes, Estuaries: Category 5

Roadway Owner

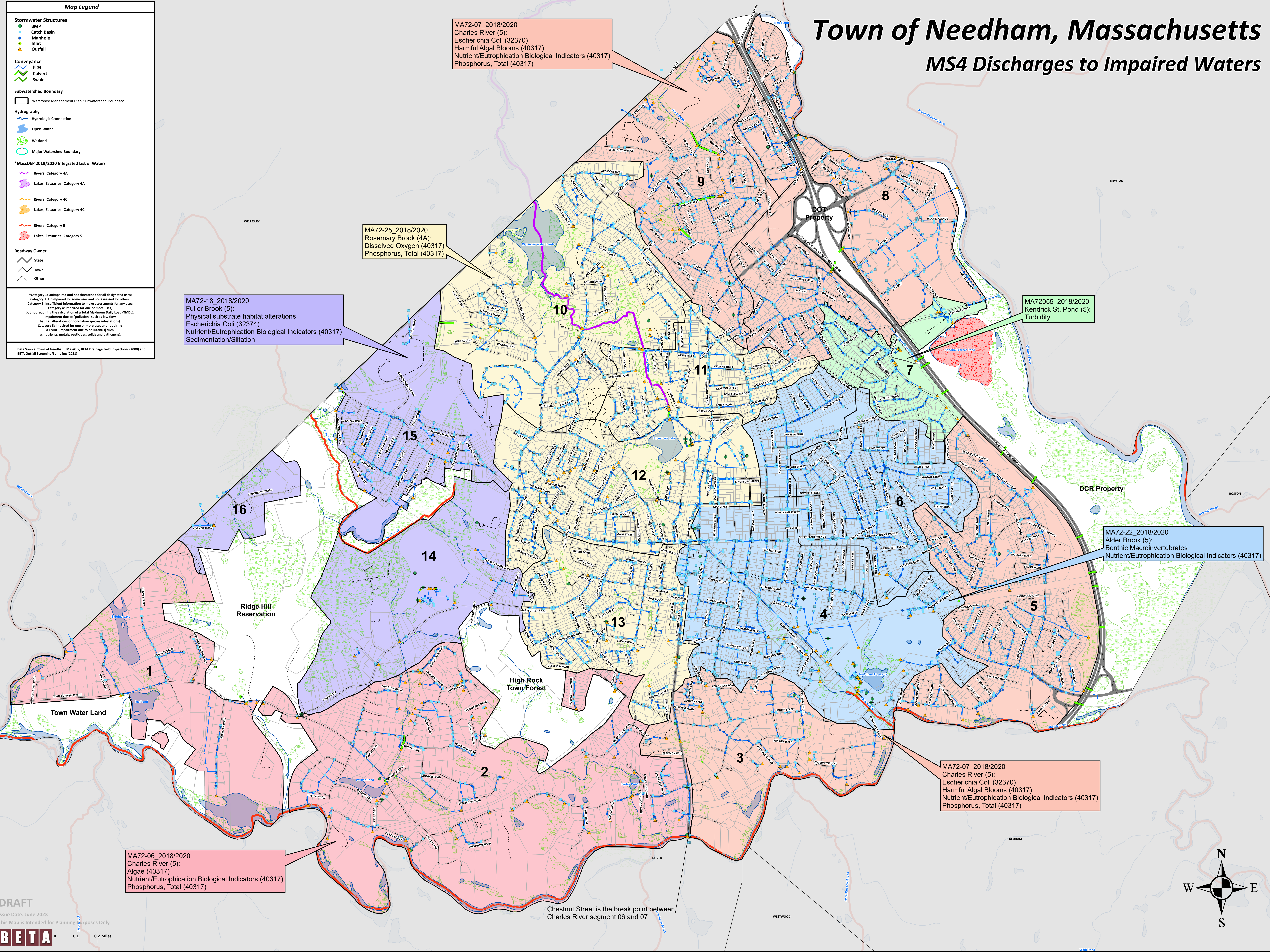
- State
- Town
- Other

*Category 1: Unimpaired and not threatened for all designated uses;
Category 2: Unimpaired for some uses and not assessed for others;
Category 3: Insufficient information to make assessments for any uses;
Category 4: Impaired for one or more uses,
but not requiring the calculation of a Total Maximum Daily Load (TMDL);
(impairment due to "pollution" such as low flow,
habitat alterations or non-native species infestations).
Category 5: Impaired for one or more uses and requiring
a TMDL (impairment due to pollutant(s) such
as nutrients, metals, pesticides, solids and pathogens).

