

## Section 4

# Minimum Control Measures

Needham is currently implementing a storm water management program to assist with the goal of a “fishable and swimmable” Charles River by Earth Day 2005. Therefore, the Town has already established many BMPs. There are additional measures that need to be implemented to achieve compliance with the Phase II requirements. Proposed BMPs and measurable goals are provided herein to fully adhere to the requirements.

The CRWA is currently addressing many BMPs that Needham will employ in the future. Town employees will work in conjunction with the association to administer the proper procedures for BMP implementation. Current measures used by Needham and the CRWA are outlined for each minimum control measure.

There are costs and time constraints associated with implementing these actions. That is the reason many of the measurable goals will be measured in phases and schedules. At this time funding is not in place for all of the BMPs, and the measurable goals set will not be accomplished if additional funding is not secured. The Town is committed to aggressively pursuing funding from local, state, and federal sources and is committed to accomplishing as many of the measurable goals as possible. The Department of Public Works proposed budget includes many of the actions outlined herein, (See Appendix) but ultimately the voters will decide budget levels at the Annual Town Meeting. As time goes by, and more funding becomes available, more aggressive and expensive BMPs and goals could be implemented. The goal of this plan is to reduce the overall effects of storm water pollutants to Needham water bodies to the “maximum extent practicable.”

### 4.1 Public Education and Outreach

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

**Massachusetts Small MS4 Storm Water Management Program General Permit Requirements**

*“The permittee must implement a public education program to distribute educational material to the community. The public education program must provide information concerning the impact of storm water discharges on water bodies. It must address steps and/or activities that the public can take to reduce the pollutants in storm water runoff.”*

**Minimum Measure Objective**

This plan of action is successful if Needham residents learn to feel a sense of responsibility regarding storm water pollution prevention. They will learn about actions that will directly benefit the cleanliness of local water bodies. This will create a supportive and educated community, which will foster support for funding initiatives and will benefit local water bodies greatly.

**Current Practices**

Twice per year, the Town conducts a household hazardous waste collection day. These events are advertised through local newspapers, cable television, and flyers that are distributed throughout the Town. A brochure explains the household hazardous waste days to Needham residents. It also gives a description of the type of wastes accepted on these days including; oil filters and oily rags, used oil and antifreeze, lead acid batteries, empty propane tanks, and other items that are hazardous to the environment. Public advertisements for these hazardous waste collection days include information regarding the harmful effects of improper disposal of these materials. The collection of used motor oil on these days reduces material, which may otherwise be disposed of in the municipal storm water system via catch basins or other storm water structures. These efforts will be continued to protect the drainage system from household pollutants.

The Town currently has many other brochures and flyers regarding recycling, conservation, hazardous materials and other issues. Additionally, flyers about recycling containing magnets are distributed. These magnets are equipped with a phone number and website to contact if questions arise about the program.

One of the brochures called “2002-2003 Needham Recycling Information” details the type of materials that can be brought to the Needham Recycling and Transfer Station (RTS). The items include latex and oil paint, motor oil, and various other household waste products. The flyers contain pictures of products that can be recycled, contact information to answer resident questions, and lists of household waste that can be brought to these events and to the RTS.

The Town has a Surplus Paint Program that is already scheduled for 2003. It is held on the third Saturday of each month from April to October. Oil, latex, stains, varnishes, alkyd-based paint, latex paint, enamels, linseed oil, thinners, and polyurethane including; interior stain, paint thinner, paint remover, turpentine, wood preservative, etc. are accepted by this program. Any labeled container with liquid inside of it is recycled on these days. There are two flyers distributed through Town, which educate residents about the Surplus Paint Program. One of the flyers educates residents about the paint program along with hazardous materials accepted by the Town. There is a Thermometer Exchange Program, which provides residents with digital thermometers for mercury thermometers.

There is also a flyer that provides residents with guidelines on how to conserve water use in the home. One of the suggestions is to water only the lawn, not the driveway or sidewalk. It instructs residents to use a broom to sweep driveways, walks, and garages rather than washing them with water. This flyer was reprinted by the Charles River Watershed Association and by the Needham DPW. To view an assortment of the Town’s current flyer publications, refer to the Appendix.

Two Needham Selectmen have a public awareness program on the local cable television network entitled “Talk About Needham.” This program educates the public about local issues including storm water. During the broadcast, residents learn about issues regarding local infrastructure, such as sanitary sewers and storm drainage systems. In addition, water quality, hazardous waste, and other environmental topics are discussed.

The DPW held several meetings about storm water for local home-school children. Children that are home-schooled are taught Math, English, Social Studies, Science and other types of courses at home by their parents. These students were interested in participating in a national competition. The DPW allowed them to use GIS information to put together an impressive storm water project. As a result, they won first place in the State of Massachusetts and also won first place in a national competition.

The Town also has a web page that provides residents with information about the Town. The Town's web site address is:

<http://www.town.needham.ma.us/>

The CRWA has published many storm water related articles in various newspapers. "Volunteers Make Clean Sweep for Earth Day" was printed in the Boston Herald on April 21, 2002. Also, On May 29, 2002 the Milford Daily News printed an article entitled; "Wanted: Residents to Recycle Water". There are many other articles that have been printed on behalf of the association. The CRWA also holds community meetings, lectures, classes, and workshops to educate the public about storm water issues. There is an annual meeting, which was located at the Newton Marriot on November 12, 2002.

The CRWA website provides helpful tips for residents who want to improve upon household storm water practices. The tips include information on water conservation, roof hookups, re-routing rainwater to pervious areas rather than pavement areas, septic system maintenance, etc. The website also contains tips for businesses planning to lessen the impacts they have on local water bodies. For example, it explains how to clean vehicles, recycle waste, minimize impervious surfaces, prevent erosion, clean storm drains, apply salt to pavement, fertilize land, store waste and materials, arrange work sites, and contain waste, among other tips. The following is CRWA's web site address:

<http://www.crwa.org/index.html>

There is a State of Massachusetts Adopt-A-Stream (AAS) program, which strives to assist communities with education, obtaining the resources to assess rivers, etc. The program

provides support for water quality and habitat improvement and land acquisition. The AAS Program has developed a toolbox for projects that involves fact sheets to provide project descriptions, background, resources, and cost estimates. The Cutler Park to Commonwealth Avenue (CPCA) Stream Team is part of this program. The CPCA Stream Team applied for a DEM grant to work on a blueway trail on the Charles River. The group has been involved in education initiatives in the Charles River Watershed and plans to expand on these efforts. The Team writes a newsletter to inform CRWA members, town officials, and others about its planned activities and accomplishments. Also known as the “Nonasties,” they have become a 501c3 non-profit group. The team is working to assist on repairing fish ladders in the Charles River. With assistance from the stream team and other environmental groups, all ten Massachusetts representatives became co-sponsors to the Conservation and Reinvestment Act. The bill would guarantee financial support for the Land and Water Conservation Fund (LWCF) through 2015. LWCF is an important source of funding for expanding green space, upgrading playgrounds, establishing new parks, and improving river access. Previously funded projects have included the Rosemary Lake bathhouse project in Needham.

