

# Section 1

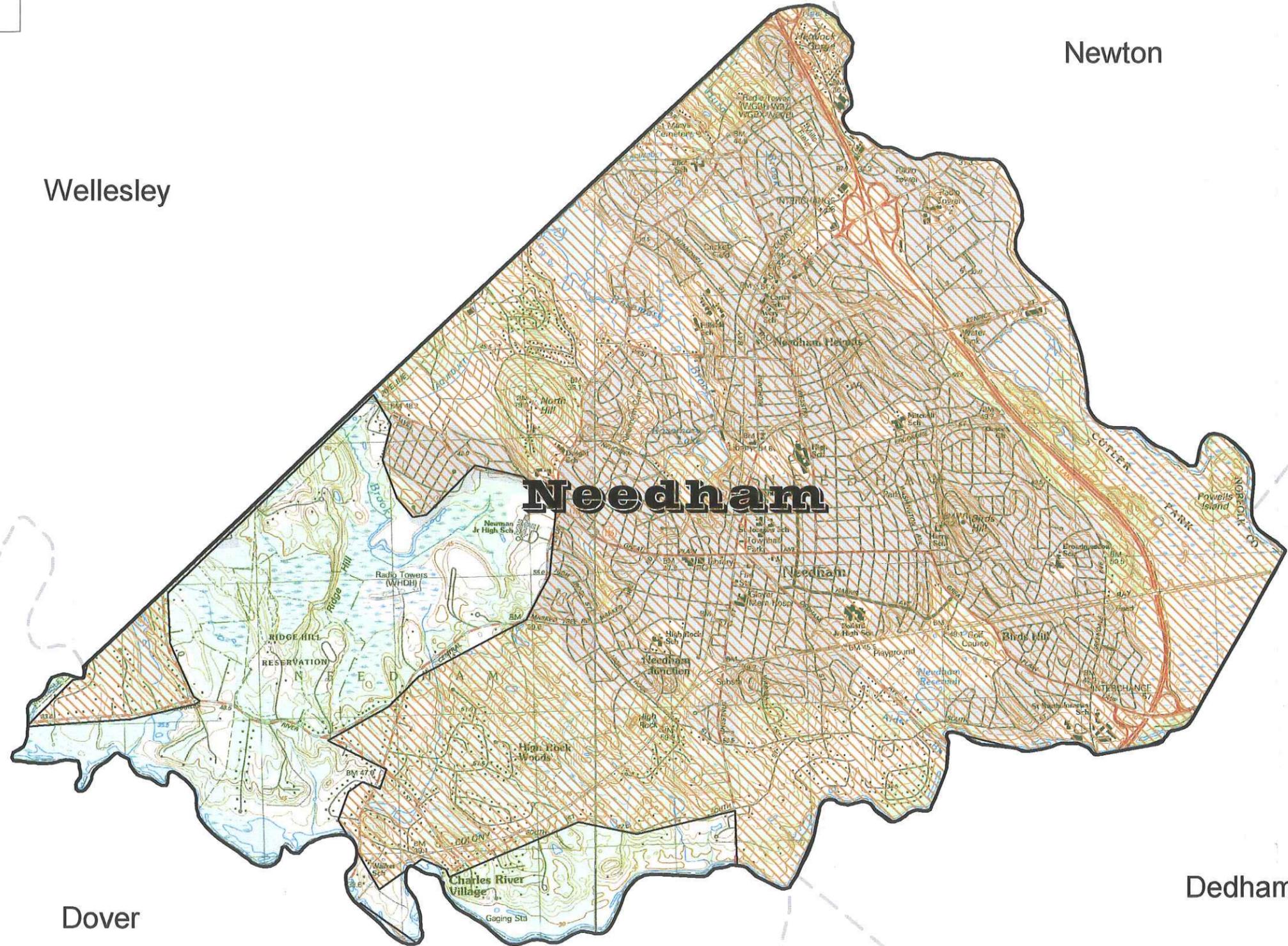
## Introduction

### 1.1 Overview

The Storm Water Phase II Final Rule is the Environmental Protection Agency's (EPA) effort to preserve, protect, and improve the Nation's water resources from polluted storm water runoff. Common storm water pollutants include pesticides, fertilizers, oils, salt, litter, debris, and sediment, which cause water bodies to become impaired. Another concern is the possible illicit connections of sanitary sewers, which can transport harmful bacteria and other pollutants to water bodies.

