TOWN OF NORTH HAVEN, CONNECTICUT

STORMWATER MANAGEMENT PLAN

FINAL

June 2004

PREPARED BY:

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NORTH HAVEN STORMWATER MANAGEMENT COMMITTEE

The following individuals are acknowledged for their time and effort given for the development of the North Haven Stormwater Management Plan:

Committee Members

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EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) published the regulation entitled "National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Stormwater Discharges on December 8, 1999 as required by Section 402(p) of the Clean Water Act (CWA). This is commonly referred to as the National Pollution Discharge Elimination System (NPDES) Phase II program.

This Stormwater Management Plan (SWMP) for the Town of North Haven directly addresses the requirements of the NPDES Phase II program as implemented and administered by the Connecticut Department of Environmental Protection (CTDEP) as the regulatory authority for the State of Connecticut. The NPDES Phase II program is implemented by the CTDEP through the use of the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4).

Under the permit requirements, the Town of North Haven is required to develop and implement a stormwater management program that includes six minimum control measures, evaluation and reporting efforts, and recordkeeping. The stormwater management program must be designed with the overall goal of reducing the discharge of pollutants to the "maximum extent practicable", protect water quality, and satisfying the appropriate water quality requirements of the CWA.

The North Haven SWMP is composed of six required minimum control measures, each of which identifies best management practices and measurable goals:

- Public Education and Outreach
- Public Involvement/ Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management
- Pollution Prevention and Good Housekeeping

The SWMP was developed with the assistance of the North Haven Stormwater Management Committee. The built and natural environments were inventoried to assess the current status of land use, soils, watersheds, wetlands, and surface water quality. Municipal programs and policies were reviewed, including zoning ordinances, land development and subdivision regulations, and municipal activities and programs that have the potential to impact stormwater.

The **Public Education and Outreach Program** focuses efforts on on-going programs conducted by the Quinnipiac River Watershed Association (QRWA) and Connecticut Association of Soil and Water Conservation Districts, specifically the Southwest Conservation District, which includes North Haven. These programs are designed to educate local residents about stormwater management and cooperative programs with other public and non-profit organizations such as the Water Pollution Control Authority and the Conservation Commission. Targeted audiences are reached through various

activities including the QRWA's Active Watershed Education Program and development and distribution of brochures and fact sheets about pollutants of primary concern in North Haven.

The **Public Participation Program** invites the public to participate in the preparation and implementation of the SWMP. Efforts are centered on increasing volunteerism in storm water management activities and holding public hearings.

The **Illicit Discharge Detection and Elimination Program** includes storm sewer mapping and updating, development of a Storm Sewer Ordinance, and implementation of Standard Operating Procedures (SOPs) including outfall sampling and monitoring to detect and address illicit discharges. The Town has already identified most of the storm sewer system outfalls and has begun to prioritize areas that have the highest potential for illicit discharges. The Program also addresses training and public outreach to public employees, businesses and the general public of the hazards associated with illicit discharges.

The **Construction Site Storm Water Runoff Control Program** focuses on the review of the Town's existing Erosion and Sediment Control Ordinance, site plan review process, construction site inspection procedures, and the receipt of information from the public. The Town has found that most of its programs and policies meet the requirements of the General Permit.

The **Post-Construction Storm Water Management Program** includes a Storm Sewer Ordinance that requires the installation and proper maintenance of post-construction runoff controls and the development of a plan for the Town to address stormwater runoff during plan review, construction inspection, and the post-construction maintenance inspection process.

The last minimum control measure is the **Pollution Prevention and Good Housekeeping Program.** An Operations and Maintenance (O&M) Plan is to be developed that addresses activities associated with parks and open space, fleet and building maintenance, stormwater system maintenance, and road, highway, and parking lot maintenance. The Town currently meets many requirements of the General Permit regarding this control measure. New operations and programs are proposed as well as additional training of municipal employees.

A matrix summary of the minimum control measures, best management practices (BMPs) and measurable goals is included in Table ES-1.

The final sections of the SWMP establish procedures for evaluation and assessment of the plan, recordkeeping, stormwater abatement opportunities, and financing mechanisms to implement the SWMP.

North Haven Stormwater Management Plan
Summary of Best Management Practices and Measurable Goals

Best Management Practices		Measurable Goals	Implementation	Leader
2.0 Public Education and Outreach Program				
BMP 2A	In support of and partnership with the Quinnipiac River Watershed Association, educate the public on watershed dynamics and pollution loading issues.	• Each year, conduct a presentation to 600 students and distribute take-home materials. Teachers will evaluate program.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 2B	Distribute information on lawn fertilizer and pesticide use and impacts of overuse.	• Educate 400 households each year thereafter through brochures and fact sheets. • Information workshop	• Years 1-5 • Year 2	• Richard Branigan, Director of Public Works
BMP 2C	Reduce the impact of failing septic systems on the quality of water bodies in the Town of North Haven.	• Identify homes currently using septic systems. Educate 400 households per year through brochures and fact sheets. An information workshop will be held in year one.	• Years 1 to 5	• Richard Branigan, Director of Public Works
BMP 2D	Reduce nutrient loading through pet wastes and waterfowl wastes reduction.	• Post 4 signs throughout town. • Develop and distribute flyers.	• Year 4 • Year 4	• Richard Branigan, Director of Public Works
BMP 2E	Develop and maintain a library of educational materials on stormwater management	• Catalog and organize collected materials. • Establish library and make materials available to Town departments and staff. • Make the library available to the public and consultant community.	• Year 2 • Year 4 • Year 5	• Richard Branigan, Director of Public Works
BMP 2F	Alternate Information Sources – Website, Brochures, Small Posters	• Develop/ select a brochure, and develop a website. • Display brochure at town locations, make website accessible to public. • Evaluate website and make changes as required.	• Year 2 • Year 3 • Year 5	• Richard Branigan, Director of Public Works
3.0 Public Participation Program				
BMP 3A	Introduce the North Haven Stormwater Management Plan.	• Hold a public workshop to kick off the Public Education and Outreach Program.	• Year 1	• Richard Branigan, Director of Public Works
BMP 3B	Hold a public meeting to review Stormwater Management Plan.	• Hold a public meeting following all state and local requirements	• Year 1	• Richard Branigan, Director of Public Works
BMP 3C	Implement a Neighborhood Watch Program for stormwater management.	• Train 20 people per year as watchmen.	• Years 3-5	• Richard Branigan, Director of Public Works

Best Management Practices		Measurable Goals	Implementation	Leader
BMP 3D	Storm drain marking/ stenciling.	• Each year, stencil 40 storm drains using 5 volunteers.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 3E	Litter clean up.	• Each year, involve 20 people to participate in litter clean-up around local water bodies. • Conduct local clean-up activities on Earth Day	• Years 1-5 • Years 1-5	• Richard Branigan, Director of Public Works
4.0 Illicit Discharge Detection and Elimination Program				
BMP 4A	Develop and enforce an ordinance that prohibits illicit discharge and dumping and authorizes enforcement actions, including on private property that is consistent with existing land use control policies and regulations.	• Develop an ordinance.	• Year 1	• Richard Branigan, Director of Public Works
BMP 4B	Develop and implement a program in conjunction with existing public outreach activities to inform public employees, businesses, and the general public of hazards associated with illicit discharges.	• Develop an outreach program.	• Year 1	• Richard Branigan, Director of Public Works
BMP 4C	Create a storm sewer mapping system showing all known drain outfalls and receiving waters	• Map all stormwater discharges from a pipe or conduit with a diameter of 15" or greater • Map all stormwater discharges from a pipe or conduit with a diameter of 12" or greater	• Complete • Complete	• Richard Branigan, Director of Public Works
BMP 4D	Detect and address illicit discharges through Standard Operating Procedures (SOP).	• Develop SOP to detect illicit discharges. • Determine 50% of illicit discharges. • Eliminate 90% of illicit discharges. • Detect and address future illicit discharges.	• Year 2 • Year 3 • Year 3 • Year 4	• Richard Branigan, Director of Public Works
BMP 4E	Develop and implement a stormwater monitoring/ sampling plan.	• Each year take six samples of stormwater outflow including two in residential areas, two in industrial areas and two in commercial areas. Samples will be analyzed by a state approved laboratory.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 4F	Develop and implement a plan to detect and address future non-stormwater discharges.	• Develop procedures to implement the program.	• Year 5	• Richard Branigan, Director of Public Works
BMP 4G	Develop procedures to evaluate BMPs and measurable goals of the Illicit Discharge Detection and Elimination Program.	• Develop procedures to evaluate the program.	• Year 2	• Richard Branigan, Director of Public Works
5.0 Construction Site Stormwater Runoff Control Program				

Best Management Practices		Measurable Goals	Implementation	Leader
BMP 5A	Update existing Erosion and Sediment Control Ordinance to ensure compliance with General Permit, and the Sewer Use Ordinance.	• Review existing Erosion and Sediment Control ordinance and draft new ordinance if necessary to meet General Permit requirement. • Update existing Erosion and Sediment Control ordinance to meet General Permit requirement.	• Year 1 • Year 2	• Richard Branigan, Director of Public Works
BMP 5B	Notification of construction site developers and operators of the requirements for registration under the General Permit for the Discharge of Stormwater and Dewatering Associated with Construction Activities.	• Implement Registration Requirements for all projects exceeding 1 acre threshold by end of year one. • Continue Compliance with Registration Requirements.	• Year 1 • Years 2-5	• Richard Branigan, Director of Public Works
BMP 5C	Develop a plan that will require construction site operators to implement appropriate erosion and sediment control BMPs.	• Continue Requirements for construction site operators to implement appropriate erosion and sediment control BMPs.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 5D	Require construction site operators to control waste at the site.	• Continue Requirements for Construction Site Operators to Control Waste at the Site	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 5E	Review site plans prior to construction to ensure inclusion of erosion and sediment controls and post-construction controls in compliance with local ordinances and Connecticut Guidelines for Soil Erosion and Sediment Control.	• Continue to review all site plans subject to local ordinance and subdivision regulations.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 5F	Continue training or coordinate with existing training efforts to educate plan reviewers in erosion and sediment control BMPs and requirements.	• Annually train plan reviewers and attend any relevant training seminars.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 5G	Continue to inspect all construction sites during construction period that are regulated by local ordinance.	• Inspect all construction sites meeting CTDEP threshold criteria and not subject to a waiver. Inspection frequency will be based on prioritization criteria; however, all construction sites must be inspected at least once.	• Years 1-5	• Richard Branigan, Director of Public Works
6.0 Post-Construction Stormwater Management Program				
BMP 6A	Require through an ordinance the installation and proper maintenance of post-construction runoff controls for projects disturbing one acre or more of land.	• Incorporate into the Storm Sewer Ordinance requirements for implementation of post-construction runoff controls.	• Years 2	• Richard Branigan, Director of Public Works
BMP 6B	Develop and implement strategies which include a combination of structural and/or non-structural BMPs.	• Continue implementation of BMPs including projects with greater than or equal to 1 acre in disturbance area.	• Years 1-5	• Richard Branigan, Director of Public Works

Best Management Practices		Measurable Goals	Implementation	Leader
BMP 6C	Develop a plan to address post-construction stormwater runoff during the plan review, construction inspection, and post-construction maintenance inspection process.	• Develop and adopt a plan by the end of year five.	• Year 5	• Richard Branigan, Director of Public Works
7.0 Pollution Prevention and Good Housekeeping Program				
BMP 7A	Revise existing municipal maintenance activities and procedures to include new BMPs that reduce pollutants in stormwater.	• Develop a revised Operations and Maintenance (O&M) Plan by the end of year one. • Continue O & M requirements.	• Year 1 • Years 2-5	• Richard Branigan, Director of Public Works
BMP 7B	Develop and implement a training program for pollution prevention and good housekeeping practices for public employees.	• Annually train public employees and attend any relevant training seminars.	• Years 1-5	• Richard Branigan, Director of Public Works
BMP 7C	Implement catch basin cleaning and stormwater system maintenance pollution prevention and good housekeeping practices.	• Inspect and maintain, as needed, catch basins and other stormwater drainage system facilities based on a schedule described in the O&M Plan by the end of year five.	• Year 5	• Richard Branigan, Director of Public Works
BMP 7D	Implement a street sweeping program that evaluates and establishes priority areas as part of stormwater system maintenance pollution prevention and good housekeeping practices.	• All town roads will be swept based on a schedule described in the CTDEP General Permit, which will be incorporated into the Town's O&M plan. • All town roads will be swept once a year, with priority areas being swept in greater frequency as required.	• Year 1 • Years 2 to 5	• Richard Branigan, Director of Public Works

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1.0 INTRODUCTION

1.1 Background and Regulatory Context

The United States Environmental Protection Agency (EPA) published the regulation entitled "National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Stormwater Discharges on December 8, 1999 as required by Section 402(p) of the Clean Water Act (CWA). This is commonly referred to as the National Pollution Discharge Elimination System (NPDES) Phase II program.