### ***Best Management Practices and Measurable Goals***

#### **1. Classroom Education on Storm Water**

Educational materials will be collected from EPA, CRWA, and DEP for distribution to schools at several grade levels. The teachers, as part of the appropriate curriculum, will present the materials. Educated volunteers will be invited to deliver storm water speeches to local public schools. In addition, volunteer groups such as the boy scouts and girl scouts will be taught about storm water pollutants including their affect on local water bodies and actions, which would reduce their presence. For example, they will learn to organize clean-up activities at the Charles River. The DPW will utilize the information given to home-schooled children to reach out to public school children. The League of Women Voters will be requested to assist with the Town’s education program because the League has demonstrated interest.

### Measurable Goals

- There will be three sets of educational materials distributed to local schools.
- Three grade levels will participate in storm water activities.
- There will be two workshops held for teachers regarding storm water education.

### **2. Flyer and Brochure Distribution and Web Site Link**

Flyers and brochures will continue to be used to teach residents and businesses about storm water. Residents will be educated about environmentally friendly lawn and garden maintenance, pet waste management, trash management, and water conservation along with other precautions for cleaner storm water. Flyers will also focus more on methods to disconnect roof drains from discharging onto impervious areas. The Town will specifically educate residents about the importance of pet waste management in future flyer publications. Water usage in households is typically much higher than necessary. Therefore, Needham residents will continue to be educated about alternative methods to reduce the amount of water being consumed in their homes. The flyers and brochures will be expanded to list ways to properly dispose of landscape and garden chemicals, especially fertilizers and pesticides. Future flyers developed by the Town will also focus on septic system maintenance. The flyers will be obtained from sources such as; the DEP or EPA. For sample flyers and brochures, refer to the Appendix.

Illegal dumping education will help prevent contaminated runoff from entering wells and surface water. If residents notice a person dumping litter at abandoned industrial, commercial and residential buildings, vacant lots, and poorly lit areas they will be aware that the person is probably involved in an illegal dumping activity. Cleaning staff in many businesses may be unknowingly polluting by dumping mop water into a catch basin. Also, restaurants and automotive garages may be polluting by dumping grease, oil, or any petroleum products into the drainage system. These messages will also be developed in future flyers published by the Town and sent to local businesses and residents.

A hotlink will be added to the Town's official web site that connects to the Charles River Watershed homepage. This will give residents straightforward accessibility to storm water information pertaining to Needham.

#### Measurable Goals

- Determine the additional types of educational materials to be provided to the community by the end of year one.
- Gather one flyer and two fact sheets related to storm water and make them available to the public at the Department of Public Works, Town Hall, and the public library.
- Provide a link on the Town's web site to the Charles River Watershed web site by year five.

### **3. Using the Media**

The media is a powerful inexpensive tool, which can make a significant difference regarding storm water. Almost everyone is exposed to some form of the media including newspapers, and television. Consequently, Needham has and will expand its use of the media. Television public service announcements, local cable programming, and newspaper articles will be utilized to inform the public of vital storm water information. The Needham Times will have articles with local storm water system information. The local cable show currently airing will be continued in the future as well.

#### Measurable Goals

- There will be one local cable public service announcement each year.
- There will be one storm-water-related press release each year.
- There will be one storm-water-related article each year.

### **4. Hazardous Waste Management**

The Surplus Paint Program and the Hazardous Waste Days are ongoing programs that will remain the focus of Town efforts in reference to hazardous waste management. The public will continue to be educated about these programs through brochures and flyers distributed by the DPW.

### Measurable Goals

- The amount of household hazardous waste collected on these days will be tracked.
- Educational materials about hazardous waste management will continue to be distributed at the DPW.

Figure 4-1 outlines the time constraints for education and outreach BMPs.

**Figure 4-1  
BMP Schedule – Public Education and Outreach**

BMP	Year				
	1	2	3	4	5
Classroom Education on Storm Water					
Collect Materials from EPA, CRWA, and DEP and Distribute to Public Schools	█				
Teachers Instruct Classes and Present Material Gathered in Year One		█	█	█	█
Volunteers Assembled and Taught About Storm Water Issues		█			
Volunteer Outreach to Youth Groups and Public Schools			█	█	█
DPW use Home-School Model for Public Schools	█				
Flyer and Brochure Distribution and Web Site Link					
Determine Additional Educational Materials to be Provided to the Community Via Publications	█				
Supply the DPW, Town Hall, and Public Library with a Flyer and Fact Sheets		█	█	█	█
Distribute Flyers to all of Needham Residences			█		
Provide a Web Site Link on the Town's Web Site to the Charles River Watershed Web Site					█
Using the Media					
Continue Local Public Access Show "Talk About Needham"	█	█	█	█	█
Issue One Storm Water Related Press Release Per Year	█	█	█	█	█
Publish One Storm Water Related Article Per Year	█	█	█	█	█
Hazardous Waste Management					
Surplus Paint Program Continuation	█	█	█	█	█
Hazardous Waste Day Continuation	█	█	█	█	█

## 4.2 Public Involvement/Participation

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals regarding public involvement/participation.

### **Massachusetts Small MS4 Storm Water Management Program General Permit Requirements**

*“All public involvement activities must comply with state public notice requirements at MGL Chapter 39 Section 23B.*

- *The permittee must provide opportunity for the public to participate in the development, implementation and review of the storm water management program.”*

### **Minimum Measure Objective**

The goal is to have a community dedicated and actively involved with this storm water program. This will result in a community with a much bigger stake in water body cleanliness than an uninvolved community. As time passes, more volunteers and cleaner water bodies are the goals of this program.

### **Current Practices**

The show “Talk About Needham” answers resident questions by receiving telephone calls throughout the broadcast. This programming provides Needham residents with a forum in which to ask relevant questions to the chief elected officials in the Town.

Under Needham’s general by-laws, a dog being walked must be kept on a leash that is less than six feet long and can only perform natural body functions on the owner’s property unless given approval by another property owner. If the dog owner fails to comply with these by-laws the first offense is a \$25 fine and the second offense is a \$50 fine.

The Selectmen permitted street name signs to be attached to the bridges over the Charles River. This allows boaters to identify their location as they navigate the river.

The CRWA has volunteers conduct monthly water monitoring of several sites along the Charles River including locations in Needham. The monitoring is usually performed on the third Tuesday of each month. The CPCA Stream Team performs sampling on water bodies in the Town. Sampling results from the associations are sent to the Town to evaluate its performance regarding storm water efforts. Volunteers are also responsible to maintain the CRWA website. In addition, the CRWA has river cleanup projects. There is a scheduled earth day clean up which will be held at various portions of the Charles River.

Youth organizations have stenciled some storm drains in Needham. The CRWA encourages storm water stenciling programs by providing communities with reusable stencils and procedures for implementing a stenciling project.

### ***Best Management Practices and Measurable Goals***

The Town of Needham will utilize CRWA knowledge and resources to establish its volunteer programs.

#### **1. Adopt-A-Stream Programs**

Adopt-A-Stream programs will be established as an inexpensive way to monitor and protect local water bodies. Local youth groups and any other Needham resident interested will feel a sense of responsibility to a specific water body which they will monitor and clean. A packet with trash bags and gloves, trash collector information, and an area map will be provided to all volunteers so they can monitor a stretch of water. They will become the primary people who work with that stretch of water. This program will be advertised via public service announcements and newspaper articles.