Data Source: Town of Needham, MassGIS, BETA Drainage Field Inspections (2009) and
BETA Outfall Screening/Sampling (2011)

Town of Needham, Massachusetts

MS4 Discharges to Impaired Waters



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

Middlesex , Norfolk , and Suffolk counties, Massachusetts



Local office

New England Ecological Services Field Office

☎ (603) 223-2541

📠 (603) 223-0104

70 Commercial Street Suite 300

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 and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
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. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

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

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

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.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the [Bald and Golden Eagle Protection Act](#) and the [Migratory Bird Treaty Act](#).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted

Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

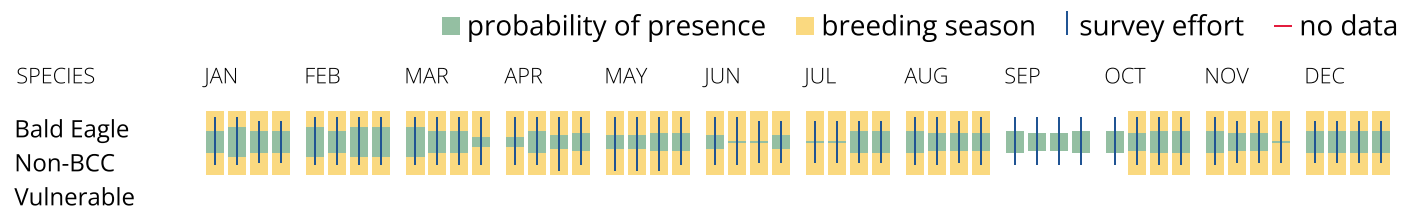
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project

intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

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

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation->

[measures.pdf](#)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10

Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

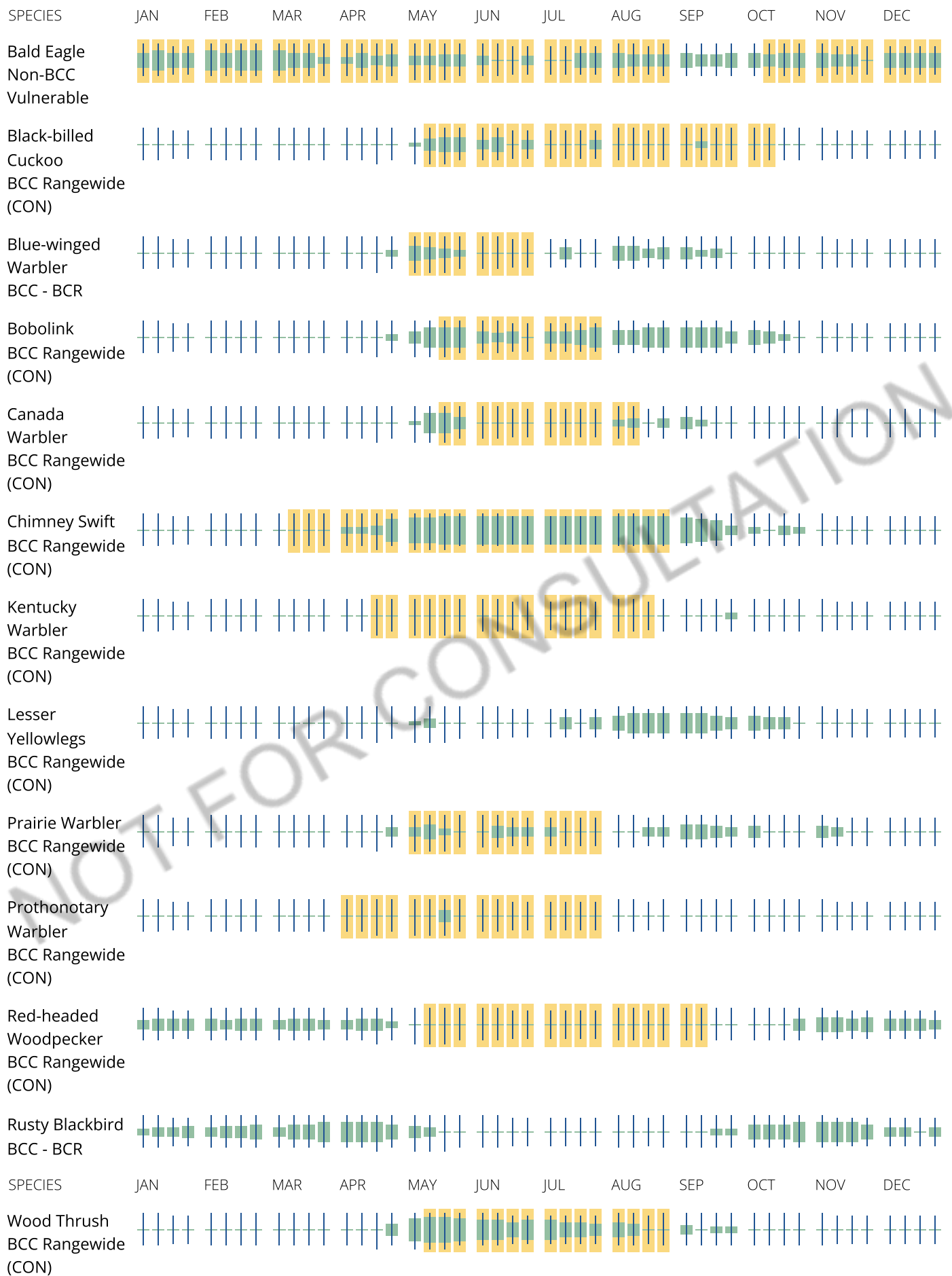
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or

minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM5/1E](#)

[PEM1E](#)

[PEM1F](#)
[PEM1Ed](#)
[PEM1/SS1E](#)
[PEM1/5E](#)
[PEM1/SS1F](#)
[PEM5E](#)
[PEM1C](#)
[PEM1/5Ex](#)
[PEM1/FO1E](#)
[PEM1/ABF](#)
[PEM1Fh](#)
[PEM1/UBF](#)
[PEM1A](#)
[PEM1Fx](#)
[PEM1/SS1C](#)
[PEM1B](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1E](#)
[PFO1/4E](#)
[PFO1Ed](#)
[PFO4/1E](#)
[PSS1F](#)
[PFO1Fd](#)
[PSS1E](#)
[PFO1C](#)
[PFO1B](#)
[PFO1A](#)
[PFO1F](#)
[PSS1C](#)
[PFO1Fx](#)
[PSS1Fx](#)
[PSS1/3Ba](#)
[PFO1/4C](#)
[PFO1/4A](#)
[PFO4C](#)
[PFO4B](#)

FRESHWATER POND

[PUBHh](#)
[PAB/EM1Fh](#)
[PABHh](#)
[PAB/FO1F](#)
[PUBHx](#)

[PUBH](#)
[PABH](#)
[PABFx](#)
[PUBF](#)
[PUBFh](#)
[PUBFx](#)
[PABFh](#)
[PABHx](#)
[PABF](#)

LAKE

[L1UBHx](#)
[L1UBHh](#)

RIVERINE

[R2UBHx](#)
[R2UBH](#)
[R2ABH](#)
[R4SBC](#)
[R5UBH](#)
[R4SBCx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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.