The Phase II program requires all municipal separate storm sewer systems (MS4s) to obtain NPDES permit coverage, or to obtain discharge permits from the local permitting authority, and establish a stormwater management program intended to improve water bodies by reducing the quantity of pollutants entering storm sewer systems during storm events. MS4s are considered point sources of pollution because they discharge stormwater into discrete conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains. MS4s are publicly owned, operated, and designed or used for collecting or conveying stormwater.

EPA categorizes MS4s as small, medium or large, based on the population of an incorporated area. The Phase II program covers medium and large MS4s, where medium MS4s are in incorporated areas with populations between 100,000 and 249,999, and large MS4s are in incorporated areas with populations over 250,000. A small MS4 is one that is not already defined as medium or large. The Phase II program covers a subset of small MS4s that are called regulated, small MS4s, which are automatically designated if they are located in urbanized areas (UAs) as defined by the Bureau of the Census [areas that are comprised of one or more places (central places) and the adjacent densely settled surrounding territory (urban fringe) that together have a minimum of 50,000 persons].

In Connecticut, the NPDES permitting Authority is the Connecticut Department of Environmental Protection (CTDEP). CTDEP's General Permit for the discharge of stormwater from small MS4s (General Permit) was issued January 9, 2004. The Town of North Haven is listed by the CTDEP as an urbanized area and therefore is required to obtain permit coverage. Under the regulations, the Town of North Haven is required to develop and implement a stormwater management plan (SWMP) that includes six minimum control measures, evaluation and reporting efforts, and recordkeeping. The SWMP must be designed to:

- Reduce the discharge of pollutants to the "maximum extent practicable",
- Protect water quality, and
- Satisfy the appropriate water quality requirements of the CWA.

The North Haven SWMP is composed of six required elements, or minimum control measures, as follows:

- Public Education and Outreach
- Public Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management
- Pollution Prevention and Good Housekeeping

As required for each control measure, best management practices (BMPs) are listed followed by measurable goals to gauge program effectiveness. Each control measure is specifically tailored to meet the needs and special circumstances of the Town of North Haven. A timeline for implementation of the programs as well as staffing and coordination to make the programs successful is also discussed. The SWMP also provides a system for evaluation and assessment reporting.

A summary matrix of the recommended BMPs and measurable goals in included in Appendix H.

1.2 Stormwater Management Committee

A Stormwater Management Committee was assembled to direct the development of the North Haven SWMP. The committee consisted of members representing the Department of Public Works, Planning Department, and Engineering Department. They were charged with the task of overseeing the consultant and generating public interest in the plan to ensure its success.

1.3 Existing Conditions

Existing conditions in the Town were analyzed in order to gain a better understanding of the Town's current situation with respect to existing water quality and complying with the General Permit. The built and natural environments were inventoried to assess the current status of land use, soils, watersheds, wetlands and surface water quality. Additionally, municipal programs and policies were examined to identify and, if necessary, change existing programs and practices that are or could be impacting water quality. The following discusses the results of these inventories and analyses.

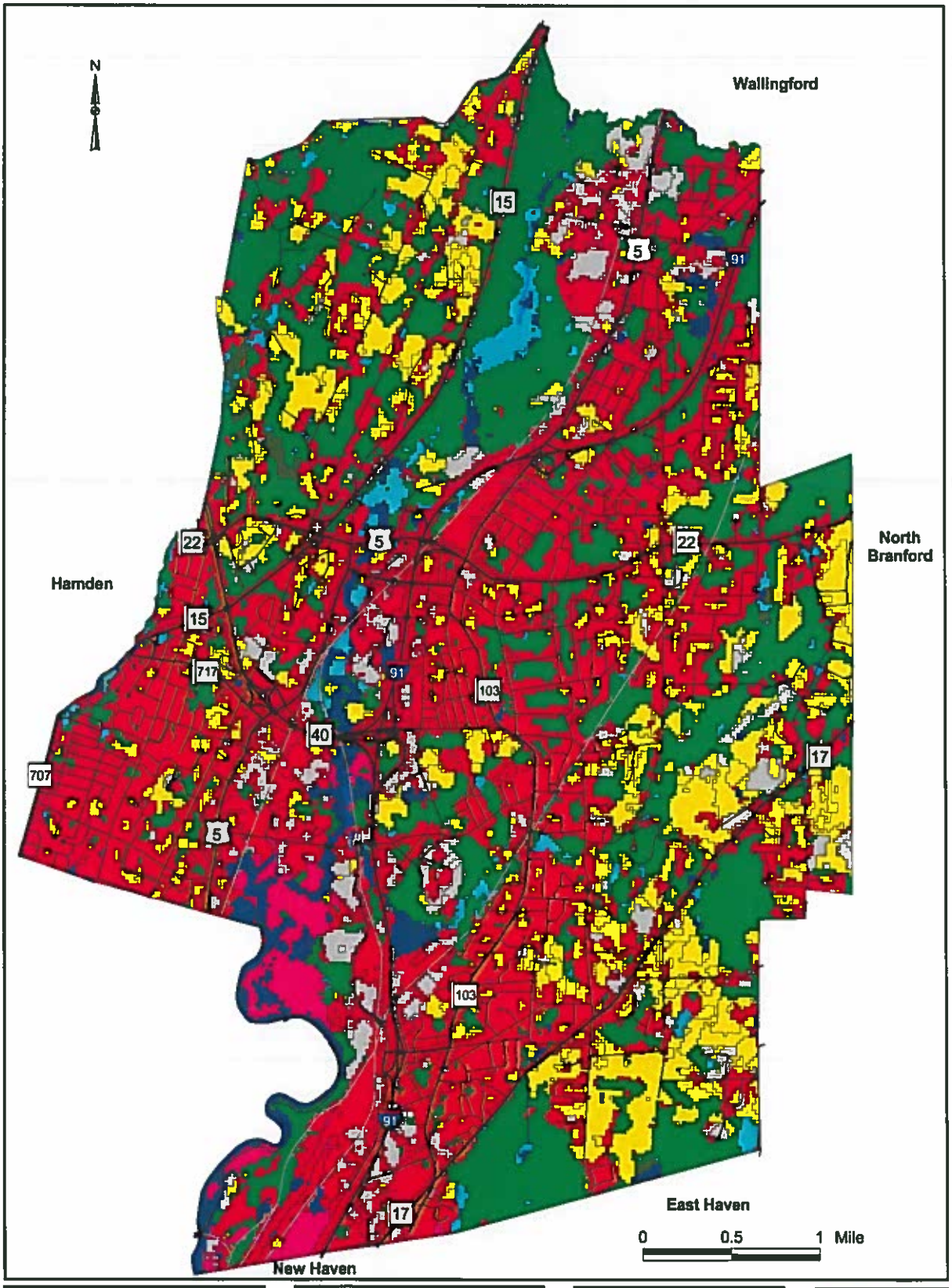
1.3.1 Built and Natural Environments

Land Use, Impervious Surfaces, and Developed Land

Analyzing the land uses, impervious surfaces and developed land in town assists in identifying potential point source and non-point source pollutants. Point source pollutants come from a known destination, usually a permitted industrial or commercial activity. Non-point source pollutants are from any diffuse sources, usually runoff that picks up and carries away natural and man-made pollutants to receiving waters. Some examples of non-point sources include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks; and
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems.

As shown on Figure 1 – North Haven Land Cover, approximately one quarter (27%) of the land area of North Haven is forested, either coniferous or deciduous, and about one quarter (28%) medium density housing, which the University of Connecticut's Map and Geographic Information Center (MAGIC) defines as residential neighborhoods with residential streets and houses with lawns. About 17% is composed of areas that potentially have a high stormwater runoff yield such as impervious surfaces and roofs, high density development, roadways and barren land. Grass areas and bare soil have the potential to produce high volumes of stormwater runoff and they account for 19% of the Town's land area, including crop lands that have bare soil or undifferentiated grasses during dormant seasons.



LOCATION MAP

Land Cover

Stormwater Management Plan
North Haven, Connecticut
2004

Source: CTDEP GIS CD/ CTDOT

LEGEND

- CONIFEROUS FOREST
- DECIDUOUS FOREST
- OTHER GRASSES & AGRI.
- BARREN LAND
- TIDAL WETLAND
- DEVELOPED
- TURF & GRASS
- WATER
- FORESTED WETLAND
- NON-FORESTED WETLAND
- ROAD

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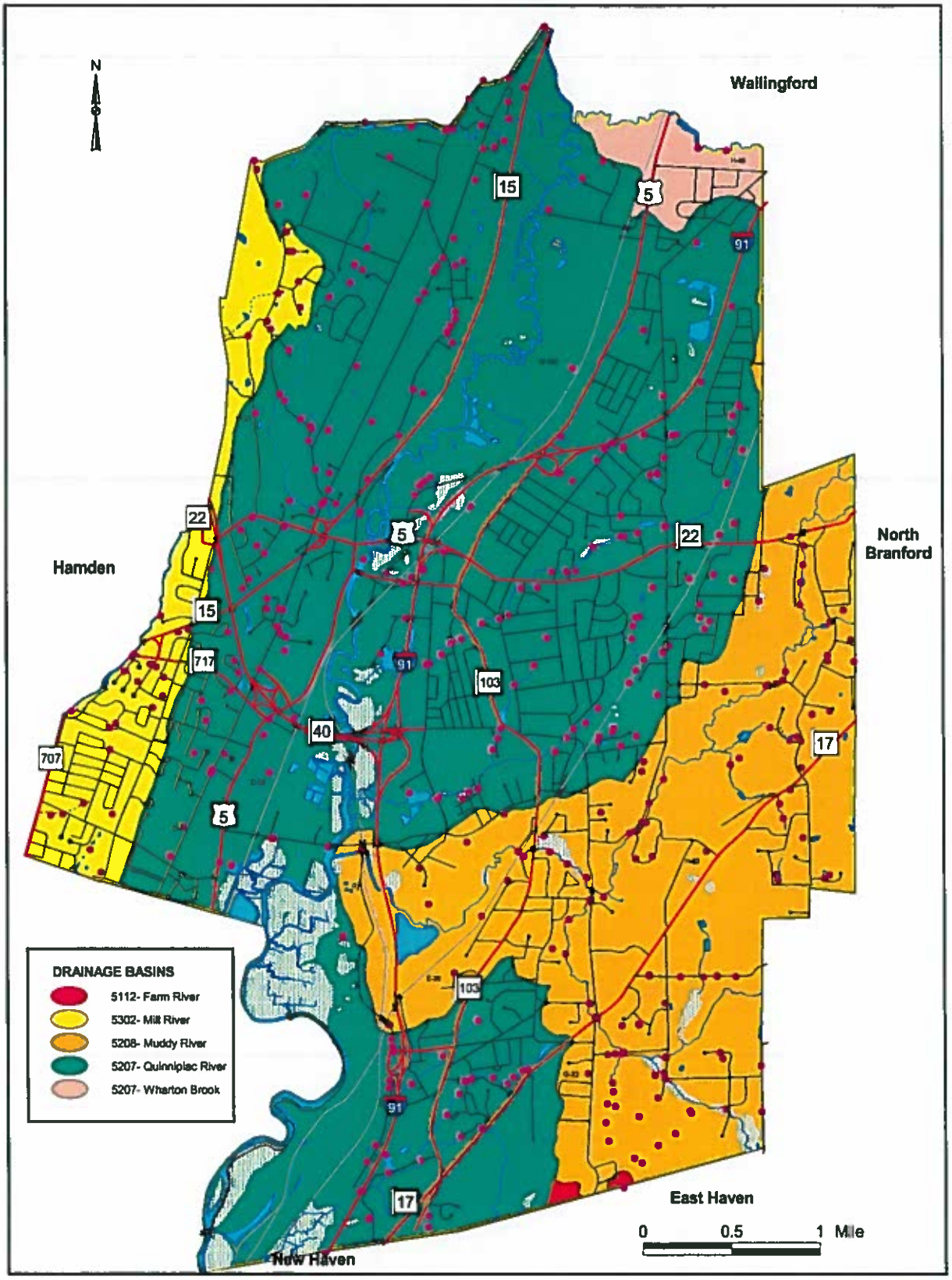
Figure 1