In addition, the CPCA Stream Team will monitor sites in Needham as well. The combined efforts of residents and the CPCA Stream Team will significantly reduce the amount of trash in Needham water bodies. In addition, it will be a method of gauging the level of water quality for many water bodies in Town.

### Measurable Goals

- Two streams will be adopted by local volunteer groups.
- The quantity of trash removed by volunteers will be tracked.

## **2. Stencil Storm Drains**

Youth organizations and other volunteer groups will stencil storm drain covers. The group will begin the process by stenciling in areas with pollutants found in the storm water discharges. The storm drains will say “Don’t Dump Drains to Charles River” and a record will be kept of every storm drain stenciled during this initiative.

### Measurable Goals

- Fifty storm drains will be stenciled per year.

## **3. Community Hotline**

A community hotline will be established by the DPW so residents can speak with a trained Town employee regarding storm water issues. The hotline will allow residents to report illegal dumping and other issues. Town employees will investigate calls that report suspicious and destructive behavior. The hotline phone number will be printed in brochures and flyers, and shown on the local cable program.

### Measurable Goals

- One hotline will be established.
- The number of phone calls will be tracked over time.
- The number of problems/incidents remedied as a result of hotline calls will be tracked.

## **4. Storm Water Committee**

A Storm Water Committee will be formed to provide input and knowledge about local storm water problems from various perspectives. The committee will play a significant role in the Town’s SWMP because the committee will assess the storm water program and provide guidance for possible changes to the plan. The committee could be composed of

representatives of the community including Needham residents, CRWA members, Planning Board members, DPW personnel, the Town Administrator, Board of Health representatives, etc. Committee discussions and ideas will be published in the flyers and brochures already being distributed throughout the Town. The League of Women Voters could be actively involved with this committee.

#### Measurable Goals

- Establish the Committee in year one.
- Hold annual meetings in years two through five.

### **5. Pet Waste By-Law**

Pet waste can contribute fecal coliform bacteria to receiving water bodies. Pet waste may also cause eutrophication in water bodies. The Town enforces by-laws to restrict dogs from performing bodily functions on property other than the owner's. Signs will be posted in parks and any other areas that dogs are permitted to perform bodily functions. The public will be educated about pet waste via flyers and brochures as stated under minimum control measure #1.

#### Measurable Goals

- The number of signs posted stating regulations will be tracked.
- The number of educational materials distributed will be tracked.
- The number of dog licenses issues will be tracked.

Figure 4-2 depicts the scheduled time to execute each public involvement/participation BMP.

**Figure 4-2  
BMP Schedule – Public Involvement/Participation**

BMP	Year				
	1	2	3	4	5
Adopt-A-Stream Programs					
Advertise Via Public Service Announcements and Newspaper Articles	█				
Establish Adopt-A-Stream Groups (2) and Organize Information for Volunteers		█			
Clean Adopted Local Water Bodies			█	█	█
CPCA Stream Team Adopt-A-Stream Program Continued	█	█	█	█	█
Stencil Storm Drains					
Prioritize Areas to be Stenciled	█				
Stencil 50 Storm Drains Per Year	█	█	█	█	█
Maintain Records of Stenciled Areas in Needham	█	█	█	█	█
Community Hotline					
Establish Hotline Phone Number		█			
Print Phone Number in Brochures and Display on the Local Cable Show			█		
Residents Use Hotline and DPW Personnel Investigate Illegal Dumping Reports			█	█	█
Storm Water Committee					
Establish Storm Water Committee	█				
Hold Annual Meetings		█	█	█	█
Print Ideas and Discussions in Brochures and Flyers			█	█	█
Pet Waste By-Law					
Post Signs Near Parks and Other Areas Where the Town By-law is Applicable			█		

### 4.3 Illicit Discharge Detection and Elimination

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals regarding illicit discharge detection and elimination.

#### **Massachusetts Small MS4 Storm Water Management Program General Permit Requirements**

*“The permittee must develop, implement and enforce a program to detect and eliminate illicit discharges.*

- *The permittee must develop a storm sewer system map. At a minimum the map must show the location of all outfalls and the names all waters that receive discharges from those outfalls.*
- *The permittee must effectively prohibit, through an ordinance or other regulatory mechanism, non-storm water discharges into the system.*
- *The permittee must develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, into the system.*
- *The permittee must inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper waste disposal.”*

#### **Minimum Measure Objective**

The number of illicit discharges tested will be tracked, and the number of polluted areas should decrease as proposed BMPs are implemented. Also, the number of people who report suspicious activity such as; dumping should increase due to the public education BMPs.

#### **Current Practices**

A Storm Water Pollution and Management Program was submitted to the EPA in November of 1996, a copy is provided in the Appendix. The main focus of the project was to identify

illicit connections to the storm water drainage system. This effort involved a physical inspection of ten drainage areas and their associated sub-areas. These ten drainage areas have been identified by the EPA (through the Charles River Watershed Association) as contributing significant fecal coliform bacteria to the Charles River. Improvements to the storm water and sanitary sewer systems were constructed by the Town in 1996 and 1997 in an effort to eliminate the illicit discharges to the Charles River.

Town wide discharge point inspection, sampling, and testing was conducted by BETA Group, Inc. in 1999 as part of this project. The investigation included all discharges at headwalls and pipe ends with the exception of discharges to the State drainage system.

The previous Storm Water Pollution and Management Program involved investigating the drainage characteristics of ten watersheds in Needham identified as problem areas that discharge directly to the Charles River. That investigation was considered the first step of a comprehensive storm water management program being undertaken by the Town. Project tasks included data research, mapping, visual inspections, dry/wet weather sampling of drainage systems, and television inspection of drainage and sewer pipes.

This study included dry weather investigation of all of the pipe discharges identified in the Town excluding those discharges that connect to the State drainage system. Dry weather investigations were conducted when an antecedent condition of three or more dry days occurred. The inspections included documentation of the discharge with respect to pipe size, condition, flow rate estimate (if flow was present), evidence of chemical contamination or fecal matter, photographing the discharge and obtaining samples of the flow discharging from the pipe (if flow was present).

Sampling of residential sub-areas was conducted during periods of anticipated sewer use, such as early morning and evening hours. In large sub-areas, samples were taken at a time that reflected time of travel for flows through the sub-area drainage system. Testing times for commercial and industrial sub-areas reflected those periods when businesses were

observed operating with a full staff, such as mid-day. If no flow existed during dry weather inspections, the area was determined to have no illicit connections.

Samples were tested for the following parameters:

- Ammonia Nitrogen (>0.4 mg/l. indicates sewage contamination)
- Surfactants (>0.1 mg/l. indicates sewage contamination)
- Fecal Coliform Bacteria (>200 MPN/100 ml. indicates sewage contamination)
- Total Dissolved Solids (TDS) (>700 ppm, except for saline waters, i.e. >60 ppm as CaCO<sub>3</sub>)
- Flouride (>1.0 mg/l.)
- Enterococcus (>30 MPN/100ml.)
- E. Coli (>125 MPN/100ml.)

Of the 295 outfalls investigated, during both sampling and testing programs, sixteen were flowing with liquid and eight were determined to have elevated levels of fecal coliform bacteria. Eight areas that require additional investigation are listed in Table 4-1 and their locations are depicted in Figure 4-3A.