NOT FOR CONSULTATION

APPENDIX B – MS4 Discharges to Impaired Waters

**SEPTIC LOCATIONS**

#	STREET / ROAD	#	STREET / ROAD	#	STREET / ROAD	#	STREET / ROAD	#	STREET / ROAD	#	STREET / ROAD	#	STREET / ROAD	#	STREET / ROAD
72	A ST	865	CENTRAL AVE	288	CHARLES RIVER ST	58	FALCON ST	228	HUNNEWELL ST	59	RIDGEWAY AVE	35	STARR RIDGE	278	WEST ST
17	ALLINDALE RD	1480	CENTRAL AVE	299	CHARLES RIVER ST	29	FISHER ST	315	HUNNEWELL ST	47	ROBINWOOD AVE	36	STARR RIDGE	315	WEST ST
7	ALY RAISMAN WAY	1489	CENTRAL AVE	300	CHARLES RIVER ST	187	FISHER ST	72	HUNTING RD	26	ROSCOE ST	43	STARR RIDGE	85	WEXFORD ST
21	ALY RAISMAN WAY	1490	CENTRAL AVE	310	CHARLES RIVER ST	37	FOREST ST	219	HUNTING RD	19	ROSEGATE RD	48	STARR RIDGE	15	WHITE PINE RD
6	ARDMORE RD	1501	CENTRAL AVE	311	CHARLES RIVER ST	51	FOREST ST	225	HUNTING RD	32	ROSEGATE RD	52	STARR RIDGE	16	WHITE PINE RD
51	ARDMORE RD	1509	CENTRAL AVE	320	CHARLES RIVER ST	61	FOREST ST	229	HUNTING RD	99	SACHEM RD	31	STRATFORD RD	37	WHITE PINE RD
9	AUGUST WAY	1514	CENTRAL AVE	338	CHARLES RIVER ST	100	FOREST ST	235	HUNTING RD	75	SECOND AVE	53	STRATFORD RD	15	WILSON LN
13	AUGUST WAY	1516	CENTRAL AVE	365	CHARLES RIVER ST	101	FOREST ST	243	HUNTING RD	150	SOUTH ST	63	STRATFORD RD	34	WILSON LN
15	AUGUST WAY	1544	CENTRAL AVE	379	CHARLES RIVER ST	109	FOREST ST	251	HUNTING RD	463	SOUTH ST	79	STRATFORD RD	60	WILSON LN
3	AVERY ST	1554	CENTRAL AVE	395	CHARLES RIVER ST	292	FOREST ST	89	JARVIS CIR	669	SOUTH ST	88	STRATFORD RD	75	WILSON LN
9	B ST	1574	CENTRAL AVE	403	CHARLES RIVER ST	50	FULLER RD	6	KENT RD	695	SOUTH ST	91	STRATFORD RD	75	WILSON LN
41	BRIDGE ST	1600	CENTRAL AVE	419	CHARLES RIVER ST	11	GATEWOOD DR	9	LAKIN ST	710	SOUTH ST	100	STRATFORD RD	100	WINDING RIVER RD
50	BROOK RD	1607	CENTRAL AVE	478	CHARLES RIVER ST	25	GATEWOOD DR	114	LAWTON RD	767	SOUTH ST	103	STRATFORD RD	1	WINDSOR RD
18	BROOKSIDE RD	1618	CENTRAL AVE	484	CHARLES RIVER ST	32	GATEWOOD DR	3	MASONIC WAY	921	SOUTH ST	111	STRATFORD RD	20	WINDSOR RD
24	BROOKSIDE RD	1653	CENTRAL AVE	590	CHARLES RIVER ST	44	GATEWOOD DR	54	MELLEN ST	945	SOUTH ST	120	STRATFORD RD	29	WINDSOR RD
30	BROOKSIDE RD	1663	CENTRAL AVE	600	CHARLES RIVER ST	56	GATEWOOD DR	7	NEHOLDEN ST	969	SOUTH ST	125	STRATFORD RD	30	WINDSOR RD
33	BROOKSIDE RD	1664	CENTRAL AVE	640	CHARLES RIVER ST	57	GATEWOOD DR	61	NEHOLDEN ST	980	SOUTH ST	133	STRATFORD RD	40	WINDSOR RD
38	BROOKSIDE RD	1681	CENTRAL AVE	698	CHARLES RIVER ST	70	GATEWOOD DR	128	NEHOLDEN ST	1051	SOUTH ST	136	STRATFORD RD	50	WINDSOR RD
39	BROOKSIDE RD	1689	CENTRAL AVE	851	CHARLES RIVER ST	146	GREAT PLAIN AVE	16	NEVADA AVE	1095	SOUTH ST	145	STRATFORD RD	51	WINDSOR RD
44	BROOKSIDE RD	1695	CENTRAL AVE	869	CHARLES RIVER ST	323	GREAT PLAIN AVE	12	NEWBURY PK	1101	SOUTH ST	157	STRATFORD RD	69	WINDSOR RD
57	BROOKSIDE RD	1703	CENTRAL AVE	883	CHARLES RIVER ST	341	GREAT PLAIN AVE	29	NORFOLK ST	1115	SOUTH ST	160	STRATFORD RD	70	WINDSOR RD
60	BROOKSIDE RD	1708	CENTRAL AVE	23	CHENEY ST	463	GREAT PLAIN AVE	80	NORWICH RD	1125	SOUTH ST	191	STRATFORD RD	85	WINDSOR RD
71	BROOKSIDE RD	1711	CENTRAL AVE	29	CHENEY ST	888	GREAT PLAIN AVE	83	NORWICH RD	1133	SOUTH ST	210	STRATFORD RD	86	WINDSOR RD