Because Needham is the owner of a small Municipal Separate Storm Sewer System (MS4) and the majority of the Town is within an urban boundary, the Town is obligated to meet the Phase II Storm Water requirements within the Urbanized Areas (UAs) as defined by the 2000 Census (U.S. Census Bureau). The U.S. Census defines an "urbanized area" as an area with a population density of at least 1,000 people per square mile. Needham is considered an urban area, because its population density is 2,185 people per square mile. However, the southwestern section of Town has a population density less than 1,000 people per square mile; hence, this area is not regulated under the Phase II regulations (refer to Figure 1-1). The Town has previously dealt with many storm water regulations and issues as part of the Charles River Watershed Initiative to make the River swimmable and fishable by the year 2005. Needham's Phase II efforts described herein meet the requirements of the regulations and supplement previous efforts regarding storm water within the UAs, however, many of the measures outlined will be implemented on a town-wide basis thereby improving water quality outside the regulated areas.

The EPA determined there are six Minimum Control Measures which need to be addressed for the Phase II National Pollutant Discharge Elimination System (NPDES) program. These measures will be addressed by implementing Best Management Practices (BMPs)



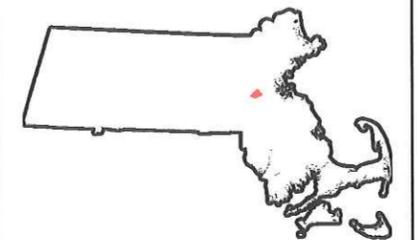
### Legend

- Town Boundary
- Surrounding Communities
- Urban Areas

0.2 0 0.2 0.4 0.6 Miles

**BETA Group, Inc.**  
Engineers • Scientists • Planners

### Locus



**Phase II Storm Water Management Plan**  
Needham, Massachusetts

**Figure 1-1**

**Town Location/  
Urban Areas**

Source: Town of Needham and MassGIS

appropriate for Needham's community. The BMPs will commence according to the schedules provided in this report. The six Minimum Control Measures for storm water monitoring are as follows:

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

Town residents can contribute to the pollution transported via storm water by applying lawn pesticides, herbicides and fertilizers, not properly maintaining septic systems, littering, dumping pollutants into storm drains, failing to dispose of pet waste, and other actions, which can be detrimental to the quality of storm water discharging into water bodies. Many people are unaware that they are polluting when engaged in these activities. Therefore, public education and outreach and public participation/involvement will help minimize the amount of pollution contributed to Needham water bodies by local residents because many people will modify their behavior once educated on the potential harmful effects of their activities. Also, public education and outreach coupled with public participation/involvement allows Needham residents to have a voice with regard to storm water. It expands the expertise and credentials of the Town, because the citizens offer a wide range of experiences, local knowledge, and input valuable to storm water quality improvement programs.

Illicit discharge detection and removal lessens the amount of pollutants discharging to local water bodies. The Town has rigorously addressed this problem. In an effort to identify and remove illicit discharges, a Storm Water Master Plan and a Non-Point Source Pollution Study were completed. All storm water discharges were inspected and inventoried as part of the studies. In addition, the discharges were sampled and tested for pollutants. Section 4 provides detailed information about the Town's previous efforts.