The Town formed a comprehensive database, as described in Section 2, for Needham's drainage system. There are 5,912 Town owned structures in Needham's drainage system including 4,225 catch basins, 1,392 drainage manholes, and 295 drainage discharges. All of these structures are included in a GIS coverage with a connected database containing structure characteristics. Outfall locations were determined, field inspected and are included in the database. This information is very useful because the Town can track areas with problems and prioritize them for future improvements to the drainage system.

The CRWA has monitored the Charles River that has helped to influence organizations and environmental agencies regarding illicit connection and combined sewer overflow controls.



Wellesley

Newton

O-351A

O-200

O-339

O-269

O-332

O-97

O-328

O-278

Dover

Dedham

### Legend

-  Sub-Area N10A-9
-  Outfalls
-  Lakes and ponds
-  Rivers
-  Upland
-  Wetland Areas
-  Streams and Brooks

1250 0 1250 2500 Feet

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

### Locus



### Phase II Storm Water Management Plan

Needham, Massachusetts

### Figure 4-3A

### Follow Up Sampling Areas and Sub-Area N10A-9

Source: Town of Needham and MassGIS

**Table 4-1  
Sampling and Testing Results**

<b>Outfall ID</b>	<b>Outfall Location</b>	<b>Pipe Size (in.) - Material</b>	<b>Flow (gpm)</b>	<b>Total Dissolved Solids (ppm)</b>	<b>Ammonia Nitrogen (mg/l)</b>	<b>Surfactants MBA's (mg/l)</b>	<b>Fluoride (mg/l)</b>	<b>E. Coli (MPN/100 ml)</b>	<b>Enterococcus (MPN/100ml)</b>	<b>Fecal Coliform Bacteria (MPN/100ml)</b>
<b>O - 332</b>	West of Nehoiden Road	36-RCP	8	260	Not Detected	Not Detected	Not Detected	Positive	1600	1500
<b>O - 269</b>	South of Maller and Hancock Rd. Intersection	30-RCP	8	180	0.08	Not Detected	Not Detected	Positive	300	340
<b>O - 339</b>	West of Fuller Brook Ave.	30-RCP	Stagnant	190	0.4	Not Detected	Not Detected	Positive	900	500
<b>O - 200</b>	West of Ludwig Circle	24-RCP	5	170	Not Detected	Not Detected	Not Detected	Positive	300	1500
<b>O - 97</b>	Northeast of May Street	24-RCP	10	390	Not Detected	Not Detected	Not Detected	Positive	900	1600
<b>O - 351(A)</b>	End of Seabeds Way	12-RCP	3	160	Not Detected	Not Detected	Not Detected	Not Detected	900	230
<b>O - 328</b>	East of Lehigh Road	24-RCP	Stagnant	270	1.1	0.26	Not Detected	25000	80	310
<b>O - 278</b>	Southeast of Locust Lane	30-RCP	Stagnant	180	Not Detected	Not Detected	Not Detected	25000	<1	410

Where water quality constitutes nuisance conditions or public health issues, the Needham Health Department has regulatory authority. The Health Department also has authority where water quality violations exist which impact the municipal drainage system. Examples include private drains, septic system overflows, and other sources of pollution on private property. When there is an illegal dumping occurrence that requires reporting, either the Board of Health or the Fire Department receives the complaints. The Fire Department is the first respondent of any incidents and the department is equipped with the tools to handle hazardous situations. The incidents are reported to DEP.

The Needham Health Department has a listing of all septic systems and cesspools within Needham. The Health Department conducts routine and mandatory inspections of residential septic systems in accordance with Title V of the State Sanitary Code (as revised in 1995). These inspections include documentation of chronic problems, such as surface discharge of systems, etc. During land sale transactions, the Title V inspections include

documenting compliance with applicable setbacks to water resources and wetlands, as well as documenting evidence of surcharging systems. The Health Department ranks each system with a pass or fail score. Failure indicates a chronic problem with the system, and the need for an upgrade. Systems which fail the Title V criteria must be upgraded within two years of the system inspection. System upgrades and replacements include percolation testing and deep hole testing to determine the depth to groundwater and soil types, and design of a system in accordance with the Title V regulations. Plans of the new or upgraded systems must be submitted to and approved by the Health Department. Where water quality constitutes nuisance conditions or public health issues, the Needham Health Department has regulatory authority. The Health Department also has authority where water quality violations exist which impact the municipal drainage system. Examples include private drains, septic system overflows, and other sources of pollution on private property.

The Health Department also maintains records of all complaints, which are made to their office. The records include the address of the property for which the complaint was filed, the date of the complaint, and the result of the inspection by the Health Inspector. These complaints include those associated with failing septic systems, chemical releases and storage, and odors.

Discussions with Needham's Health Inspector revealed that residences with septic systems are typically older homes with older septic systems. Many of these were installed prior to the original Title V State Sanitary Code regulations promulgated in 1976.

### ***Best Management Practices and Measurable Goals***

#### **1. Outfall Testing Program**

Additional follow up testing will commence during the second year of this plan in the eight areas identified in Table 4-1 (depicted in Figure 4-3A) which had somewhat elevated pollutant levels. The goal of this testing will be to determine if the problems still exist and to identify specific reaches of pipe where problems exist so that measures can be taken to correct them. Specifically, each drainage discharge will be inspected during dry weather conditions as part of the Town's sampling program. Any evidence of chemical

contamination or fecal matter will be recorded and samples will be collected if discharges are flowing during dry weather conditions. Photographs will be taken at discharge locations where samples are gathered.

The samples will be analyzed for the following parameters:

- Ammonia Nitrogen (>0.4 mg/l indicates sewage contamination)
- Surfactants (>0.1 mg/l indicates sewage contamination)
- Fecal Coliform Bacteria (>200 MPN/100 ml indicates sewage contamination)
- Total Dissolved Solids (TDS)
- Total Nitrogen
- Nitrate Nitrogen
- Fluoride

Storm water collected in area N10A-9, depicted on Figure 4-3A, discharges into a thirty-six inch pipe, east of Webster Street. Storm water captured from this area discharges to Alder Brook approximately 3,600 feet from the Charles River. The discharge has been sampled numerous times and the results revealed elevated fecal coliform bacteria levels. For example, on November 7, 1996 the discharge had a fecal coliform bacteria level of 3,000 MPN/100 ml which is significantly higher than the threshold of 200 MPN/100 ml. Therefore, additional inspections of drainage pipes within sub-area N10A-9 are warranted, due to the continued levels of fecal coliform bacteria in dry weather storm water discharges. Television inspections may be required to separate various pipe reaches to determine possible sources of the bacteria.

The results will indicate if sewage overflows have contaminated the discharges. Additional investigations will be required if samples show signs of sewage contamination.

All of the Town's 295 outfalls will be re-sampled in the fifth year of this plan's execution. They will be re-sampled by analyzing the same parameters used for the follow-up testing areas.

### Measurable Goals

- Follow-up testing performed for the eight areas.
- Study performed to verify if television inspections are required for area N10A-9.

## **2. Illegal Dumping Education**

Illegal Dumping can result in adverse affects on local water bodies. Therefore, flyers, posters and other public education tools will be created in the first year to inform citizens about illegal dumping, as described under the Public Education and Outreach and the Public Involvement/Participation minimum control measures. For example, the citizens will be able to utilize the community hotline to inform the Town of illegal dumping occurrences.