Watersheds

More than half (66%) of the Town is located in the Quinnipiac River Drainage Basin (Figure 2 – Drainage Basins). Most of the impervious surfaces and high-density development of Town are within this drainage basin. Other basins within the Town boundaries are those for the Farm, Mill, Muddy, and Wharton Rivers. Most of the soil and grass land use categories are located within the Muddy River Drainage Basin.



LOCATION MAP

Drainage Basins

Stormwater Management Plan
North Haven, Connecticut
2004

Source: CTDEP GIS CD/ CTDOT

LEGEND

- Outfall Location
- Town Road
- State/ US Route
- Surface Water
- Stream
- Marsh

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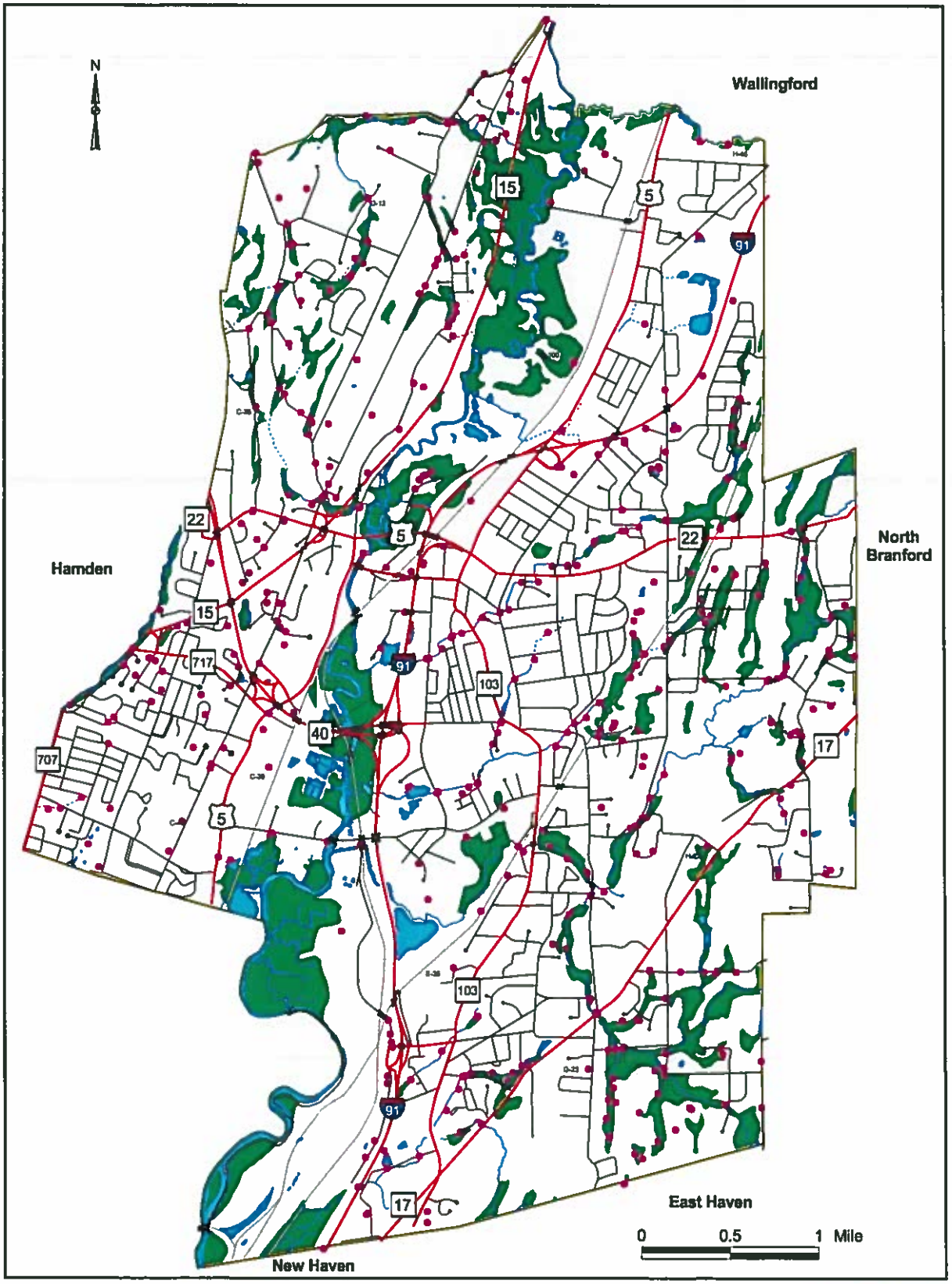
Figure 2

Soils and Wetlands

Soil types and wetlands have an impact on the runoff potential of stormwater. The drainage characteristics of soils, as classified by the Soil Survey Geographic (SSURGO) database, affect the absorption, or infiltration, of runoff, and subsequently, the amount of runoff reaching a receiving water body. Wetlands retain water from either rainfall or runoff and feed water sources. They provide many functions and values including trapping pollutants, providing wildlife habitat, retaining stormwater for flood protection, and other aesthetic and recreational functions.

Figure 3 shows wetlands soils in North Haven, which are also classified as hydric. The Natural Resources Conservation Service defines hydric soils as those that form under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are also included. Additionally, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. The hydric soils in North Haven are concentrated around the Quinnipiac River, and classified as floodplain and tidal marsh soils.



LOCATION MAP

Hydric Soils

Stormwater Management Plan
North Haven, Connecticut
2004

Source: CTDEP GIS CD/ CTDOT

LEGEND

- Outfall Location
- Town Road
- State/ US Route
- Surface Water
- Stream
- Hydric Soil

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Figure 3

Surface Water Quality

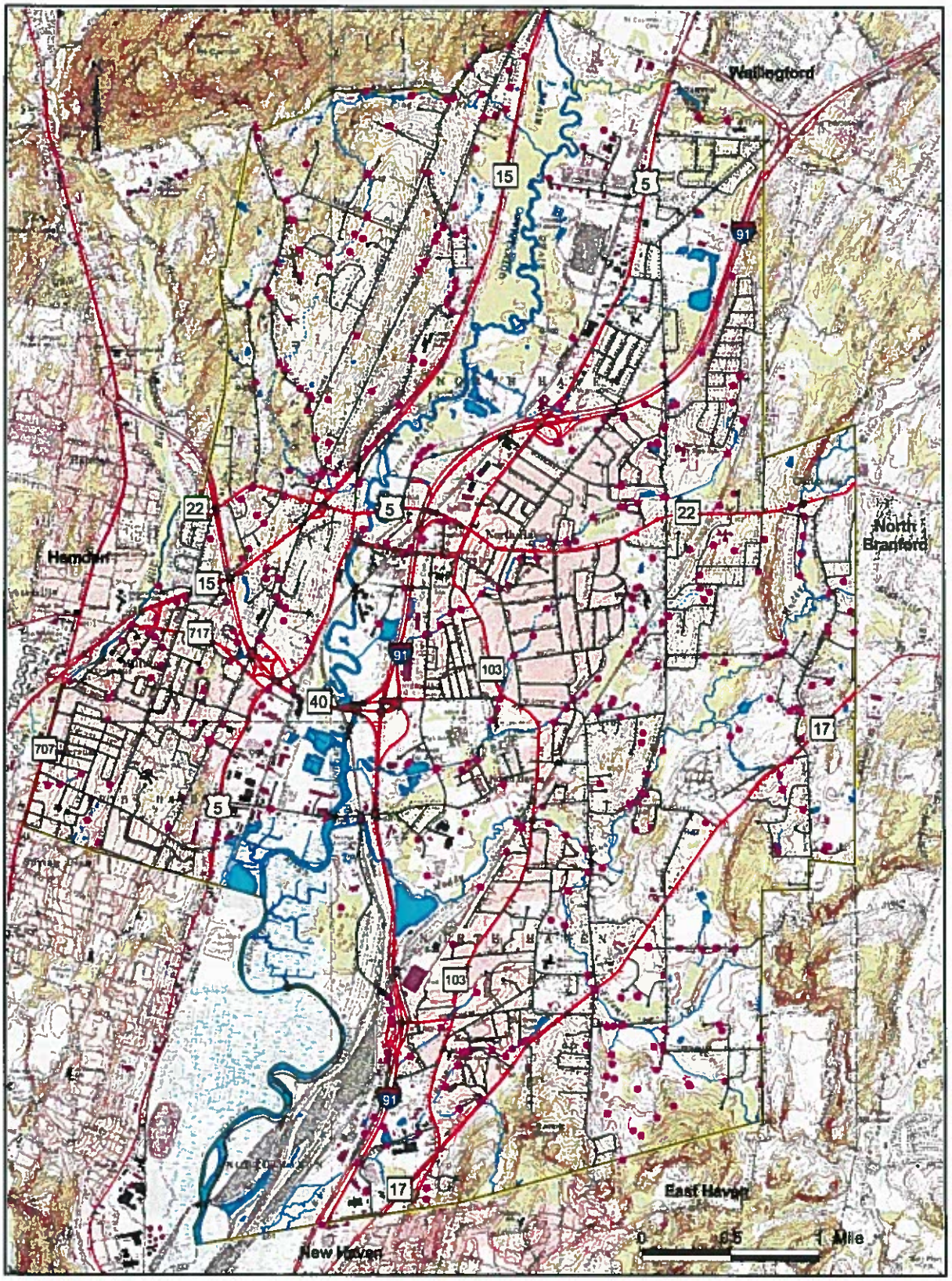
Knowing the condition of receiving waters and their designated uses allows the design of the SWMP to address the specific needs of North Haven and water resources in town that need to be protected. In accordance with Section 305(b) of the CWA, the State of Connecticut is required to survey water quality for attainment of the fishable/swimmable goals of the CWA, and to report the findings in the biennial "State of the State's Waters Report". The State of Connecticut 2002 "State of the State's Waters Report" and the 303(d) State of Connecticut 2002 List of Impaired Waters (Draft), both prepared by CTDEP, were used to assess surface water quality in the Town of North Haven. Both reports evaluated state waters based on their designated uses: aquatic life, drinking water supply, shellfishing, fish consumption, and swimming. From these reports, we were able to gather the following information about surface waters in North Haven:

- The names and locations of waters that receive a discharge;
- The character and quality of waters;
- Waters that are impaired; and
- The designated uses of waters.

There are two waterbodies in North Haven listed by CTDEP as being impaired or not currently meeting Connecticut Water Quality Standards based on biological or chemical data: the Quinnipiac River from Route 5 north into the Town of Wallingford, and Edgewood Park Pond along the eastern bank of the West River near Chapel Street.

