Section 2
Resource Protection

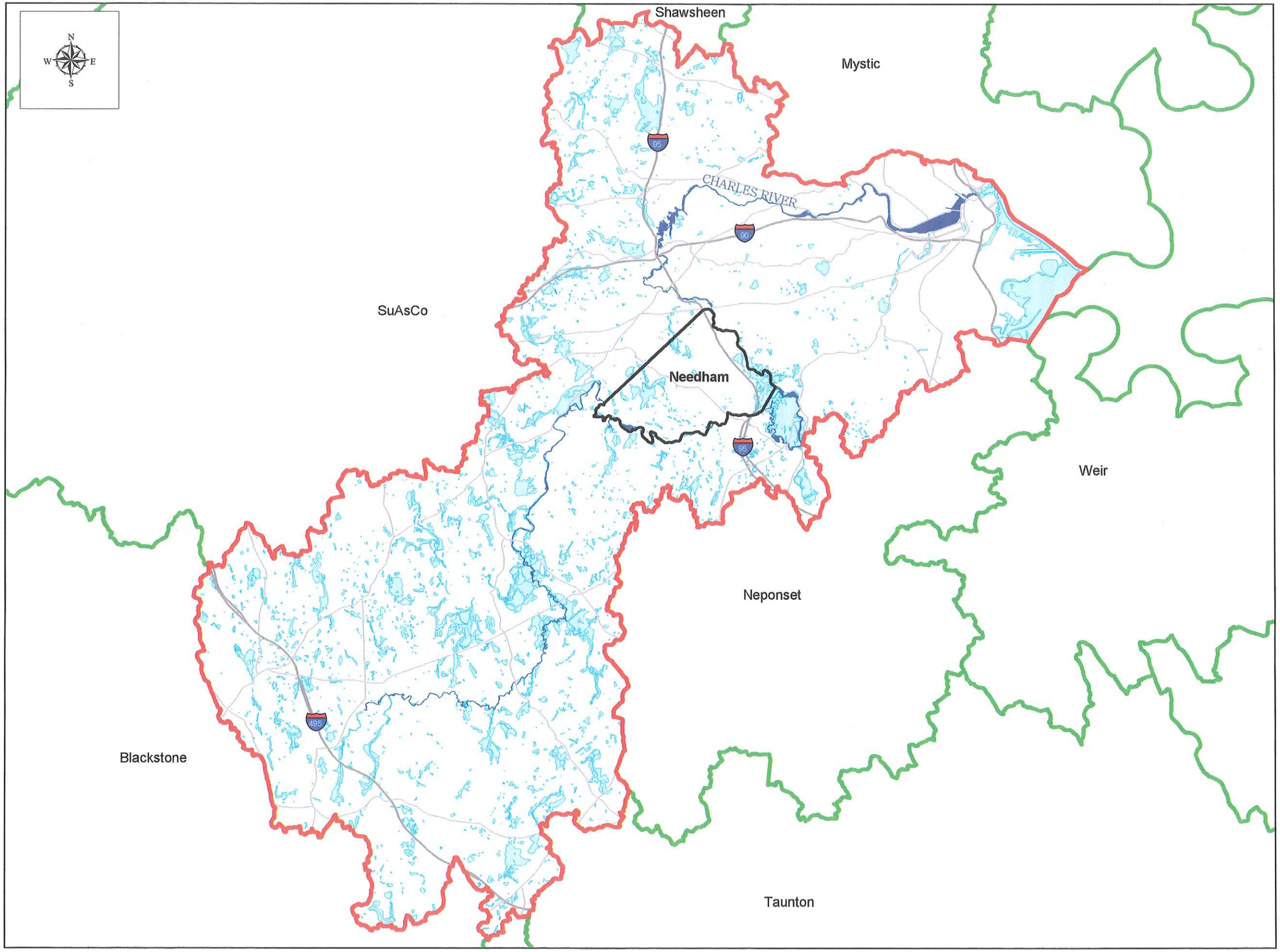
2.1 Charles River Watershed

The entire Town of Needham is located within the Charles River Watershed, as indicated in Figure 2-1. The Charles River Watershed includes a drainage area of nearly 308 square miles. Thirty-five cities and towns contribute to its drainage area. The watershed comprises 9,000 acres of protected wetlands (Natural Valley Storage areas). These areas assist in flood protection and provide a refuge for many animal and plant populations in the area.