### Measurable Goals

- The number of flyers, posters, or other public education tools distributed.
- The number of illegal dumps reported by citizens.
- The number of penalties enforced upon the participants of illegal dumps.
- The number of meritorious acknowledgements for reporting an illegal dump.

## **3. Septic System Controls (Board of Health)**

Needham residents will be educated about septic system maintenance and operation via flyers, brochures, and the Town's web site. The public will be educated and instructed to divert roof drains away from septic systems. The water conservation information provided by the Town when followed (as described under the Public Education and Outreach minimum control measure) lessens the likelihood of hydraulic overloading in the septic systems. Failing septic systems lead to untreated wastewater flowing to water sources. The Board of Health will continue its efforts with respect to fixing failing septic systems in Needham. In addition, the eight areas depicted in Table 4-1 that are being re-sampled, during this plan's implementation, will be evaluated for proximity to septic systems, sanitary sewers, and groundwater table elevations.

### Measurable Goals

- The number and location of septic systems.

- The number of systems that are inspected and maintained regularly.
- The number of reminder and educational flyers distributed.
- The number of people trained in inspection and installation of septic systems.
- The number of failed septic systems.

Figure 4-3B provides time frames to act upon each illicit discharge detection and elimination BMP.

**Figure 4-3B  
BMP Schedule – Illicit discharge Detection and Elimination**

BMP	Year				
	1	2	3	4	5
Outfall Testing Program					
Follow-Up Testing in Eight Areas (Table 4-1)					
Analyze Results					
Study Performed for Area N10A-9					
Illegal Dumping Education					
See Minimum Control Measures #1 and #2					
Septic System Controls					
Continue Board of Health's Procedures					
Evaluate the Eight Testing Areas (Table 4-1) for Proximity to Septic Systems, Sanitary Sewers, and Groundwater Elevations					
Educate Residents About Septic System Maintenance					

#### 4.4 Construction Site Storm Water Runoff Control

The Town Engineer is responsible for ensuring the implementation of proposed BMPs and measurable goals regarding construction site storm water runoff control.

**Massachusetts Small MS4 Storm Water Management Program General Permit Requirements**

*“The permittee must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. The permittee must include disturbances less than one acre if part of a larger common plan.*

*At a minimum, the program must include:*

- *An ordinance or other regulatory mechanism to require sediment and erosion controls at construction sites.*
- *Sanctions to ensure compliance with the program.*
- *Requirements for construction site operators to implement a sediment and erosion control program which include BMPs that are appropriate for the conditions at the construction site.”*

**Minimum Measure Objective**

Existing policies and procedures will be continued and augmented to require a variety of BMPs to minimize the harmful affects of construction site activities. Soil and Erosion Control Plans will be assessed based on the reduction of suspended solids and debris found in discharges in proximity to construction activities. To ensure that all procedures are completed, Town officials will inspect the sites. The citizen panel will discuss alternatives to this plan if the water quality does not improve.

**Current Practices**

All Needham development and re-development projects are under the jurisdiction of the Planning Board, Zoning Board of Appeals, and Building Department and are reviewed by the DPW, through the Town Engineer’s Office. The Board of Health reviews subdivision plans as well. The Town Engineer ensures that proposed erosion and sediment controls are adequate. The Town adopted the Massachusetts Department of Environmental Protection (DEP) Storm Water Management Policy in all areas that discharge into the Charles River as

required by the MOU. All subdivisions and site development projects within these areas are required to comply with the Massachusetts Storm Water Management Policy.

The majority of Needham is developed, limiting space for new development. For the few areas that may be developed, several land use controls are in effect to regulate development and protect water resources and the environment from developmental impacts. These regulations include the following:

- Subdivision Regulations, Needham Planning & Zoning Departments
- Zoning By-Law, Needham Planning & Zoning Departments
- Wetlands Protection Act, Needham Conservation Commission
- MOU from DEP/EPA that requires conformance with the Massachusetts Storm Water Policy town-wide
- Street Occupancy Permit Procedures
- Storm Drainage Connection Permit Requirements

Plans are required for subdivisions and site development that must accurately depict the proposed drainage system and all proposed construction. The Town Engineer's Office currently reviews all subdivision plans and site development plans. The Building Inspector also reviews all site plans associated with residential construction and minor commercial construction. The site plan reviews ensure that appropriate soil and erosion control practices are being implemented and that all development complies with the Massachusetts Stormwater Management Policy.

The Needham Conservation Commission and the Massachusetts DEP regulate development within freshwater wetlands and 100 foot buffer zones surrounding wetland boundaries. Any land development must obtain an Order of Conditions from the Conservation Commission. The application must detail erosion and sedimentation controls, BMPs, and other ways to mitigate wetland and water resource impacts. Under the Rivers Protection Act, applicants proposing development within the 200 foot riverfront area are required to evaluate feasible alternatives which may result in less impact to the riverfront area. Perhaps most

importantly, the Conservation Commission also reviews the alternatives analysis, and may prohibit alterations to the riverfront area which are deemed unwarranted.

### ***Best Management Practices and Measurable Goals***

#### **1. Policy and Procedure Review and Updates**

The Town will revise existing policies and procedures to address construction related erosion and sediment control measures for all site or land disturbance activities. At a minimum, the policies and procedures will adopt “Standard 8-Erosion and Sediment Control,” of the DEP’s Storm Water Management Policy, and will include requirements for project review and inspection by the DPW. The policies and procedures will include enforcement provisions to ensure compliance. Also, standard policies will be used for the control of wastes related to construction activities.

##### Measurable Goals

- Revise existing policies and procedures to address erosion and sediment control.
- Develop a Storm Drain Connection Permit Requirement.

#### **2. Construction Reviews**

A construction review will be performed by the DPW’s Engineering Division for construction sites periodically during construction activity. A note will be made for any inadequacies on sites/plans found by inspectors. Any violations will be submitted to the contractor in a report within five days of the review.

##### Measurable Goals

- Whether or not a requirement was developed indicating that sites be inspected.
- The number of inadequate sites/plans reported by inspectors.
- The number of non-compliant permits reported.

Figure 4-4 depicts the amount of time proposed to employ each BMP.

**Figure 4-4**  
**BMP Schedule – Construction Site Storm Water Runoff Control**

BMP	Year				
	1	2	3	4	5
Policy and Procedure Review and Updates					
Revise Existing Policies and Procedures					
Develop a Storm Drain Connection Permit Requirement					
Construction Reviews					
DPW Periodically Review Construction Activities					

#### 4.5 Post Construction Site Storm Water Runoff Control in New Development/Redevelopment

The Town Engineer is responsible for ensuring the implementation and compliance of proposed BMPs and measurable goals regarding post construction site storm water runoff control in new development/redevelopment.

##### **Massachusetts Small MS4 Storm Water Management Program General Permit Requirements**

*“The permittee must develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than one acre and discharge into the municipal system. The program must include projects less than one acre if the project is part of a larger common plan of development.*

*The post construction program must include:*

- *An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment.*
- *Procedures to ensure adequate long term operation and maintenance of best management practices.*

- *Procedure to ensure that any controls that are in place will prevent or minimize impacts to water quality.”*

**Minimum Measure Objective**

The overall goal is to require development and redevelopment projects to include water quality BMPs in the development plans on a town wide basis. Town officials will require that O&M procedures are created to prevent or minimize the impacts to water quality. The storm water committee will discuss alternative BMPs that may be added to the review process if current practices are deemed ineffective.