Topography

The Town of North Haven is mostly uplands as shown on Figure 4. Examining the topography of the area shows the direction in which water flows and identifies the receiving water body. This assists in tracking pollutants. North Haven has a hilly terrain with wetlands and brooks in the lower points. Most of the surface water from the central area of Town flows north to the Blackstone River. In the outer-lying areas, surface water moves in a fan-like shape into neighboring municipalities.



LOCATION MAP

Topography

Stormwater Management Plan
North Haven, Connecticut
2004

Source: CTDEP GIS CD/ CTDOT

LEGEND

- Outfall Location
- Town Road
- State/ US Route
- Surface Water
- Stream

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Figure 4

1.3.2 Municipal Programs and Ordinances

Municipal programs and ordinances are regulatory tools than can either enhance or negatively impact water quality. Looking at local practices gives the Town the opportunity to identify strengths and weaknesses in stormwater management.

Zoning

The Town currently has in place a Soil Erosion and Sediment Control Ordinance (Appendix A) that requires that any project that will disturb existing vegetation, grades and contours of land in a manner that will increase the potential for soil erosion must apply for a determination of applicability from the Town Official. In making this determination, the Town Official considers topography, drainage pattern, soils, proximity to watercourses, and other information deemed appropriate. Specific activities that do not require a determination of applicability include:

- Existing quarry operations engaged in excavating rocks, but shall apply to sand and gravel operations
- Construction, alteration, or use of any additions to existing single and multi-family dwellings, provided the grounds coverage of the addition is less than 1,000 square feet, does not occur with 100 feet of any watercourse, and slopes at the site of land disturbance do not exceed ten percent
- A home garden
- Accepted agricultural practices
- Excavations for improvements other than residential that meet specific characteristics outlined in the ordinance
- Grading for maintenance or landscaping purposes on existing developed land, provided specific conditions described in the ordinance are met

Upon determination of applicability, the applicant must submit an erosion and sedimentation control plan to be reviewed by the Town Official. The plan must contain sufficient information about the proposed activities and land parcel(s) as well as clearly demonstrate how performance principles are met. Performance principles include the following:

- There is regard for natural drainage characteristics and topography.
- Areas with slopes exceeding 10 % are avoided/ minimized.
- Minimized slope grades.
- An increase in storm runoff must be controlled on-site, and retained and recharged as close as possible to its place of origin using detention ponds or basins, seepage areas, subsurface drains, porous paving or similar techniques.
- The original boundaries, alignment and slope of watercourse within the project area must be preserved to the greatest extent possible.
- Drainage facilities must be installed as early as possible during construction and prior to site clearance.

- Fill adjacent to watercourses must be protected from erosion by the use of riprap, gabions, retaining walls, vegetative stabilization or similar measures.
- Temporary vegetation and/or mulching must be used to protect bare areas and stockpiles from erosion during construction.
- Permanent vegetation must be in place immediately following final grading.
- Existing trees and other vegetation must be retained whenever possible.
- Areas damaged during construction must be re-sodded, reseeded, or otherwise restored.

Additionally, the *Connecticut Erosion and Sediment Guidelines* must be used as a reference in determining BMPs for the suitability and adequacy of Erosion and Sedimentation Control Plans. The ordinance also includes provisions for a fee schedule, periodic and final inspections, complaint procedures and penalties for non-compliance.

Subdivision Regulations

The North Haven Subdivision Regulations, adopted August, 1948 have several elements that support the SWMP and will assist in its implementation. Generally, all subdivisions are subject to review by the Planning Board, Technical Review Committee, and all appropriate local, state, and federal agencies (major subdivisions) as well as to a public hearing.

Submission requirements that relate to stormwater management shall include a site plan, a drainage plan, an erosion and sediment control plan, a soils map, and a landscaping and grading plan (if required). Site plans must show, among other items, contour lines, existing vegetation, wetlands and water bodies, and base flood elevations. The regulations require developers of major subdivisions, major land development projects, or construction other projects to develop a Drainage Plan and an Erosion and Sediment Control Plan. Drainage plans must include specifics regarding natural drainage patterns, destination of continuous drainage, and the incorporation of BMPs for non-point source pollution control and the design guidelines of the CTDEP Stormwater Quality Manual. Erosion and Sediment Control Plans shall meet the requirements of the Erosion and Sediment Control Ordinance. The applicant is charged a fee for the cost of engineering review of this plan.

Landscaping standards of the subdivision regulations require developers to make every effort to retain the natural landscape and terrain of the area. Materials should be appropriate for the local environment, soil conditions, and availability of water. The use of native grasses or groundcover that require minimum watering and fertilization is encouraged, particularly in areas that are ecologically sensitive.

Design standards are another element that supports the SWMP. The drainage system of the development must have natural and/ or man-made elements, including grass swales, retention and detention basins, curbs, catch basins, culverts, and stormwater pipes. The natural drainage pattern should be maintained whenever possible. The proposed drainage system shall be designed to accommodate stormwater flows such that post-construction

conditions result in a zero net increase in runoff from pre-construction and pre-development conditions.

Additionally, inspection of development project construction sites are scheduled with the Director of Public Works at various stages. Inspection fees are imposed based on the total cost of the project.

2.0 PUBLIC EDUCATION AND OUTREACH PROGRAM

2.1 Advantages/ Benefits

An informed and knowledgeable community is crucial to the success of a stormwater management program. It ensures greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. Public support is particularly beneficial when towns attempt to institute new funding initiatives for the program or seek volunteers to help implement the program. An informed and knowledgeable community also ensures greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions to protect or improve the quality of area waters.

2.2 Requirements

The General Permit requires the Town implement a Public Education and Outreach Program to distribute educational materials to the community, or conduct equivalent outreach activities about the impacts of stormwater discharges on state water bodies and the steps that can be taken to reduce stormwater pollution.

The Public Education and Outreach Program should take advantage of stormwater educational information provided by EPA, the state, or other environmental, public interest, or trade organization if available. The program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children.

2.3 Best Management Practices

There are three major components included in the Public Education and Outreach Program for North Haven. These include:

1. Public meetings, workshops and hearings conducted during and after the preparation of the plan.
2. An on-going program conducted by the Quinnipiac River Watershed Association (QRWA) to educate Town residents on the importance of stormwater management in the community.
3. Public stormwater management education through cooperative programs with other public and non-profit organizations.

2.3.1 Public Outreach

The following efforts were put forth during the development of the SWMP: A public meeting was conducted during the preparation of this Phase II SWMP on March 26th 2004, concurrently with an open meeting sponsored by the Water Pollution Control

Authority (WPCA). The committee also met on several occasions while the SWMP was being prepared. Outreach mechanisms, including notices in the Town Hall, and word-of-mouth were used to generate interest in the plan.

The following items are of primary concern to the community and will be supplied as public information:

- *Impact of lawn fertilizers and pesticides* – increased development and the desire for a perfect lawn.

- *Septic system operation and maintenance* – Over 30 % of the residences in the Town of North Haven use septic systems or cesspools for treatment of wastewater resulting in a concern for potential contamination of groundwater that is a source of drinking water for many private homeowners.

- *Waterfowl* – There is a large waterfowl population at Town parks, golf courses and other open water areas. These areas can be targeted to reduce the potential for bacteria contamination.

- *Litter* – North Haven is a Town that prides itself in its appearance and recognizes the dangers of clogged drainage due to unsightly litter deposits.

- *Petroleum Products* – The Town's service stations could improve operations and reduce stormwater contamination by periodic clean-ups of areas around the gas pumps. Education of management and staff could have positive results.

- *Pet Wastes* – The US census report states that one out of every three homes has pets. Many homeowners may not be properly disposing of pet wastes.

- *Tree Plantings* – Trees benefit the community in many ways, including soils stabilization, filtration of groundwater, and providing buffers to stream banks.

Target audiences for the education campaign chosen by committee include:

- *Elementary School Students* – Grade school students have been chosen as a target audience because of their importance in society. Students are our future and a well-educated student will grow up to be a valuable, community-minded citizen. In addition, training students initiate a domino effect. The QRWA and Southwest Conservation District will be contacted to provide the students with brochures, facts sheets and other interesting and informative take-home materials that will also serve to educate parents in the process. Today's society is competing for the attention of decision-making adults, and while many adults do not have time to attend to all deserving causes, they will tend to listen to what their child has learned in school.

- *Adult Stakeholders* – It is in the best interest of all property owners to invest in the environmental quality of their surroundings as this will also affect their quality of life

and property values. Through brochure distribution, workshops, direct mailings, media, and word-of-mouth, adults will become more aware of the impacts that their actions may have on water quality.

- *Senior Citizens* – Senior citizens are often the overlooked members of communities. Seniors have significant wisdom, concern and time available to assist in worthwhile projects.

2.3.2 Public Education Programs

The Town will continue in partnership with the local, non-profit, state and federal entities to complete the tasks of education and outreach to the public. These partners include but are not limited to:

> The **QRWA** has been involved in water quality education since its founding in 1979. The primary goal of the QRWA is to increase public awareness of the Quinnipiac River as a valuable natural resource. The QRWA has successfully cooperated with residents and businesses throughout the Quinnipiac River Basin in the following programs/initiatives:

- Conduct educational programs and conservation lectures
- Offer guided canoe and hiking trips
- Advocate for strong wetland protection and limited water diversion in the basin
- Encourage residents to report potential problems in the river through the River Watch program
- Sponsor Adopt-A-River citizen action programs such as river clean-ups
- Stream water quality monitoring
- Annual trout stocking and fishing derby
- Encourage recreational use of the river
- Sponsor wildlife and invasive species management and monitoring projects
- Support appropriate state programs and legislative initiatives
- Cooperate with other watershed and river-focused NGOs

(Source: http://www.qrwa.org/aboutus.html)

> The **Girl Scouts of America** have a new achievement badge initiated in conjunction with the EPA called the "Environmental Health" badge. Young girls learn about the relationship between clean water, safe fishing, clean air, and asthma.

> The **Boy Scouts of America** offer a "Soil and Water Conservation" achievement badge for their members.

> The **Southwest Conservation District** is a non-profit, conservation agency established in 1946 conforming to a state law for the protection of land and water resources to improve the quality of life for all in southwest Connecticut.

These organizations assist in educating our youth and the community about the means by which pollutants can travel through a watershed, the importance of pollution reduction, and the role the public can play in this effort. Additional resources available to the Town to perform public education and outreach include local access cable television and the Town's websites.

Pending continued funding, each third grade class in the Town of North Haven will be given the opportunity to receive a 1½-hour presentation with hands-on activities. Informative materials and brochures will be distributed to each student to take home to their parents and will include the following information: *"What is a Watershed?", "Non-point Source Pollution", and a fact sheet, "What can I do to reduce flow and improve water quality in the Town of North Haven?"* Also included will be a map delineating the local watersheds.

BMP 2A – In support of and partnership with QRWA continue to implement an outreach and education program, educating the public on watershed dynamics and pollution loading issues.

Measurable Goal: 600 students per year will receive a presentation and/ or take-home materials. Teachers will evaluate program.

Homeowners will be reached through the distribution of brochures and a workshop. Brochures will be sent home with students from elementary schools and through a new "Neighbor to Neighbor" program. This program will identify all new residents in the Town of North Haven and an information packet will be mailed to them that will aid in protecting water quality. A workshop will be held to demonstrate proper measuring techniques for fertilizers and pesticides as well as organic techniques for gardens and lawns. The North Haven Conservation Commission in cooperation with QRWA will be responsible for this BMP.

BMP 2B – Distribute information on lawn fertilizer, pesticide use, impacts of overuse, and other household contaminants

Measurable Goal: Educate 400 homeowners per year through brochures and facts sheets in years one and two, and information workshop for homeowners will be held in year two.