According to the Massachusetts Executive Office of Environmental Affairs the "Top Five" watershed priorities for the Charles River Watershed are as follows:

- Work to eliminate point-source pollution by monitoring combined sewage overflows (CSOs) and other illicit discharges in the watershed.
- Reduce urban runoff and work to replenish natural groundwater aquifers through the Upper Charles "Regional" Groundwater Modeling project.
- Work to clean and recycle wastewater through de-centralized wastewater management planning.
- Create sustainable landscapes by managing growth and development, enhancing natural habitats, and strengthening ecosystem integrity.
- Improve access along the Charles River for fish passage and recreational purposes.

The Charles River Watershed Association (CRWA) was founded in 1965. Since that time, there have been many achievements made by the association that improved the water quality of the Charles River. However, the entire length of the Charles River located in Needham is impaired, and there are still many (dry weather) days during the year that the water is not suitable for swimming. As a result, there is still work required to continue improvement of the River's water quality.



Legend

- Town Boundary
- Major Roads
- Charles River Watershed
- Surrounding Watersheds

3 0 3 Miles

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Needham, Massachusetts

Figure 2-1
Charles River Watershed

Source: Town of Needham and MassGIS

The CRWA has its own laboratories and volunteers monitor the Charles River frequently. The CRWA is recognized by the EPA, Natural Defense Council, and River Network for offering national leadership regarding watershed management. Some of its accomplishments include community outreach and education, water quality monitoring programs, and environmental zoning. The CRWA is a valuable resource for the Town of Needham regarding storm water information.

Development within freshwater wetlands, and within 100 feet of a wetland boundary, is regulated under the Wetland Protection Act (310 CMR 10.00). These areas are regulated by the Needham Conservation Commission and the Massachusetts DEP. Development within 200 feet of rivers and streams is regulated as well.

The "Charles River Corridor Plan" recommended additional protection mechanisms in 1982. The Town of Needham adopted several regulations recommended by the Plan, including:

- Cluster Zoning (including 300-foot setback by-law)
- Scenic Roads (M.G.L. Ch. 40, 5.15c)
- Residential Compound/PRD
- Aquifer Protection Zone
- Flood Zone
- Rural Residential Zone

These regulations further protected the Charles River Watershed. Cluster zoning allows less land area within the River corridor to be altered through smaller lot sizes. The Scenic Roads provisions restrict activities that aesthetically impair the roadways along the Charles River.

2.2 Impaired Water Bodies and TMDL Progress

Surface Water Quality Standards (SWQS) are provided by the DEP. They are determined for a water body's designated use. The SWQS designate the uses that surface waters are protected for, and an assessment is performed to determine if the designated uses are met by the water bodies. The use is not assessed in instances when there is insufficient data or

information. Assessment information is maintained by the DEP in the Water Body System (WBS) database, which is updated every two years. Designated uses include:

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

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

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

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

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

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

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

According to the Massachusetts Year Proposed 2002 List of Waters, there are five categories for water quality assessment.

- 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 or threatened for one or more uses but not requiring the calculation of a TMDL
- Category 5 – Impaired or threatened for one or more uses and requiring a TMDL

Category 4 Waters are further sub-divided into the following sub-categories.

- Category 4A – TMDL Completed
- Category 4B – Waters expected to attain all designated uses in the near future
- Category 4C – Impairment not caused by a pollutant

There are no Category 1, Category 2, Category 3, or Category 4 water bodies in Needham.

Needham Category 5 Waters

- Kendrick Street Pond
  Turbidity

- Alder Brook
  (Headwaters northwest of the Needham Reservoir, south of Penn Central railroad tracks, to confluence with Charles River, Needham).
  Cause Unknown, Nutrients, Organic Enrichment/Low DO

- Charles River
  (South Natick Dam, Natick to Chestnut Street, Needham)
  Priority Organics, Nutrients, Organic Enrichment/Low DO, Pathogens, Noxious Aquatic Plants, Turbidity

- Charles River
  (Chestnut Street, Needham to Watertown Dam, Watertown)
  Priority Organics, Nutrients, Organic Enrichment/Low DO, Pathogens, Noxious Aquatic Plants, Turbidity, Exotic Species