**Current Practices**

As stated under the Construction Site Storm Water Runoff Control minimum control measure, the Town has zoning and subdivision regulations and policies, procedures and permit requirements in place that address many storm water issues.

Aquifer Protection Districts exist to prevent groundwater contamination. Liquid petroleum products, sludge and septage, individual sewage disposal systems, de-icing chemicals, animal manure, and commercial fertilizers are generally prohibited or restricted within the Aquifer Protection Districts. Within Aquifer Protection Districts contaminant removal may occur by employing detention basins with sub-surface drains or perforated raisers, oil and grit separator catch basins, or similar devices where appropriate. Pesticide application requires a special permit by the Planning Board. Also, any use that will create more than 15% or 2,500 square feet of any lot impervious requires a special permit. The permits involve recommendations from the Board of Health, the Conservation Commission, and the DPW. The Planning Board is allowed to limit activities to ensure the proper implementation of the Subdivision Control Law and Regulations. In accordance with Section 81-B of Chapter 41 of the Massachusetts General Laws, members of the Planning Board can enter a site and carry out necessary inspections. The DPW Director is permitted to inspect the construction of streets and the installation of municipal services and utilities in subdivisions.

Storm drains are required to be installed with a slope and size adequate to accomplish all runoff over the area within the subdivision. Natural watercourses are mandated to be preserved if possible under the subdivision regulations. Oil, gasoline, and grease separators are required to be installed prior to drainage basin installations in new subdivisions.

Planned Residential Development provides an alternative to conventional development by fostering innovative site planning based on land characteristics. Planned residential development encourages open space conservation.

The Site Plan Reviews conducted are comprehensive review procedures for construction projects to ensure the Zoning By-Law is adhered to, in an effort to minimize adverse impacts and to promote development, which is harmonious with surrounding areas. Adjoining premises are required to be protected from adverse impacts via provisions for surface water drainage.

The Zoning Board of Appeals has jurisdiction over appeals regarding the construction or alteration of property. Permitted uses in Flood Plain Districts include uses directly related to water conservation and plant and wildlife preservation; grazing and farming; wildlife management areas; etc. For areas that require a special permit in Flood Plain districts, the Zoning Board of Appeals requires adequate drainage to reduce exposure to flood hazards in flood-prone areas. The Board also requires that adjacent communities be notified before a watercourse is altered. A copy of this notification is directed to be sent to the Administrator of the Federal Emergency Management Agency (FEMA).

### ***Best Management Practices and Measurable Goals***

#### **1. Policy for Post Construction Runoff**

A policy will be developed for post construction runoff to limit surface runoff volumes and pollutants in the runoff. The policy will include compliance with DEP Storm Water Policy Standards, 2, 3, 4, and 7 on a Town wide basis for all new and redevelopment construction related projects submitted for review. Inspections will be performed for all sites after

construction is completed. The policy will include enforcement provisions to ensure compliance.

Since drainage from the Town eventually reaches the Charles River, the new policy will require compliance with Standard 3 of the Department of Environmental Protection Agency's Storm Water Management Policy. Standard 3 requires that infiltration measures should be used to the maximum extent practicable to minimize the loss of annual recharge to groundwater. The policy encourages maintaining groundwater recharge rates to the aquifers via infiltration measures and careful site design. Existing pre-development soil types are required to be identified to calculate the volume of runoff per storm. Infiltration of storm water from areas with higher potential pollutant loads is prohibited without pretreatment under Standard 3 of DEP's Storm Water Management Policy. Needham will promote recharge to groundwater aquifers and prefer BMPs that include aquifer recharge.

#### Measurable Goals

- Develop a Town-wide policy to implement post construction site storm water runoff control in new development/redevelopment.
- Develop a Storm Drain Connection Permit Requirement.
- Develop and implement standard construction details and policies.

## **2. BMP Inspection and Maintenance**

BMP inspection and maintenance will serve to measure the effectiveness of implemented storm water BMPs. BMP failure can become detrimental to property, cause injury, or worsen the affects of storm water on the environment. Some BMPs may require more frequent inspection than others. The Town will establish standard procedures for field inspection of BMPs including development of inspection checklists. The checklists will include the BMP requirements, expectations, design criteria, date of implementation, etc.

#### Measurable Goals

- Inspect all Town maintained structural BMPs once per year.
- Document the number of problems that were identified and remedied.

- Changes in water quality of effluent from BMPs through observation and cleaning records.

Figure 4-5 illustrates the time constraints for implementing the proposed BMPs.

**Figure 4-5  
BMP Schedule – Post Construction Site Controls**

BMP	Year				
	1	2	3	4	5
Policy for Post Construction Runoff					
Develop a Town-Wide Policy to Implement Post Construction Site Storm Water Runoff					
Develop a Storm Drain Connection Permit Requirement					
Develop and Implement Standard Construction Details and Policies					
BMP Inspection and Maintenance					
Inspect All Town Maintained Structural BMPs Once a Year					
Document Problems With BMPs					

#### 4.6 Pollution Prevention/Good Housekeeping for Municipal Operations

The DPW Director is responsible for ensuring the implementation of proposed BMPs and measurable goals regarding pollution prevention/good housekeeping for municipal operations.

**Massachusetts Small MS4 Storm Water Management Program General Permit Requirements**

*“The permittee must:*

- *Develop and implement a program with a goal of preventing and/or reducing pollutant runoff from municipal operations. The program must include an employee training component.”*

***Minimum Measure Objective***

This measure will improve the efficiency of municipal operations and reduce the amount of pollution from Town-owned facilities and the drainage system. Proper operation and maintenance procedures are key factors that will ensure that this goal is realized.

***Current Practices***

The Town is currently implementing many BMPs to ensure pollution prevention and good housekeeping. Some of the BMPs already developed include; storm drain cleaning, maintenance programs, de-icing practices, and street sweeping.

The DPW conducts routine cleaning and maintenance of the storm drain system. This includes an intensive schedule of catch basin cleaning and line flushing throughout the year. The Needham DPW owns a “Stetco” catch basin cleaner, which is utilized to clean debris and sediment from the Town’s catch basins. Most of the catch basins in Town have not been found to be full of debris.

The DPW cleaning schedule includes 100% of the municipal catch basins annually, with a 30% redundancy factor. Therefore, each basin is cleaned once per year and 30% are cleaned a second time. Typically, the basins are cleaned when they are approximately 40% full of solids. The Town tracks the weight of material gathered during catch basin cleanings. All of the material removed from the catch basins is transported to Needham’s municipal transfer and recycling facility for handling and disposal. As a result, there is a significant reduction in pollutants and solids discharged to waters within the Town.

The Town owns two street sweepers which are utilized throughout the year. Additionally, two street sweepers are contracted through a local contractor to assist in seasonal (springtime) and major street artery sweeping programs. Street sweeping is conducted throughout the year, with exceptions in the winter months when snow plow operations are in effect. During this period, all DPW Highway personnel focus on plowing, and minimal sweeping is conducted. The Town tracks the weight of collected material resulting from street sweeping.