74	BROOKSIDE RD	1719	CENTRAL AVE	648	CHESTNUT ST	1626	GREAT PLAIN AVE	66	OAKCREST RD	1143	SOUTH ST	211	STRATFORD RD	100	WINDSOR RD
78	BROOKSIDE RD	1729	CENTRAL AVE	754	CHESTNUT ST	1795	GREAT PLAIN AVE	11	PARKMAN WAY	1150	SOUTH ST	219	STRATFORD RD	106	WINDSOR RD
83	BROOKSIDE RD	1750	CENTRAL AVE	768A	CHESTNUT ST	152	GREENDALE AVE	32	PARKMAN WAY	1169	SOUTH ST	230	STRATFORD RD	111	WINDSOR RD
103	BROOKSIDE RD	1770	CENTRAL AVE	68	CLARKE CIR	164	GREENDALE AVE	33	PENNSYLVANIA AVE	1184	SOUTH ST	233	STRATFORD RD	120	WINDSOR RD
109	BROOKSIDE RD	1775	CENTRAL AVE	72	CLARKE CIR	176	GREENDALE AVE	123	PINE GROVE ST	1187	SOUTH ST	245	STRATFORD RD	51	WOODBINE CIR
120	BROOKSIDE RD	1780	CENTRAL AVE	35	CLARKE RD	208	GREENDALE AVE	131	PINE GROVE ST	1220	SOUTH ST	250	STRATFORD RD	1	WOODS END
125	BROOKSIDE RD	1796	CENTRAL AVE	53	CLARKE RD	379	GREENDALE AVE	7	PINE ST	1227	SOUTH ST	97	SUNNYSIDE RD	2	WOODS END
133	BROOKSIDE RD	1860	CENTRAL AVE	8	COLGATE RD	583	GREENDALE AVE	18	PINE ST	1230	SOUTH ST	47	TAYLOR ST	3	WOODS END
138	BROOKSIDE RD	53	CHAPEL ST	17	COLGATE RD	735	GREENDALE AVE	19	PINE ST	1245	SOUTH ST	22	VILLAGE LN	4	WOODS END
144	BROOKSIDE RD	6	CHARLES RIVER ST	36	COULTON PK	933	GREENDALE AVE	29	PINE ST	1254	SOUTH ST	42	VILLAGE LN	5	WOODS END
145	BROOKSIDE RD	8	CHARLES RIVER ST	155	COUNTRY WAY	1066	GREENDALE AVE	40	PINE ST	1265	SOUTH ST	45	VILLAGE LN		
150	BROOKSIDE RD	11	CHARLES RIVER ST	269	COUNTRY WAY	1191	GREENDALE AVE	41	PINE ST	1266	SOUTH ST	8	VIRGINIA RD		
155	BROOKSIDE RD	20	CHARLES RIVER ST	281	COUNTRY WAY	26	GROSVENOR RD	49	PINE ST	1285	SOUTH ST	19	WALKER LN		
160	BROOKSIDE RD	46	CHARLES RIVER ST	325	COUNTRY WAY	56	GROSVENOR RD	57	PINE ST	1302	SOUTH ST	31	WALKER LN		
165	BROOKSIDE RD	47	CHARLES RIVER ST	339	COUNTRY WAY	339	GROVE ST	60	PINE ST	1307	SOUTH ST	25	WEBSTER ST		
172	BROOKSIDE RD	52	CHARLES RIVER ST	362	COUNTRY WAY	348	GROVE ST	67	PINE ST	1315	SOUTH ST	216	WEBSTER ST		
25	BURRILL LN	65	CHARLES RIVER ST	5	CRESTVIEW RD	389	GROVE ST	70	PINE ST	1316	SOUTH ST	257	WEBSTER ST		
98	CAREY PL	167	CHARLES RIVER ST	17	CRESTVIEW RD	402	GROVE ST	80	PINE ST	1327	SOUTH ST	1106	WEBSTER ST		
268	CEDAR ST	185	CHARLES RIVER ST	31	CRESTVIEW RD	433	GROVE ST	85	PINE ST	1345	SOUTH ST	11	WELLESLEY AVE		
336	CEDAR ST	188	CHARLES RIVER ST	40	CRESTVIEW RD	461	GROVE ST	92	PINE ST	1346	SOUTH ST	21	WELLESLEY AVE		
350	CEDAR ST	200	CHARLES RIVER ST	43	CRESTVIEW RD	465	GROVE ST	102	PINE ST	1347	SOUTH ST	31	WELLESLEY AVE		
36	CENTRAL AVE	210	CHARLES RIVER ST	60	CRESTVIEW RD	499	GROVE ST	105	PINE ST	1360	SOUTH ST	39	WELLESLEY AVE		
407	CENTRAL AVE	248	CHARLES RIVER ST	61	CRESTVIEW RD	529	GROVE ST	111	PINE ST	1361	SOUTH ST	49	WELLESLEY AVE		
721	CENTRAL AVE	253	CHARLES RIVER ST	77	CRESTVIEW RD	541	GROVE ST	116	PINE ST	164	ST MARY ST	57	WELLESLEY AVE		
739	CENTRAL AVE	260	CHARLES RIVER ST	82	CRESTVIEW RD	67	HEATHER LN	121	PINE ST	7	STARR RIDGE	65	WELLESLEY AVE		
743	CENTRAL AVE	272	CHARLES RIVER ST	11	CUTLER RD	9	HIGH ROCK ST	130	PINE ST	8	STARR RIDGE	77	WELLESLEY AVE		
745	CENTRAL AVE	275	CHARLES RIVER ST	14	ELMWOOD RD	39	HIGHLAND CIR	133	PINE ST	18	STARR RIDGE	91	WELLESLEY AVE		
755	CENTRAL AVE	285	CHARLES RIVER ST	149	FAIR OAKS PK	76	HUNNEWELL ST	11	REDINGTON RD	21	STARR RIDGE	110	WEST ST		