Over 30% of the homes in the Town use septic systems. A list of these homes will be prepared by the Town Tax Assessor in conjunction with the Town Engineer's Office. Pending availability of funds, an information packet will be prepared and distributed. Using the Neighbor to Neighbor program and the elementary school element of BMPs 2A and 2B, homeowners will receive fact sheets on proper septic system operation and maintenance. A septic system operation and maintenance workshop will be held with experts from the University of Connecticut Cooperative Extension as speakers and demonstrators. The Town will be responsible for this BMP, with the anticipated cooperation between the Conservation Commission and QRWA.

BMP 2C – Reduce impact of failing septic systems and their effect on the quality of water bodies in the Town of North Haven.

Measurable Goal: Identify homes currently using septic systems. Educate 400 homeowners per year through brochures and fact sheets. An information workshop will be held in year one.

The majority of runoff channels, ponds, streams and small rivers in North Haven drain into and contribute to the Quinnipiac River. These sources are of prime concern for reducing nutrient loading particularly from geese and other waterfowl. These water bodies will have signs posted warning residents not to feed the geese. Since some people enjoy feeding wildlife and may be hesitant to comply, the signage program will clearly explain the effects of nutrient loading on water quality. Brochures will also be developed and distributed.

The rescue shelter, Animal Haven Inc., located on the Muddy River and the Town's animal pound will be evaluated as potential sources of animal waste that could affect water quality.

BMP 2D – Reduce nutrient loading through pet wastes and water fowl wastes reduction.

Measurable Goal: Post four signs in the Town; Develop and distribute flyers by the end of year four.

2.3.3 Sources for Public Information

A library of educational materials will be developed and maintained at the Public Works Department at the Town Hall Annex. The library will consist of data, information, fact sheets and guidelines pertaining to stormwater management. This library of information will be available to the department's employees and available to the public and consultant community on request. Copies will also be distributed to other Town departments and the Town Library. Collection of materials and resources will occur during the first and second years, cataloged / organized in the third year, and the materials in the library being made available in the fourth year.

The benefit of this BMP is that a library of information relating to stormwater management and quality will be available for Town employees and the public for reference.

The North Haven Department of Public Works would be responsible for this BMP.

BMP 2E – Develop and maintain a library of educational materials on stormwater management

Measurable Goals: Collect data and information by the end of year one.

Measurable Goals: Catalog and organize collected materials by the end of year two.

Measurable Goals: Distribute library of educational material to staff employees of Town departments by the end of year four.

Measurable Goals: Make the library of educational materials available to public and consultant community by the end of year five.

A website will be developed that addresses the effects of stormwater quality on the environment. The website will be a part of the Town's web page and will be available to the public and Town personnel by means of internet access. The website will be developed during the first and second year of the program with access to the public and Town personnel beginning in the third year of the program. Links to additional websites including CTDEP, EPA and other stormwater resources will be incorporated into the web site.

An informative brochure or poster to be placed in key locations, such as the Town Hall, Annex Building, Town Library, Post Office, and other Town locations. This brochure will be developed to heighten awareness on the effects of stormwater quality on the environment. The brochure or poster will be developed during the first and second year of the program with distribution and placement of the display in the third year. In a less customized but effective approach, the brochure can be supplemented with electronic and paper-based educational pamphlets, posters, and brochures provided by the EPA.

The benefits associated with these BMPs include creating awareness and making information available to a very large, diverse audience. A web site will take advantage of current technology reaching an audience using internet access, while brochures and posters will provide program awareness to users/patrons of facilities at various Town locations. The Town of North Haven Department of Public Works will be responsible for coordinating the efforts of this BMP.

BMP 2F – Alternate Information Sources – Website, Brochures, Small Posters.

Measurable Goals: Develop/ select a brochure, and develop a website by the end of year two.

Measurable Goals: Display brochures/posters at Town locations, i.e. Town Hall, public library and other public facilities; develop website and make website accessible to public by the end of year three.

Measurable Goals: Evaluate website and make changes as required, years three through five.

3.0 PUBLIC PARTICIPATION PROGRAM

3.1 Advantages and Benefits

The public can provide valuable input / assistance to a stormwater management program, and, therefore, it is recommended that the public be given opportunities to participate in both the development and implementation of the SWMP. An active and involved community is crucial to the success of a stormwater management program. A broader base of expertise and economic benefits is tapped since the community can be a valuable, and free, intellectual resource. Public participation can also provide a conduit to other programs as citizens involved in the stormwater program development process can provide important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a stormwater program on a watershed basis.

3.2 Requirements

The General Permit requires the Town to comply with applicable state and local public notice and Freedom of Information requirements. The Town should include the public in developing, implementing, and reviewing their stormwater management programs. The Public Participation Program should make every effort to reach out and engage all economic and ethnic groups.

3.3 Best Management Practices

As noted above, a public meeting was conducted in which the preparation of this plan was revealed to and discussed with the public.

Although Public Involvement/ Participation Program is a separate element, it is closely linked with Public Education and Outreach and will therefore show some overlap. The Town will work to develop partnerships with existing organizations that share a common goal of the education and involvement of the public in stormwater management. With this supporting participation, the Town will implement a strategy for Public Involvement and Participation. These partners include but are not limited to:

- **QRWA** – As outlined under Education and Outreach, the QRWA will provide support and assistance where possible to assist the Town.

- **The CTDEP** is a primary sponsor of the Earth Day-cleanup activities. They provide media coverage, bags, and gloves and coordinate many entities and volunteers throughout the State of Connecticut.

- **USDA, Natural Resources Conservation Service** – Funding agency for Wildlife Habitat Incentives Program that assists in riparian buffer installations.

- **Audubon Society of CT**

- **North Haven Conservation Commission**
- **Southwest Conservation District**
- **Boy Scouts of America**
- **Girl Scouts of America**
- **YMCA**

3.3.1 Introduce the SWMP

Public participation activities will include:

A public workshop will be scheduled with QRWA and Town officials to introduce the SWMP. The presentation will show the importance of stormwater management, the need to protect water quality, and specific measures of those individuals and families can take to improve management of stormwater runoff. The community representation will assist the public in understanding the impact of stormwater discharges on water bodies, the public will receive information concerning watershed dynamics, pollution loading, and practical ways they can aid in reducing the detrimental impacts that the community has on water quality. Community members will be educated about stormwater flow and how increasing the number/amount of impervious surfaces and direct drainage can impact water bodies.

BMP 3A – Introduce the North Haven SWMP to the public.

Measurable Goal: Hold a public workshop to kick off the Public Education and Outreach Program in year one.

3.3.2 Public Meeting

Upon completion of the SWMP, a public meeting will be held complying with all state and local public notice requirements.

BMP 3B – Public hearing to present the SWMP.

Measurable Goal: Public notification, hold hearing in year one.

3.3.3 Neighborhood Watch

Local seniors are (sometimes) an untapped and underused resource in the community and can offer their wisdom, experience, time and concern. The Town Planner in conjunction with the Recreation Director will oversee the training of seniors who volunteer to participate in the stormwater management program. Seniors will be asked to note any

unusual or suspicious behavior in their neighborhood that may affect water resources (i.e. illicit discharges, etc.) and to report these actions to the Department of Public Works.

BMP 3C – Implement Neighborhood Watch

Measurable Goal: 20 people trained and signed on as watchmen. Years three thru five

3.3.4 Storm Drain Marking/ Stenciling

Often, some members of the general public are under the mistaken impression that storm drains lead to a sewage treatment plant and therefore their (direct or indirect) disposals in these drains would be filtered/treated. Marking or stenciling storm drains with informative phases such as, "Do Not Dump! Drains to River!", would inform/educate the general public. The public would be informed that drains are directly linked to nearby water bodies and therefore, water degradation is likely to occur from improper (and/or illicit) discharges to the storm drains. Media coverage of storm drain marking teams can also serve to educate the public. People who volunteer will not only become more aware of stormwater issues but also be able to inform others as to importance of preventing illicit discharges to storm drains.

Figure 5 - CTDEP Storm Drain Stencils

The Town will also encourage participation in CTDEP's existing Storm Drain Marker Program and will make Storm Drain Marker Kit Application Forms, included in Appendix B, available to the public and groups. The Town will also make available and distribute CTDEP's Storm Drain Marker Educational Brochures (Appendix B) at public meetings and Town facilities.

BMP 3D – Storm drain marking/ stenciling

Measurable Goal: 40 storm drains stenciled; 5 volunteers involved in stenciling. Years one thru five

3.3.5 Litter Cleanup

The Town will coordinate with the QRWA, local business association, Boy Scout and Girl Scout troops and other community organization to organize cleanup events focusing on the Quinnipiac River. The QRWA currently implements an annual "Q-River Cleanup from Source to Sound" event (Appendix C) that could become part of a cooperative effort to focus on the North Haven segment of the Quinnipiac River. A list of existing Earth

Day events within the Quinnipiac Watershed and the Town of North Haven will also be developed. The Town would contribute to and work with these and other cleanup activities to take advantage of the publicity, energy and volunteerism sparked by Earth Day and local events to plan/conduct cleanups. The Conservation Commission will oversee these activities. Earth Day grants available through the CTDEP will be applied for as a source of potential funding.

BMP 3E – Litter cleanup

Measurable Goal: Work with the QRWA and other community organizations to participate in cleanup events focusing on the Quinnipiac River. Involve the North Haven Conservation Commission and 20 volunteers by year five.

4.0 ILLICIT DISCHARGE DETECTION & ELIMINATION PROGRAM

4.1 Advantages/ Benefits

Federal regulations define an illicit discharge as any discharge to an MS4 that is not composed entirely of stormwater. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-stormwater wastes. Sources of illicit discharge include:

- Sanitary wastewater
- Effluent from septic tanks
- Car wash wastewater
- Improper oil disposal
- Radiator flushing disposal
- Laundry wastewater
- Spills from roadway accidents
- Improper disposal of auto and/or household toxics

Illicit discharges enter the stormwater system through either direct connections (e.g. wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g. infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint, used oil, or other potential contaminant dumped directly into a drain). The result is untreated discharges that contribute to high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

4.2 Requirements

The General Permit requires the Town to develop, implement and enforce an Illicit Discharge Detection and Elimination Program. Components of the program include the creation of a storm sewer system map that identifies the location of all outfalls and the names and locations of all state waters that receive discharges from those outfalls. Additionally, an ordinance should be in place that prohibits the discharge of non-stormwater into the storm sewer system and outlines appropriate enforcement procedures and actions. It is also required that the Illicit Discharge Detection and Elimination Program set forth a plan to detect and address future non-stormwater discharges into the Town's storm sewer system, including illegal dumping. The Town shall address the following categories of non-stormwater discharges if they are identified as significant contributors of pollutants to the Town's storm sewer system:

- Water line flushing
- Uncontaminated pumped groundwater
- Landscape irrigation
- Uncontaminated groundwater infiltration
- Diverted stream flows
- Discharges from potable water sources

- Irrigation water
- Water from crawl space pumps
- Dechlorinated swimming pool discharges
- Foundation drains
- Springs
- Footing drains
- Individual residential car washing
- Street wash water
- Air conditioning condensation
- Lawn watering runoff
- Flows from riparian habitats and wetlands
- Rising groundwater

Finally, a strategy should be developed to educate public employees, businesses and the general public about the hazards associated with illegal discharges and improper disposal of waste.

4.3 Best Management Practices

4.3.1 Legal Prohibition and Enforcement

A Storm Sewer Use ordinance provides regulation of storm sewers in a manner similar to what is customarily used for sanitary sewers. Typically, a Storm Sewer Use ordinance regulates connections to the storm sewers and controls discharges to the storm sewers for the protection of water quality. The ordinance contains administrative and technical procedures, enforcement mechanisms and penalties. A draft, model Stormwater Control Ordinance for the Town is included in Appendix D. The Town will revise this ordinance as needed and adopt a final version by the end of year 2.