To treat roads during winter months, the Town has evaluated alternative de-icers and found that the Ice Ban® product is a cost effective additive to salt and is presently using it throughout Needham. The Ice Ban® product is a mixture of magnesium chloride and a natural liquid concentrate residue resulting from the milling of corn and the production of alcohol. The Ice Ban® product increases de-icing efficiencies by lowering the freezing point of solutions while melting occurs and accelerating ice melting. It also adds nutrients to soil and may enhance vegetative growth. This has allowed the Town to reduce salt application to the roadway from 800 lbs./lane mile to as little as 400 lbs./lane mile. The Town sprays the Ice Ban® product on salt prior to storm events unless an unexpected storm occurs causing inadequate time to treat the salt stockpile. The Town will continue to use Ice Ban® in the aquifer protection district, hills and bridges, as is current practice, and will use it town wide when it is economically feasible.

During ice storms the town also uses sand to treat the roadways. Sand that is applied to the roads in winter months is collected in the springtime through a rigorous street sweeping operation within the Town.

Sand and solids which enter the municipal storm water system are also collected through the previously mentioned storm drain system cleaning program. All street sweeping and catch basin cleanings are transported to Needham's Recycling and Transfer Station, away from water resources.

An Integrated Pest Management (IPM) policy was developed to reduce pesticide use for public properties and it has been adopted by several boards and commissions including the Board of Health and the Board of Selectmen, refer to the Appendix. The IPM is designed to prevent and control the growth of undesirable plants and the presence of insects and rodents. This program involves the analysis of site specific information including environmental conditions, and pest biology and behavior to control pests that interfere with a site's intended purpose. In the event that pest populations need to be controlled, the following

methods are utilized: modifying the habitat, modifying maintenance practices, modifying user behavior, and as a last resort, applying pesticides (least toxic selection).

The IPM requires that site specific plans adhere to the Massachusetts statute “An Act Protecting Children and Families From Harmful Pesticides,” Chapter 85 of the Acts of 2000. A copy of this act is provided in the Appendix. It protects children in schools, day care centers, and other school age children programs from the harmful effects of pesticide exposure indoors and outdoors.

### ***Best Management Practices and Measurable Goals***

#### **1. Predictive Catch Basin Program**

The development of a standardized catch basin and storm drain inspection program will continue in the future to include subsequent inspections, cleaning operations, and maintenance operations of storm water system components.

The existing standardized inspection form will be modified to include information regarding the condition of the structure, construction material (brick, precast concrete, etc.) depth to invert, size, condition and type of pipes into and out of the structure, and condition of the frame and cover. The form shall be completed during each catch basin, manhole or storm drain cleaning operation. Evidence of illicit connections to the storm water system, petroleum residues or chemical odors shall also be noted on the forms.

Subsequently, data will be collected for a few years, in-order, to prioritize cleaning operations for catch basins. This data will be entered into the GIS structure database including the amount of debris collected and the physical condition of the structures. Trends will be entered into the database so catch basins that collect a lot of debris or in poor condition will be cleaned more often than ones with no issues. This process will also be performed for detention basins. It will be relatively simple to determine which detention basins require cleaning because they are visible from the road.

### Measurable Goals

- Develop program.
- Collect the appropriate data.
- Refine Program based on the formulated trends.

## **2. Street Cleaning**

The Town will continue to clean all of the streets once per year for the first two years of this plan. The Town proposes to increase street sweeping from one to two times per year in year 3 of this plan. The Town has allocated funds to clean the streets and to dispose of the collected debris. In business districts the streets are swept on Fridays in the early morning (non-winter months). Town parking lots are swept annually and will continue to be swept during this plan's implementation. Municipal Parking lots in Town will be prioritized to determine the order of cleaning operations.

### Measurable Goals

- Sweep all roads once, town wide in years one and two.
- Sweep all roads twice, town wide in years three through five.
- Sweep all Town-owned parking lots annually.
- Document the pounds of debris collected from street sweeping.

## **3. Pipe Inspections**

The Town has budgeted money to inspect drain lines via CCTV inspections. Ten percent of the entire drainage system will be analyzed annually. Therefore, by the fifth year of this plan's initiation, 50% of the system will be inspected.

### Measurable Goals

- Inspect 50% of the system by the fifth year of this permit.

## **4. Pipe Cleaning**

Drainage system cleaning reduces the pollutant loads to receiving waters. Each year, the Town has allocated funding to clean 4,750 feet of drainage pipe. This represents one

percent of the total drainage system. Another 19,000 feet of drainage pipe will undergo jet flushing per year; this represents 4% of the total system or 40% of the pipes inspected annually. Pipes that collect silt or other materials quickly and/or are located within environmentally sensitive areas will be cleaned prior to other pipes.

#### Measurable Goals

- Clean or flush 25% of the system by year five.

### **5. New Pipe and Structure Installations**

The Town will replace 475 feet of drainage pipe per year, which represents 0.1% of the total drainage system. The Town will also replace 10 catch basins per year (0.25% of the total system) and install deep sump basins.

#### Measurable Goals

- Replace 475 feet of drainage pipe per year.
- Replace 10 catch basins per year and install deep sump basins.

### **6. Investigate Town Owned BMPs for Retrofit Opportunities**

The Town has eight detention basins and other structural BMPs utilized for flood control. However, they may only provide storm water with minimal water quality enhancement. The Town will investigate and determine if there is an opportunity to achieve more water quality benefits from these basins.

#### Measurable Goals

- Inspect three structural BMPs per year.
- Implement two retrofit projects, if required, by year five.

## **7. Integrated Pest Management**

Since it is a widely accepted program, the Town will continue its current practices for integrated pest management.

### Measurable Goals

- Continue already developed program in the future.

Figure 4-6 illustrates the time constraints for implementing the proposed BMPs in reference to pollution prevention/good housekeeping.

**Figure 4-6  
BMP Schedule – Pollution Prevention/Good Housekeeping**

BMP	Year				
	1	2	3	4	5
Predictive Catch Basin Program					
Develop the Program					
Finish the Inspection Form					
Develop Structure Database to Enter Data about Catch Basins and Collect Data					
Refine Program Based on Formulated Trends					
Street Cleaning					
Sweep Streets Once Per Year					
Sweep Streets Twice Per Year					
Sweep All Town Parking Lots Once Per Year					
Document Amount of Collected Debris					
Pipe Inspection					
Analyze 10% of the Drainage System Per Year					
Pipe Cleaning					
Clean 4,750 Feet of Drainage Pipe Per Year					
Perform Jet Flushing on 19,000 Feet of Drainage Pipe Per Year					
New Pipe and Structure Installations					
Replace 475 Feet of Drain Per Year					
Replace 10 Catch Basins Per Year With Deep Sump Basins					
Investigate Town Owned BMPs for Retrofit Opportunities					
Inspect Three Structural BMPs Per Year					
Implement Two Retrofit Projects					
Integrated Pest Management					
Continue Current Program					

Figure 4-7 illustrates the time constraints for implementing the proposed BMPs for all minimum control measures outlined in this report.