Town of Needham, Massachusetts

Public Water Supply, Septic Systems, Sewer and SSO Locations

Map Legend

Town Information

Buildings

Hydrography

Pond, Lake, Ocean

Wetland

Hydrologic Connections

Apparent Wetland Limit

Aqueduct

Regulated Areas

MassDEP Wellhead Protection Areas (Zone II, Zone I, IWPA)

Public Water Supplies

Community Groundwater Source

Water Pipes

Septic & Sewer

Sewer Main

Sewer Capacity Issues

SSO

Septic System Locations

Pump Stations

Sewer

Tank

Water

*Category 1: Unimpaired and not threatened for all designated uses;
Category 2: Unimpaired for some uses and not assessed for others;
Category 3: Insufficient information to make assessments for any uses;
Category 4: Impaired for one or more uses,
but not requiring the calculation of a Total Maximum Daily Load (TMDL);
Impairment due to "pollution" such as low flow,
habitat alterations or non-native species infestations).
Category 5: Impaired for one or more uses and requiring
a TMDL (impairment due to pollutant(s) such
as nutrients, metals, pesticides, solids and pathogens).

Data Source: Town of Needham,
BETA Drainage Field Inspections(2008) and MassGIS.

Layer Notes:
The last updates to the sewer and water pipe layers were from 2017.
Septic system locations were determined by query of parcels in June 2023 without sewer connections.