Existing land use controls are presently adequate to protect stormwater quality. The Town has a zoning ordinance that specifies permitted uses by district. No changes to land use and zoning regulations are proposed as part of this plan.

The Town also has a set of subdivision regulations that provide for the orderly development of land. These subdivision regulations include provisions for stormwater management and requirements for best management practices as conditions of receiving approval of proposed development plans.

BMP 4A– Develop and enforce an ordinance that prohibits illicit discharge and dumping and authorizes enforcement actions, including on private property.

Measurable Goal – Develop an ordinance in year one.

4.3.2 Inform the Public

In order for the Illicit Discharge Detection and Elimination Program to be successful and meet all the measurable goals, Town employees, businesses, and the general public must be informed of the hazards associated with illegal discharges and improper disposal of waste as well as allowable non-stormwater discharges identified as significant contributors of pollutants. Outreach and training will be performed in conjunction with the Public Education and Outreach Program and the Pollution Prevention and Good

Housekeeping Program. Under these programs, efforts will be coordinated with QRWA and the existing training for town employees.

BMP 4B – Develop and implement a program in conjunction with existing public outreach activities to inform public employees, businesses, and the general public of hazards associated with illicit discharges.

Measurable goal – Develop an outreach program by the end of year one.

4.3.3 Storm Sewer Mapping

For the SWMP, an inventory was done of storm drain outfalls. Using the Global Positioning System (GPS), each outfall pipe or swale channeling stormwater off Town road was identified. Inventory forms were completed for each outfall found and are included in Appendix E. The inventory forms provides the following information:

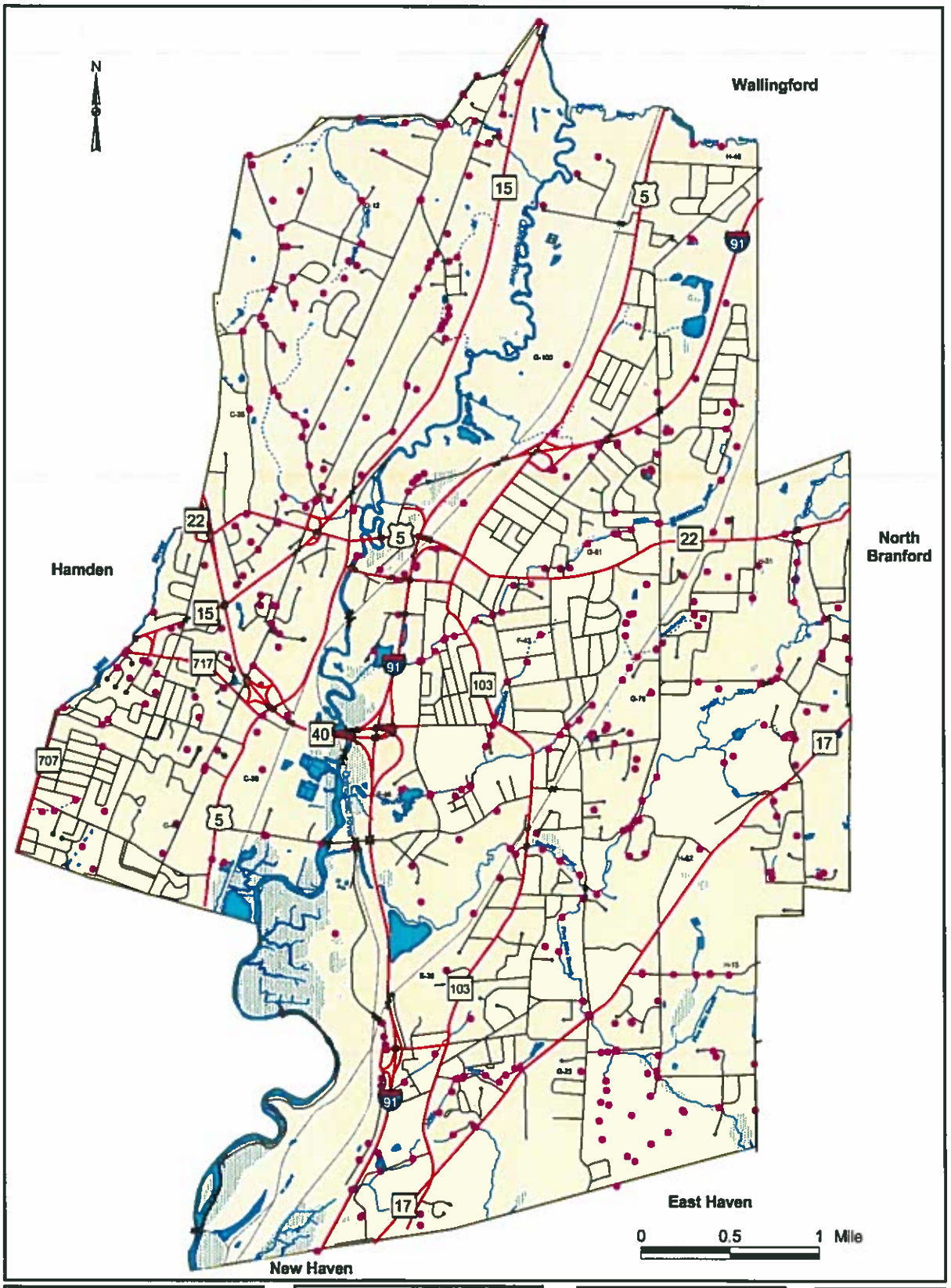
- Outfall ID (consecutively number in the field)
- Outfall location (coordinates obtained from GPS)
- Current maintenance status (maintained, clogged, eroded, undetermined, or other)
- Pipe material (concrete, metal, plastic, or undetermined)
- Pipe diameter in inches
- Pipe condition (excellent, good, fair, poor, very poor, or undetermined)
- Outlet type/ outlet protection (open end, flared end, headwall, or other)
- Receiving water body (name and type (if present) – wetland, intermittent stream, paved swale, earthen swale, or other)
- Comments, notes, or observations

Once outfalls were identified, a geographic information system (GIS) was used to show geographically where each outfall was located and links the data collected (as noted above) with each outfall. Figure 6 shows the location of the outfalls identified relative to Town roads and state waters that receive discharges from those outfalls. Outfall-related data is found in Appendix F. A functional version of the Storm Sewer Outfall Map that correlates to the outfall data is included in Appendix G.

BMP 4C – Create a storm sewer mapping system showing all known storm drain outfalls and receiving waters.

Measurable Goal – Map and verify the location of all known outfalls from a pipe or conduit with a diameter of 15" or larger by end of year two.

Measurable Goal – Map and verify the location of all known outfalls from a pipe or conduit with a diameter of 12" or larger by end of year four.



LOCATION MAP

Identified Outfall Locations

Stormwater Management Plan
North Haven, Connecticut
2004

Source: CTDEP GIS CD/ CTDOT

LEGEND

- Outfall Location
- Town Road
- State/ US Route
- Surface Water
- Stream
- Marsh

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Figure 6

4.3.4 Detection and Addressing Illicit Discharges

The detection and addressing of illicit discharges is the central component of the Illicit Discharge Detection and Elimination Program. It includes strategies for locating problem areas, for inspections, for corrective measures, and for tracking and recording actions.

Identification of Priority Areas for Assessment

The GIS coverage of outfall locations provides information vital to the implementation of this BMP. The outfall mapping when combined with zoning, age of storm sewer system, and land use information will indicate the areas where there is the highest potential for illicit discharges. In general, these are the areas with the highest density of outfalls and the areas with the oldest and largest storm sewer systems.

The Town routinely conducts catch basin cleaning and stormwater system inspection. These cleanings and inspections will continue and the crew supervisor and the Director of Public Works will be provided with the inventory and cleaning/inspection schedules. They will establish priorities for the cleaning work. Catch basins and storm drains that have been flagged as needing attention in the inventory will be given the first priority. The next priority will be given to outfalls that are located along the water bodies in the Town that are classified as degraded, particularly the Quinnipiac River.

Procedures for receipt and consideration of complaints

North Haven already has procedures in place for the evaluation and processing of environmental-related citizen complaints. The Building Official receives complaints and follow-up inspections are conducted by Building Official's staff and/or the Department of Public Works who then make a determination of/recommendation for appropriate actions. All complaints are recorded and the follow-up actions are noted in the file for future reference.

Procedures for catch basin and manhole inspections for illicit discharges

Manhole and catch basin inspection is already part of the Town's inspection and maintenance program. Illicit discharges are identified by visual inspection for dry weather flow, flow that is discolored or "cloudy" and odors not normally associated with storm sewer systems. These screening criteria are then used to identify locations for subsequent follow-up inspection.

As part of the requirements under the General Permit, a program will be developed and implemented to detect, locate and eliminate illicit discharges (to the maximum extent practicable) into the Town's storm sewer systems. The plan will utilize sampling/monitoring techniques, personnel and equipment, along with the storm sewer map for locating sources of illicit discharge.

Stormwater monitoring shall be conducted by the Town annually starting in 2004. Samples shall be collected from discharges resulting from a storm event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours after any previous storm event of 0.1 inch or greater. Runoff events resulting from snow or ice melt cannot be used to meet the minimum annual monitoring requirements. Grab samples shall be used for all monitoring. Grab samples shall be collected during the first hours of a storm event discharge. A field sample of ph, turbidity and conductivity will be taken at the site.

The following information shall be collected for the storm events monitored:

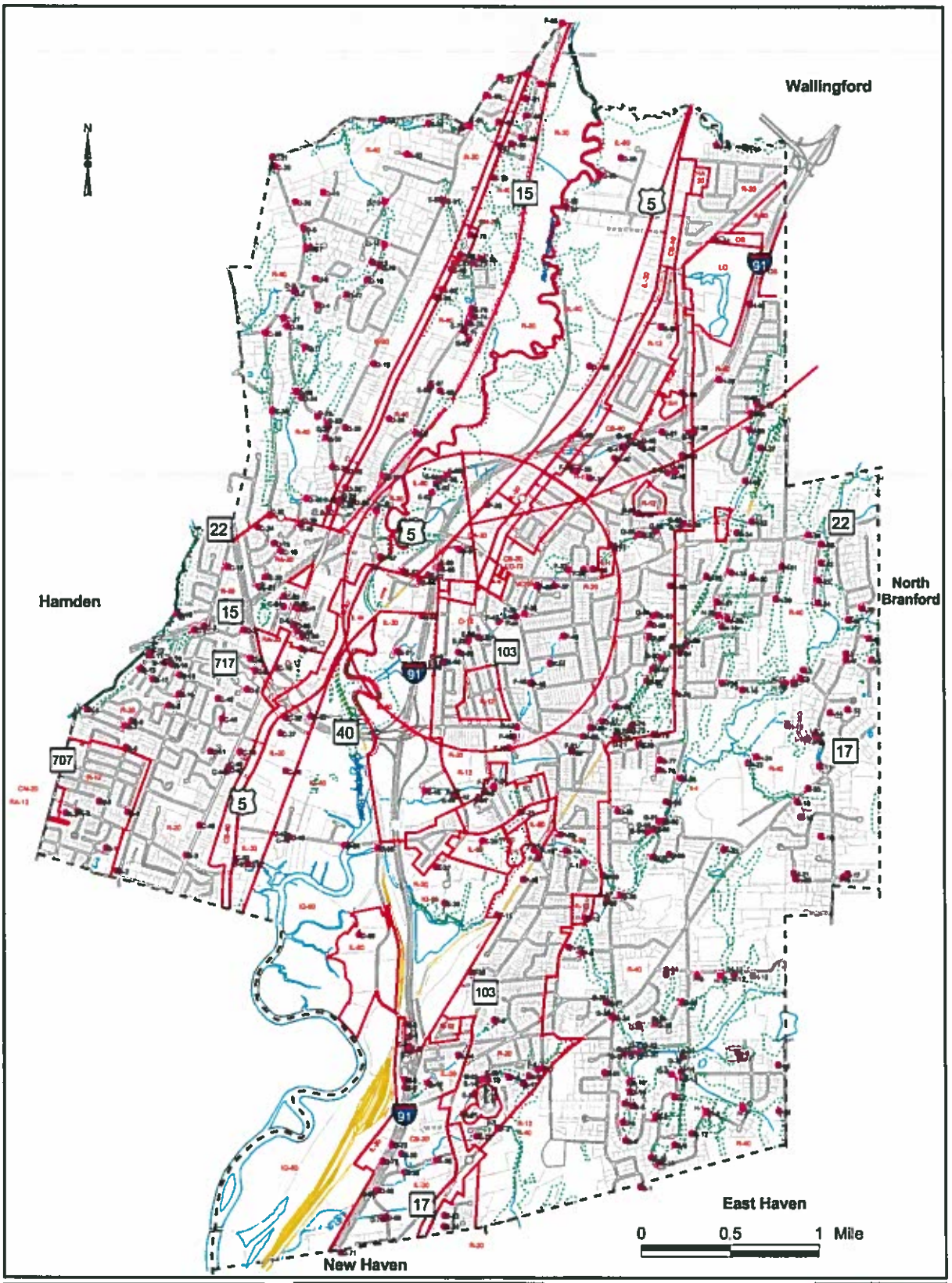
- Date
- Air Temperature
- Time of the start of the discharge
- Time of sampling
- Magnitude (in inches of precipitation) of the storm event sampled
- Duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event