#### **4.7 Control of Pollutants of Concern to Impaired Waters**

The pollutants of concern for the impaired water bodies in Needham (see Section 2.2) include turbidity; nutrients; organic enrichment/low DO; priority organics; pathogens; noxious aquatic plants; exotic species; oil and grease; taste, odor, and color; and suspended solids. Some of the current practices occurring in Needham are reducing pollutant loads to Needham water bodies. Nonetheless, the BMPs proposed for each minimum control measure are structured to further lessen pollutant loads individually and collectively. The BMPs for the six minimum control measures improve water quality for the pollutants of concern and other pollutants. For example, BMPs for Public Education and Outreach including the classroom education component, flyers and brochures, articles, etc. will instruct the community about storm water topics and encourage people to modify their behavior. This will lessen the amount of fertilizers, pesticides, pet waste and other sources of nutrients from entering the storm water system. The DO levels will increase as fewer nutrients are discharged into water bodies. This also encourages the growth of native plants rather than algae and noxious aquatic plants.

For the Public Involvement and Participation minimum control measure, the community hotline and stenciled storm drains will assist with reducing the amount of non-storm water discharges into the storm water system. Non-storm water discharges may be the source of pathogens and many other pollutants entering water bodies in Needham. The pet waste bylaw reduces the amount of nutrients entering into the water bodies. The adopt-a-stream program will corroborate that the water bodies are becoming cleaner.

The Illicit Discharge Detection and Elimination minimum control measure is structured to help reduce the amount of pathogens, oil and grease, and organics in the water bodies. The sampling program identifies areas that indicate the presence of fecal coliform bacteria and organic enrichment. The presence of fecal coliform bacteria can indicate the presence of

pathogens. Septic system controls and the proposed illicit discharge education will reduce the amount of illicit connections to the storm water system thereby addressing these pollutants of concern.

BMPs outlined for Construction Site Storm Water Runoff Control and Post Construction Site Controls include inspections which will significantly reduce pollutant loads to water bodies in Needham. Construction sites will be monitored to ensure that proper procedures are performed which coincide with lessening the effects of runoff from the associated areas of disturbance. The pollutants transported via runoff contribute to low DO levels because micro-organisms consume oxygen as they break down runoff contents. The amount of organics and sediment entering the drainage system will be lessened as these BMPs, which result in less runoff, become implemented.

The BMPs to be implemented for Pollution Prevention and Good Housekeeping will reduce the amount of pollutants entering water bodies in Needham. These are important BMPs because most of them relate to drainage system maintenance. The amount of sediment entering the water bodies will be reduced which may reduce problems associated with turbidity, suspended solids and other pollutants in the water bodies. Also, the runoff will be cleaner as a result of the maintenance activities.

**Figure 4-7  
Composite BMP Schedule - All Minimum Control Measures**

BMP	Year				
	1	2	3	4	5
<b>Public Education and Outreach</b>					
<b>Classroom Education on Storm Water</b>					
Collect Materials from EPA, CRWA, and DEP and Distribute to Public Schools					
Teachers Instruct Classes and Present Material Gathered in Year One					
Volunteers Assembled and Taught About Storm Water Issues					
Volunteer Outreach to Youth Groups and Public Schools					
DPW use Home-School Model for Public Schools					
<b>Flyer and Brochure Distribution and Web Site Link</b>					
Determine Additional Educational Materials to be Provided to the Community Via Publications					
Supply the DPW, Town Hall, and Public Library with a Flyer and Fact Sheets					
Distribute Flyers to all of Needham Residences					
Provide a Web Site Link on the Town's Web Site to the Charles River Watershed Web Site					
<b>Using the Media</b>					
Continue Local Public Access Show "Talk About Needham"					
Issue One Storm Water Related Press Release Per Year					
Publish One Storm Water Related Article Per Year					
<b>Hazardous Waste Management</b>					
Surplus Paint Program Continuation					
Hazardous Waste Day Continuation					
<b>Public Involvement/Participation</b>					
<b>Adopt-A-Stream Programs</b>					
Advertise Via Public Service Announcements and Newspaper Articles					
Establish Adopt-A-Stream Groups (2) and Organize Information for Volunteers					
Clean Adopted Local Water Bodies					
CPCA Stream Team Adopt-A-Stream Program Continued					
<b>Stencil Storm Drains</b>					
Prioritize Areas to be Stenciled					
Stencil 50 Storm Drains Per Year					
Maintain Records of Stenciled Areas in Needham					
<b>Community Hotline</b>					
Establish Hotline Phone Number					
Print Phone Number in Brochures and Display on the Local Cable Show					
Residents Use Hotline and DPW Personnel Investigate Illegal Dumping Reports					
<b>Storm Water Committee</b>					
Establish Storm Water Committee					
Hold Annual Meetings					
Print Ideas and Discussions in Brochures and Flyers					
<b>Pet Waste By-Law</b>					
Post Signs Near Parks and Other Areas Where the Town By-law is Applicable					
<b>Illicit Discharge Detection and Elimination</b>					
<b>Outfall Testing Program</b>					
Follow-Up Testing in Eight Areas (Table 4-1)					
Analyze Results					
Study Performed for Area N10A-9					
<b>Illegal Dumping Education</b>					
See Minimum Control Measures #1 and #2					
<b>Septic System Controls</b>					
Continue Board of Health's Procedures					
Evaluate the Eight Testing Areas (Table 4-1) for Proximity to Septic Systems, Sanitary Sewers, and Groundwater Elevations					
Educate Residents About Septic System Maintenance					
<b>Construction Site Storm Water Runoff Control</b>					
<b>Policy and Procedure Review and Updates</b>					
Revise Existing Policies and Procedures					
Develop a Storm Drain Connection Permit Requirement					
<b>Construction Reviews</b>					
DPW Periodically Review Construction Activities					
<b>Post Construction Site Controls</b>					
<b>Policy for Post Construction Runoff</b>					
Develop a Town-Wide Policy to Implement Post Construction Site Storm Water Runoff					
Develop a Storm Drain Connection Permit Requirement					
Develop and Implement Standard Construction Details and Policies					
<b>BMP Inspection and Maintenance</b>					
Inspect All Town Maintained Structural BMPs Once a Year					
Document Problems With BMPs					
<b>Pollution Prevention/Good Housekeeping</b>					
<b>Predictive Catch Basin Program</b>					
Develop the Program					
Finish the Inspection Form					
Develop Structure Database to Enter Data about Catch Basins and Collect Data					
Refine Program Based on Formulated Trends					
<b>Street Cleaning</b>					
Sweep Streets Once Per Year					
Sweep Streets Twice Per Year					
Sweep All Town Parking Lots Once Per Year					
Document Amount of Collected Debris					
<b>Pipe Inspection</b>					
Analyze 10% of the Drainage System Per Year					
<b>Pipe Cleaning</b>					
Clean 4,750 Feet of Drainage Pipe Per Year					
Perform Jet Flushing on 19,000 Feet of Drainage Pipe Per Year					
<b>New Pipe and Structure Installations</b>					
Replace 475 Feet of Drain Per Year					
Replace 10 Catch Basins Per Year With Deep Sump Basins					
<b>Investigate Town Owned BMPs for Retrofit Opportunities</b>					
Inspect Three Structural BMPs Per Year					
Implement Two Retrofit Projects					
<b>Integrated Pest Management</b>					
Continue Current Program					