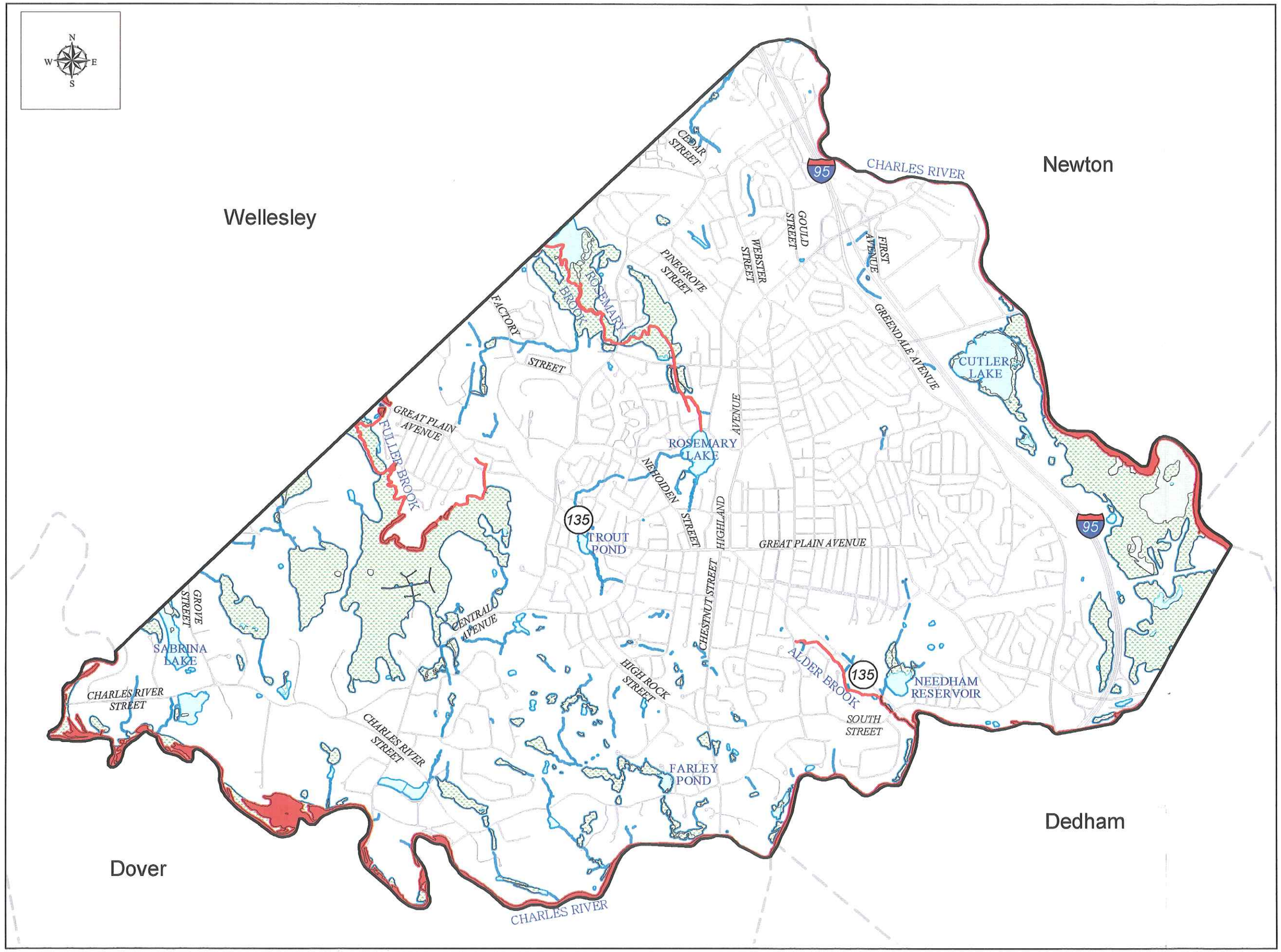
- Fuller Brook
  (Headwaters south of Route 135, Needham to confluence with Waban Brook, Wellesley)
  Cause Unknown; Organic Enrichment/Low DO; (Other Habitat Alterations); Pathogens; Oil and Grease; Taste, Odor, and Color

- Rosemary Brook
  (Headwaters, outlet Rosemary Lake, Needham to confluence with Charles River, Wellesley)
  Nutrients, Organic Enrichment/Low DO, Pathogens, Taste, Odor, and Color, Suspended Solids, Turbidity

The Category 5 Waters make up the 303(d) list and are reviewed and approved by the EPA. Figure 2-2 displays the impaired water bodies in Needham. TMDLs have not been established for the impaired water bodies in Needham thus far. The reason TMDLs have not been established is due to their varying complexity. Some TMDLs can be established through simple calculations, while many require complicated predictive models that require substantial data for proper calibration and verification.