Unless otherwise specified, all pollutant parameters shall be tested according to methods prescribed in Title 40, CFR, Part 136 (1990). Testing of these parameters shall be performed at certified state laboratories. The parameters to be tested at each discharge point shall include:

- pH(SU) (taken with field equipment)
- Hardness (mg/l)
- Conductivity (umos) (taken with field equipment)
- Oil and grease (mg/l)
- Chemical Oxygen Demand (COD)(mg/l)
- Turbidity (ntu) (taken with field equipment)
- Total Suspended Solids (mg/l)
- Total Phosphorous (mg/l)
- Ammonia (mg/l)
- Total Kjeldahl Nitrogen (mg/l)
- Nitrate plus Nitrite Nitrogen (mg/l)
- E. coli (col/100ml)
- In addition to this list of parameters, uncontaminated rainfall pH shall be measured at the time the runoff sample is taken (taken with field equipment).

Sampling/ monitoring will occur at six different outfalls annually. Two outfalls will be monitored in each land use area pertaining to industrial development, commercial development, and residential development for a total of six outfalls monitored each year.

In order to develop a schedule of sampling locations, the new storm sewer outfall map has been overlain with the Town zoning map, Figure 7. By separating outfall locations by Zoning District and focusing on area were signs of potential illicit discharges were observed during the inventory, sampling locations can be selected where the monitoring of discharges can be most effective.



LOCATION MAP

Outfall Locations and Zoning

Stormwater Management Plan
North Haven, Connecticut
2004

Source: CTDEP GIS CD/ CTDOT

LEGEND

- RAILROAD
- STREET
- TOWNLINE
- WATERCOURSE
- PARCELS BOUNDARY
- WETLAND
- ZONING BOUNDARY
- R-20 ZONING TYPE
- OUTFALL LOCATION
- B-1 OUTFALL ID #

TOWN OF NORTH HAVEN CONNECTICUT

MAGUIRE GROUP

Figure 7

Characterizing any discharges found

Chemical, physical and biological testing may be used to fully characterize suspected illicit discharges. Indicators such as dissolved oxygen, biological oxygen demand (BOD), COD, color, odor, temperature, fecal coliform bacteria, total coliform bacteria, petroleum hydrocarbons, and volatile or semi-volatile organic content may be used to characterize the discharges and potentially identify their sources.

Procedures to trace an illicit discharge

The Town will continue to use several different approaches to determine the source of illicit discharges. The initial attempt is made to attempt to follow the drainage system back to the source. Sometimes the connection/discharge can be traced to an individual manhole and the connecting pipe can then be traced back to the source. In other cases, dye testing and/or smoke testing may be required to identify the source. The Town is equipped to undertake small-scale tests of this nature, but will employ consultants in more complex cases or where multiple illicit connections are suspected.

Procedures to remove an illicit discharge

Any publicly owned illicit discharges identified would be corrected as soon as possible by rerouting the discharge to an appropriate destination using public funds. Private illicit discharges will be corrected by enforcement of local health and sanitation codes, and the Storm Sewer Ordinance.

Procedures for referral to CTDEP of illicit discharges

The Town prefers to report successes to CTDEP and will therefore first attempt to correct illicit discharges, or to have them corrected by the private owner. Illicit discharges identified by this program will then be reported to CTDEP as part of routine program tracking and reporting (see below). In cases where illicit discharges are believed to be contributing to water quality violations, or where private owners are unwilling or unable to correct the discharges, the discharges will be reported to CTDEP for enforcement actions.

Recording keeping and tracking of all actions taken to detect and address illicit discharges

The Director of Public Works will keep a record of actions taken to identify illicit discharges, all illicit discharges detected by this program, and the actions taken to address and eliminate these discharges.

Procedures for program evaluation and assessment

In accordance with the program evaluation section of this plan, the effectiveness of the program for detection and elimination of illicit discharges will be evaluated annually.

The Director of Public Works will use the information described above to compile an annual report on the actions taken to identify illicit discharges, all illicit discharges detected by this program and the actions taken to address and eliminate these discharges.

BMP 4D – Develop SOPs to detect and address illicit discharges that include, at a minimum, the following components:

- Identification of priority areas for assessment
- Procedures for receipt and consideration of complaints
- Procedures for catch basin and manhole inspections for illicit discharges
- Procedures for dry weather surveys including field screening for non-stormwater flows and tests of selected parameters and bacteria
- Characterizing any discharges found
- Procedures to trace an illicit discharge
- Procedures to remove an illicit discharge
- Procedures for referral to CTDEP of illicit discharges
- Recording keeping and tracking of all actions taken to detect and address illicit discharges
- Procedures for program evaluation and assessment

Measurable goal – Develop SOPs to detect illicit discharges by the end of year two.

Measurable goal – Determine 50 % of illicit discharge sources by end of year two and 90 % by end of year three.

Measurable goal – Eliminate 90 % of illicit discharges by end of year three.

Measurable goal – Detect and eliminate most illicit discharges by end of year four.

BMP 4E – Develop and implement a stormwater monitoring/ sampling plan.

Measurable goal – Each year take six samples of stormwater outflow including two in residential areas, two in industrial areas and two in commercial areas. Samples will be analyzed by a state approved laboratory. Years one through five.

4.3.5 Future Illicit Discharge Detection and Elimination

The Town will continue to monitor its stormwater discharges in an effort to detect and address future non-stormwater discharges and identify illegal dumping as described above.

BMP 4F – Develop and implement a plan to detect and address future non-stormwater discharges.

Measurable goal – Develop procedures to implement the program by the end of year five.

4.3.6 Implementation and Evaluation

BMPs and measurable goals of the Illicit Discharge Detection and Elimination Program are based on the requirements of CTDEP and EPA, the evaluation of existing local policies and regulations, inventory and analysis of the existing natural and the built environment of the Town, and local issues raised by the North Haven Stormwater Management Committee. Evaluation of BMPs and measurable goals will be performed in a timely fashion to be submitted with CTDEP reporting requirements.

The fundamental goal of this plan is improved water quality through implementation of stormwater controls. Therefore, the program will be evaluated in terms of its effectiveness at reducing loads of contaminants to surface waters through the MS4s.

BMP 4G – Develop procedures to evaluate BMPs and measurable goals of the Illicit Discharge Detection and Elimination Program.

Measurable goal – Develop procedures to evaluate the program by the end of year two.

5.0 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL PROGRAM

5.1 Advantages/ Benefits

Polluted stormwater runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Pollutants commonly discharged from construction sites include:

- Sediment
- Solid and sanitary wastes
- Phosphorous (fertilizer)
- Nitrogen (fertilizer)
- Pesticides
- Oil and grease
- Concrete truck washout
- Construction chemicals
- Construction debris

Sediment is the main pollutant of concern with runoff rates from construction sites, that are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forested lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to Town waters.

5.2 Requirements

The General Permit requires the Town to develop, implement, and enforce a program to reduce pollutants in stormwater runoff to their storm sewer system from construction activities that result in land disturbance of one acre or greater, including construction activity disturbing less than one acre if that construction activity is part of a larger common plan of development or sale that would disturb one or more acres. The Construction Site Runoff Control Program should have an ordinance that requires the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable constructions sites, with sanctions to ensure compliance. The program must require construction site operators to implement appropriate erosion and sediment control BMPs. Additionally, construction wastes at the construction site, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste must be controlled if they could cause adverse impacts to water quality. The Construction Site Runoff Control Program should have procedures for review of construction plans that consider potential water quality impacts. The program should also have procedures for site inspections and enforcement of control measures. Finally, the program should establish procedures for the receipt and consideration of information submitted by the public.

5.3 Best Management Practices

5.3.1 Erosion and Sediment Control Ordinance

As part of the Construction Site Runoff Control Program, the North Haven Soil Erosion and Sediment Control Ordinance will be reviewed to ensure that it adequately addresses the requirements of the General Permit and is in compliance with the proposed Storm Sewer Use Ordinance. The ordinance contains provisions for site plan review, periodic and final inspections and receipt of information from the public. The Town Official determines if the ordinance is applicable to a particular project based on site topography, drainage patterns, soils, proximity to watercourses, and other information deemed appropriate.

BMP 5A – Update existing Erosion and Sediment Ordinance to ensure compliance with the General Permit, state regulations and Sewer Use Ordinance. Ordinance will require construction operators disturbing at least one acre to obtain a permit from the Town. The Town may, at their discretion, require erosion and sediment controls for smaller sites based on local conditions and needs.

Measurable goal – Review existing Erosion and Sediment Control Ordinance and draft new ordinance if necessary to meet General Permit requirements by end of year one.

Measurable goal – Update existing Erosion and Sediment Control Ordinance to meet General Permit requirements by end of year two.

5.3.2 Procedures for Notifying Construction Site Developers and Operators of Requirements for Registration BMP, Measurable Goals and Implementation Dates

All projects with land disturbance of one acre or greater associated with construction activities shall be registered under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities with the CTDEP. Registration shall be submitted a minimum of 30 days before the initiation of construction activities as required by the General Permit.

Construction activities as defined in the general permit include, but are not limited to, clearing, grubbing, grading, excavation, placement of fill and dewatering activities.

BMP 5B – Notification of construction site developers and operators of the requirements for registration under the General Permit for the Discharge of Stormwater and Dewatering Associated with Construction Activities.

Measurable goal – Implement Registration Requirements for all projects exceeding one acre threshold by end of year one.

Measurable goal – Continue Compliance with Registration Requirements years two through five.

5.3.3 Requirements for Construction Site Operators to Implement Appropriate Erosion and Sediment Control Best Management Practices

Construction site operators are required to implement appropriate erosion and sediment control best management practices as outlined in contract plans, contract specifications and standard specifications.

Contractors working in the Town are required at all times to conduct operations in conformance with all federal, state, and local permit requirements concerning water, air, noise pollution and the disposal of contaminated, or hazardous materials.

BMP 5C – Develop a plan that will require construction site operators to implement appropriate erosion and sediment control BMPs.

Measurable goal – Continue Requirements for Construction Site Operators to Implement Appropriate Erosion and Sediment Control BMPs, in years one through five.

5.3.4 Requirements for Construction Site Operators to Control Waste at the Site

Building materials and other construction site wastes must be properly managed and disposed of to reduce the risk of pollution from materials such as surplus or refuse building materials or hazardous wastes. Practices such as trash disposal, recycling, proper material handling, and spill prevention and cleanup measures can reduce the potential for stormwater runoff to mobilize construction site wastes and contaminate surface or ground water.