Construction site runoff and post-construction site runoff should be reduced so that water bodies are not receiving additional pollutants or sediment. Sediment causes water bodies to become physically and biologically altered. Decreased habitat can result from significant amounts of sediment covering reproduction areas. Sediment suspended in the water prohibits light from penetrating the water surface. This causes problems with fish and plants in the water body. To address this water quality issue, the Town has adopted the Massachusetts Department of Environmental Protection's (DEP) Storm Water Management Policy in the eastern and southern portions of Town, which have direct discharges to the Charles River. The Town plans to enforce DEP's Storm Water Management Policy on a Town-wide basis.

Pollution prevention/good housekeeping is a critical minimum control measure because it concentrates on the maintenance of other control measures and municipal operations and it can make an immediate difference with local water body pollutant levels. Street sweeping and other maintenance activities prevent sediment, salt, and other pollutants from entering the drainage system thereby minimizing pollutant loads to local water bodies. The Town requires the submission of Operation and Maintenance (O&M) plans for all site plan applications and requires erosion and sediment controls as a condition of street occupancy permit applications. Section 4 of this report provides detailed information about the Town's efforts.

The Town of Needham is located within the Charles River Watershed. The Charles River Watershed is broken up into three distinct regions, which include the rural upper basin, the suburban lakes or middle region, and the urban lower basin. Needham is located in the urban lower basin. Charles River Watershed goals include the elimination of illicit discharges, reduction of urban runoff, enhancement of natural habitats, and improvement of river access for fish and recreational usage. Needham's Phase II plan will assist with these efforts because it specifically targets the elimination of illicit discharges and the reduction of urban runoff.

Fortunately, according to the Charles River Watershed and the Massachusetts Executive Office of Environmental Affairs, the Charles River has recently become substantially cleaner. In one year, the river received a grade “B”, up from a “B-” the previous year. The river is available for boating at least 90% of the year, up from 83% in 1998. The river met swimming standards for almost 65% of the time, compared to 51% in 1998. Nevertheless, it would be beneficial to increase the percentage of time the River is clean and available for recreational activities. In addition, the stretch of the Charles River in Needham is impaired with priority organics, nutrients, pathogens and other contaminants, as described in Section 2.2.

## 1.2 Community Profile

### *Geography*

Needham is located in eastern Massachusetts, slightly west of Boston in the metro-west suburbs, as shown in Figure 1-1. Needham is approximately 10 miles southwest of Boston and 30 miles east of Worcester. The Town is bordered by Wellesley on the west and northwest, Newton on the north and northeast, the West Roxbury section of Boston on the east, Dedham on the southeast and south, and Westwood and Dover on the south. Needham is approximately 12.7 square miles in area. The total length of roadway in the Town is approximately 145 miles. The total length of roadway owned by the State of Massachusetts is approximately 15 miles (Based on MassHighway Road Inventory File).

Greater than 80% of Needham is zoned residential, according to Massachusetts geographic information system (MassGIS). Because the Town is almost completely built-out, only a very small percentage of land is available for new development minimizing the potential for erosion and sedimentation from construction projects.

### *Demographics*

Demographics are an important component of a storm water management program. Since education programs must focus on all citizens, including disadvantaged and minority citizens, it is critical to know population statistics. Table 1-1 illustrates Needham's

demographics. It is clear from these statistics that it is unnecessary to provide bilingual literature or programming in the Needham community. The 2000 Census yielded a population of 28,911. This represents an increase of approximately 5% from the 1990 Census value of 27,557.

**Table 1-1  
Town of Needham Demographics**

Race	Percent
White	94.8
Asian	3.5
Black or African American	0.7
Two or more	0.7
Other	0.3

Source: U.S. Census Bureau, 2000 Census

### ***Climate***

The following statistics, obtained from the National Climatic Data Center, are Needham's normal weather parameters:

- Normal January Temperature = 25.3° F
- Normal July Temperature = 71.2° F
- Normal Annual Precipitation = 49.0"

### ***Government***

Needham's local government is run by a five member Board of Selectmen. The Board of Selectmen appoint a Town Administrator who performs the day to day services for the town. The Administrator is responsible for administering policies developed in Town Meetings. The Board of Selectmen make budget recommendations, authorize expenditures, etc. They also represent the Town for state and regional planning organizations, committees, etc.