2.3 Endangered and Threatened Species

There are two federally listed endangered species of concern located in Massachusetts, including the short nosed sturgeon and the dwarf wedge mussel. Neither of these two species is located in the Town of Needham or in Norfolk County. Accordingly, there is no reason to believe that the storm water discharges, allowable non-storm water discharges and discharge related activities will jeopardize any Federally listed endangered and threatened species or their associated critical habitat.



Legend

- Impaired Water Bodies
- Town Boundary
- Surrounding Communities
- Lakes and Ponds
- Rivers
- Upland
- Wetland Areas
- Streams and Brooks

1250 0 1250 2500 Feet

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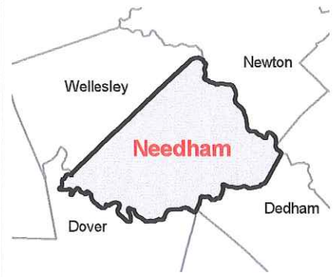

Source: Town of Needham and MassGIS

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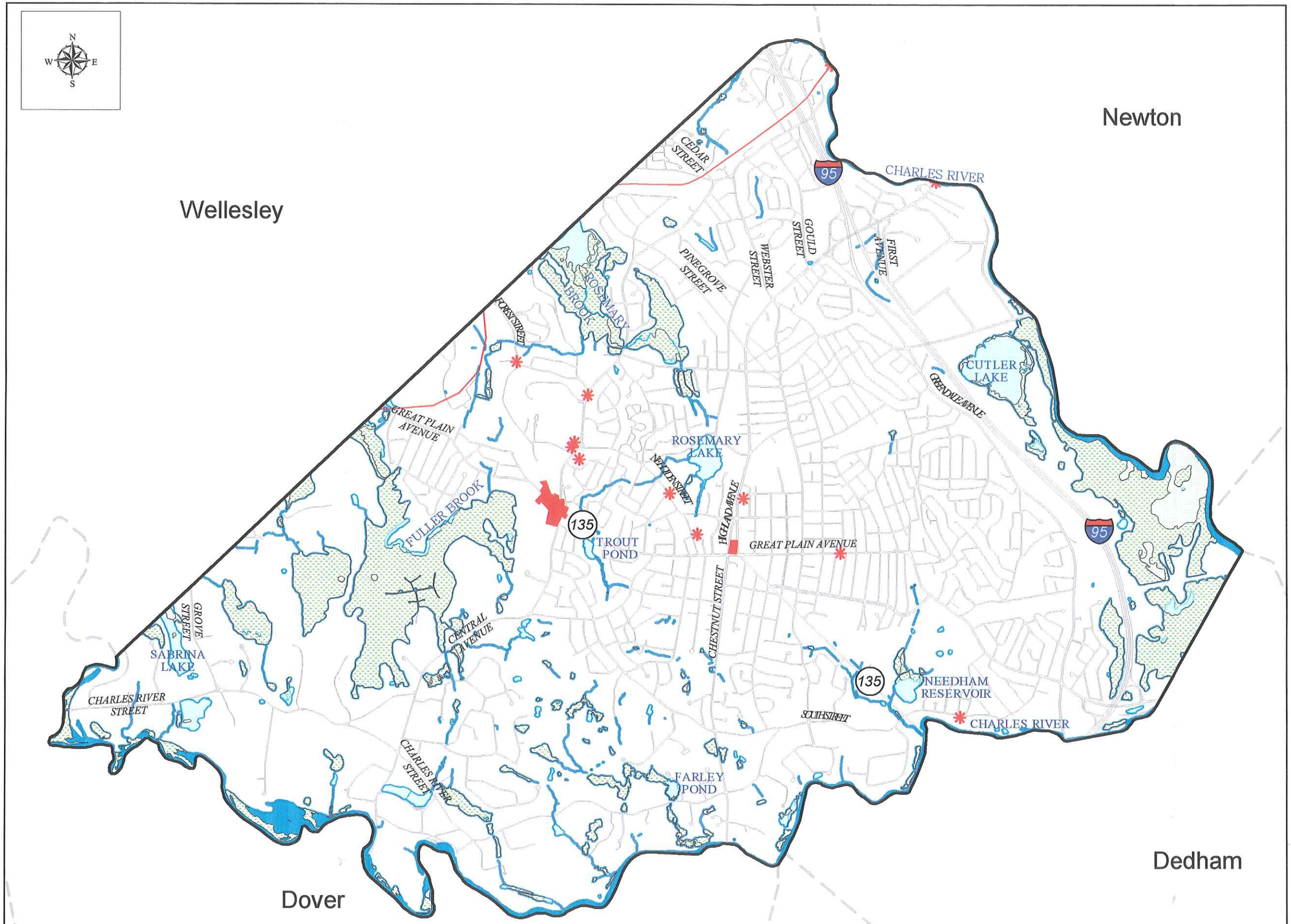
Needham, Massachusetts

Figure 2-2

Impaired Water Bodies

Source: Town of Needham and MassGIS



Legend

- Historic Properties
- Linear Districts
- Historic Districts
- Lakes and Ponds
- Rivers
- Upland
- Wetland Areas
- Streams and Brooks

1250 0 1250 2500 Feet

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Phase II Storm Water Management Plan

Needham, Massachusetts

Figure 2-3

Historic Properties

Source: Town of Needham and MassGIS

2.4 Historic Property

There are eighteen historic properties in the Town of Needham on the National Register of Historic Places based on the information contained in the State Register of Historic Places (1999 edition) prepared by the Massachusetts Historical Commission. The State Register provides a comprehensive listing of the buildings, structures, objects, and sites that have received local, state or national designations based on their historical or archaeological significance. The proposed BMPs outlined in Section 4 will not adversely affect any of the historic properties listed below and shown in Figure 2-3.

Needham Historic Properties

- Echo Bridge
  Crossing Charles River and Ellis Street from Needham to Newton Upper Falls
- Fuller, Amos House
  220 Nehoiden Street
- Fuller, Robert House
  3 Burrill Lane
- Grover, Emery Building
  1330 Highland Avenue
- Kingsbury, Whitaker House
  53 Glendoon Street
- Lewis, Joshua House
  178 South Street
- McIntosh Corner Historic District
  Roughly Great Plain Avenue and Central Avenue
- Mills, Davis House
  945 Central Avenue
- Needham Street Bridge
  Crossing Charles River at Needham Street, Newton Avenue and Highland Avenue
- Needham Town Hall Historic District
  Great Plain Avenue between Highland Avenue and Chapel Street
- Newton Multiple Resource Area
  2 bridges crossing the Newton/Needham Town Lines
- Newton Upper Falls Historic District
  Boylston Street, Elliot Street, and Oak Street, Newton and Charles Rivers

- Smith, James House
  706 Great Plain Avenue
- Sudbury Aqueduct Linear District
  Water Supply System of Metropolitan Boston
- Tolman, Gay House
  1196 Central Avenue
- Townsend House
  980 Central Avenue
- Water Supply System of Metropolitan Boston
  8 districts and 19 individual properties in 23 towns
- Whitney, Israel House
  963 Central Avenue

2.5 Outstanding Resource Waters

The Massachusetts Surface Water Quality Standards contain anti-degradation provisions to maintain existing uses and the level of water quality necessary to protect those uses. These provisions designate water bodies with exceptional socio-economic, recreational, ecological and/or aesthetic value as Outstanding Resource Waters (ORWs). ORWs include certified vernal pools and all Class A designated public water supplies and their bordering vegetated wetlands. Other waters designated as ORWs may include those found in National Parks, State Forests and Parks, and Areas of Critical Environmental Concern designated by the Secretary of Environmental Affairs and those protected by special legislation. Wetlands bordering the ORWs are also designated as ORWs to the boundary of the defined area.

Since ORW designation is appropriate for waters where existing use is so exceptional or perceived risk of harm is such that no lowering of water quality is permissible, these waters have more stringent requirements than other waters. Generally, new or increased discharges of pollutants are prohibited for storm water.

According to the Designated Outstanding Resource Waters of Massachusetts (1995) prepared by the Massachusetts Department of Environmental Protection, the only Outstanding Resource Waters in Needham is the certified vernal pool.