The Needham Conservation Commission is comprised of seven volunteers who are appointed by the Board of Selectmen. There are two monthly meetings, which are held on the second and fourth Thursday of each month at 7:30 PM in the Department of Public Works (DPW) building.

### 1.3 Needham's Storm Water Management Program

In an effort to comply with the United States Environmental Protection Agency's (EPA) goal, the EPA and the Town of Needham entered into Consent Order Docket No. 96-08, dated April 11, 1996 and a Memorandum of Understanding (MOU) dated May 28, 1996. Under the MOU the Town developed a Storm Water Management Program for review by the EPA. The Consent Order and MOU are described below.

#### ***Consent Order***

The Consent Order required the Town to submit the following information to the EPA by November 30, 1996, (see the Appendix):

- Map each of the municipal storm water discharge pipe and drainage areas flowing into the Charles River.
- Visually examine and sample each discharge during dry-weather conditions. The samples were analyzed for fecal coliform bacteria.
- Investigate and inventory potential illicit connections to the storm water drainage system.
- Provide a cost estimate to remove the illicit connections.

#### ***Memorandum of Understanding***

The MOU required the Town to submit the following information to the EPA by December 31, 1996 (refer to the Appendix):

- A storm water management program in accordance with the MOU.
- An evaluation of management practices and programs to improve storm water quality, including source controls.
- Proof of adequate local funding mechanisms.
- An annual report summarizing the results of the program in December of each year.

**Memorandum of Agreement**

The Proposed Memorandum of Agreement (MOA) would require the Town to submit the following information to the EPA (see Appendix):

- A summary of how it intends to address each of the recommendations in the Areas for Improvement portion of CWP's comments.
- An Amendment to the Existing Plan with changes agreed to as a result of discussions.
- A proposed schedule with items in the Areas for Improvement that EPA and Needham agreed could not be immediately implemented.

The Town has corresponded with the Center for Watershed Protection (CWP), the EPA's consultant. The Town has not signed the MOA because the Town and CWP are still corresponding about its contents. Refer to the Appendix for all previous correspondences between the Town and CWP regarding the MOA.

The Storm Water Management Program has been revised and updated based on comments provided by the CWP. Many of the CWP suggestions are incorporated into this plan.

In an effort to continue to improve water quality in Needham, the Town applied for a loan of \$500,000 from the DEP through the State Revolving Fund (SRF) to continue its storm water planning efforts. This funding, along with supplemental funding provided by the Town, was used to develop drainage mapping, complete the town-wide outfall inspections, perform hydrologic/hydraulic analysis and prepare a report entitled "Storm Water Master Plan" dated March, 2002. These reports clearly depict the extensive process that the Town has already undergone along with its future plans to lessen the effects of storm water runoff.

The Town is currently utilizing a variety of BMPs to minimize pollutant loads into the Charles River. The BMPs are described herein, in Section 4, under the Town's current practices for each Minimum Control Measure.

Many of the BMPs involved in Needham's Storm Water Management Plan (SWMP) are enforced by the DPW, at the local level. The operation, management, and maintenance of the municipal drainage system are the responsibility of the DPW. Inspections and monitoring of the municipal storm water collection system will also be conducted by the DPW as part of the FY04 budget.

## 1.4 Contacts

### *Town of Needham Contacts*

Richard Merson	DPW Director
Anthony Del Gaizo, P.E.	DPW Town Engineer
Robert Lewis	Superintendent Water and Sewer Division

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### *Board of Selectmen*

Kate Fitzpatrick	Town Administrator
Gerald Wasserman	Chairman
Colleen Schaller	
William Powers	
Daniel Matthews	
John Cogswell	

### *Charles River Watershed*

Peter Phippen	Team Leader
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