Construction site operators shall be required to control waste including discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site, that may cause adverse impacts to water quality.

The proper management and disposal of wastes must be practiced at any construction site to reduce contamination of stormwater runoff. Waste management practices can be used to properly locate refuse piles, to cover materials that may be displaced by rainfall or stormwater runoff, and to prevent spills and leaks from hazardous materials that were improperly stored.

The following are examples of steps that should be taken to ensure proper storage and disposal of construction site wastes:

Waste Collection

Designate a waste collection area onsite that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body.

- Ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package. Use an absorbent material such as sawdust or kitty litter to contain the spill. Handling and disposal of all hazardous material shall be in accordance with all state and federal regulations.
- During the demolition phase of construction, provide extra containers and schedule more frequent pickups.
- Collect, remove, and dispose of all construction site wastes at authorized disposal areas. The CTDEP can be contacted to identify these disposal sites.

Contaminated / Hazardous Materials

These materials will be disposed of as solid waste in accordance with the applicable federal, state, and local regulations. The excavation, transporting, stockpiling, securing, disposal of contaminated / hazardous materials and decontamination of equipment will include but not be limited to the following:

- Environmental Health and Safety
- Contaminated / Hazardous Materials Excavation
- Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area
- Disposal of Hazardous Waste
- Environmental Work – Solidification
- Disposal of Contaminated Railroad Ties
- Controlled Materials Handling
- Disposal of Contaminated Timber Piles
- Disposal of Controlled Materials
- Management of Reusable Controlled Material
- Abandonment of Wells
- Handling and Disposal of Contaminated Concrete
- Handling Contaminated Groundwater

Pesticides

The following practices shall be used to reduce risks associated with pesticides or to reduce the amount of pesticides that come in contact with stormwater:

- Follow all federal, state, and local regulations that apply to the use, handling, or disposal of pesticides.

- Do not handle the materials any more than necessary.
- Store pesticides in a dry, covered area.
- Construct curbs or dikes to contain pesticides in case of spillage.
- Follow the recommended application rates and methods.
- Have equipment and absorbent materials available in areas where pesticides are stored and used in order to contain and clean up any spills that occur.

Petroleum

The following management practices shall be followed to reduce the contamination risk associated with petroleum products:

- Store petroleum products and fuel for vehicles in covered areas with dikes in place to contain any spills.
- Immediately contain and clean up any spills with absorbent materials.
- Have equipment available in fuel storage areas and in vehicles to contain and clean up any spills that occur.

Fertilizers

Phosphorous- and nitrogen-containing fertilizers are used on construction sites to provide nutrients necessary for plant growth, and phosphorous- and nitrogen-containing detergents are found in wash water from vehicle cleaning areas. Excesses of these nutrients can be a major source of water pollution. Management practices to reduce risks of nutrient pollution may include the following:

- Apply fertilizers at the minimum rate and to the minimum area needed.
- Work the fertilizer deeply into the soil to reduce exposure of nutrients to stormwater runoff.
- Ensure that erosion and sediment controls are in place to prevent fertilizers and sediments from being transported off-site.
- Use detergents only as recommended, and limit their use onsite. Wash water containing detergents should not be dumped into the storm drain system—it should be directed to a sanitary sewer or be otherwise contained so that it can be treated at a wastewater treatment plant.

Maintenance Considerations

Containers or equipment that may malfunction and cause leaks or spills should be identified through regular inspection of storage and use areas. Equipment and containers should be inspected regularly for leaks, corrosion, support or foundation failure, or any other signs of deterioration and should be tested for soundness. Any found to be defective should be repaired or replaced immediately.

BMP 5D – Require Construction Site Operators to Control Waste at the Site.

Measurable goal – Continue Requirements for Construction Site Operators to Control Waste at the Site, year one through five.

5.3.5 Site Plan Review for Construction Plans

Site plan review aids in compliance and enforcement efforts since it alerts the town early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities. The tracking of sites is useful not only for the Town's record keeping and reporting purposes, but also for members of the public interested in ensuring that the sites are in compliance.

In order for the Town to issue a permit under the Erosion and Sediment Control Ordinance, the Town Official must determine if an Erosion and Sedimentation Control Plan is required. If so, a plan must be submitted and reviewed. The plan must contain sufficient information about the proposed activity(ies) and land parcel(s) as well as clearly demonstrate how performance principles, or BMPs, are met. Performance principles include the following:

- There is regard for natural drainage characteristics and topography.
- Areas with slopes exceeding 10 % are minimized.
- The grades of slopes created are minimized..
- An increase in storm runoff must be controlled on-site, and retained and recharged as close as possible to its place of origin using detention ponds or basins, seepage areas, subsurface drains, porous paving or similar techniques.
- The original boundaries, alignment and slope of the watercourse within the project area must be preserved to the greatest extent possible.
- Drainage facilities must be installed as early as possible during construction and prior to site clearance.
- Fill adjacent to watercourses must be protected from erosion with the use of riprap, gabions, retaining walls, vegetative stabilization or similar measures.
- Temporary vegetation and/or mulching shall be used to protect bare areas and stockpiles from erosion during construction.
- Permanent vegetation must be in place immediately following fine grading.
- Existing trees and other vegetation must be retained whenever possible.
- Areas damaged during construction must be resodded, reseeded, or otherwise restored.

Additionally, the *Connecticut Guidelines for Soil Erosion and Sediment Control* must be used as a reference in determining BMPs for the suitability and adequacy of erosion and sedimentation control plans. This site plan review process also meets the requirements of the General Permit. The Town is able to ensure that appropriate BMPs are in place as

well as the construction site is in compliance with other provisions of the ordinance. The site plan review process established by the Town also aids the tracking, recordkeeping and reporting purposes.

The North Haven Subdivision Regulations require the review of site plans, which include drainage, erosion and sediment control, and landscaping specifications. Site plans must show, among other items, contour lines, existing vegetation, wetlands and water bodies and base flood elevations. The regulations require developers of major subdivisions, major land development projects, or projects to develop a Drainage Plan and an Erosion and Sediment Control Plan. Drainage plans must include specifics regarding natural drainage patterns, destination of continuous drainage, and the incorporation of BMPs for non-point source pollution control and the design guidelines of the CTDEP Water Quality Manual. Erosion and Sediment Control Plans shall meet the requirements of the Erosion and Sediment Control Ordinance.

Landscaping standards of the subdivision regulations require developers to make every effort to retain the natural landscape and terrain of the area. Materials should be appropriate for the local environment, soil conditions, and availability of water. The use of native grasses or groundcover that require minimum watering and fertilization is encouraged, particularly in areas that are ecologically sensitive.

BMP 5E – Review site plans prior to construction to ensure inclusion of erosion and sediment controls and post-construction controls in compliance with local ordinances and Connecticut Guidelines for Soil Erosion and Sediment Control.

Measurable goal – Continue to review all site plans subject to local ordinance and subdivision regulations.

BMP 5F – Continue training or coordinate with existing training efforts to educate plan reviewers in erosion and sediment control BMPSs and requirements.

Measurable goal – Annually train plan reviewers and attend any relevant training seminars.

5.3.6 Receipt of Information from the Public

The final requirement of the Construction Site Control Program is the development of procedures for the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities. This provision is intended to further reinforce the public participation component of the SWMP and to recognize the crucial role that the public can play in identifying instances of noncompliance.

The Town is required to consider the information submitted, some of which may not need a follow-up and/or response. Although some form of enforcement action or reply may not be required, the Town is required to demonstrate acknowledgement and consideration of the information submitted. A simple tracking process in which submitted public

information, both written and verbal, is recorded and then given to the construction site inspector for possible follow-up will suffice.

The Erosion and Sediment Control Ordinance has a provision that allows any person to submit a written complaint to the Town if they feel there has been a violation of the ordinance. The ordinance requires the Town to record the complaint, investigate immediately, and take appropriate action as necessary. The Town will then follow-up with the individual who submitted the complaint as to the status of the action to be taken.

5.3.7 Inspection of Construction Sites

Once construction commences, BMPs should be in place and the Town's enforcement activities should begin. To ensure that the BMPs are properly installed, the Town is required to develop procedures for site inspection and enforcement of control measures to deter infractions. Procedures include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality. Inspections give the Town an opportunity to provide additional guidance and education, issue warnings and/or corrective actions, or assess penalties.

BMP 5G – Continue to inspect all construction sites during construction period that are regulated by local ordinance.

Measurable goal – Inspect all construction sites meeting CTDEP threshold criteria and are not subject to a waiver. Inspection frequency will be based on prioritization criteria; however, all construction sites must be inspected at least once.

In addition to a site plan review process the Erosion and Sediment Control Ordinance incorporates periodic and final inspections. Periodic inspections by the Town Official are required and a permanent file must be maintained of all inspections. Upon completion of work, the developer or owner must notify the Town Official that all grading, drainage, erosion and sediment control measures and devices, stormwater management devices, and vegetations and ground cover planting has been completed in conformance with the erosion and sedimentation control plan. The Town Official will make its final inspection and prepare a final summary inspection report of findings.

If the work-in-progress or completed project does not meet the terms of the erosion and sedimentation control plan, a written notice from the Town Official will be issued. Failure to comply with the notice will result in the performance bond or cash or negotiable securities deposit being subject to notice of default, where the Town will hold the funds until the developer or owner completes the work to the satisfaction of the Town.

The North Haven Subdivision Regulations require developers to submit an inspection and construction schedule to the Director of Public Works for approval prior to the commencement of construction. Inspections include:

- During and following the installation of all underground drainage structures, systems, and utilities prior to backfilling.
- During and following the preparations of the sub-grade and road shoulders.
- During and following the spreading and compaction of the sub-base course
- During and following the spreading and compaction of the base course.
- Immediately prior to and following the application and compaction of the asphaltic binder course.
- Following the completion of all improvements and installation of bounds
- At periodic intervals as required to ensure compliance with the approved Erosion and Sediment Control Plan
- Any other inspections required by the Planning Board or Technical Review Committee as deemed necessary to assure proper construction of improvements.

6.0 POST-CONSTRUCTION STORMWATER MANAGEMENT PROGRAM

6.1 Advantages/ Benefits

Post-construction stormwater management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving water bodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction stormwater discharges is the most cost-effective approach to stormwater quality management.

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in type and quantity of pollutants in stormwater runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g. nitrogen and phosphorous). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second post-construction runoff impact occurs by increasing the quantity of water delivered to the water body during storms. Increases in the amount of impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank scouring and downstream flooding, which often leads to a loss of aquatic life and damage to property.

6.2 Requirements

The General Permit requires the Town to develop, implement, and enforce a program to reduce pollutants in post-construction runoff to their storm sewer system from new development and redevelopment projects that result in the land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The Town is required to develop and implement strategies that include a combination of structural and/or non-structural BMPs. Structural BMPs can be storage or detention facilities that control water volume and settle out particulates for pollutant removal, infiltration practices that facilitate the percolation of runoff through the soil to groundwater, and vegetative practices, which use landscaping features that use optimal design and good soil conditions to enhance pollutant removal, to maintain or improve the sites natural hydrology, to promote healthier habitats, and to increase aesthetic appeal. Structural BMPs can also include the use of hydraulic separators, catch basin inserts, hood outlets and many other BMPs. Non-structural BMPs include local planning and procedures that promote improved water quality (comprehensive plan or zoning) and site-based local controls that include buffer strip and riparian zone preservation, minimization of land disturbances and impervious surfaces, and maximization of open space. Other non-structural BMPs include limiting curbs and gutters, urban forestry, and BMP inspection and maintenance.

Additionally, the General Permit requires an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects with land disturbances greater than or equal to one acre. Under the Post-Construction Stormwater Management Program, the Town should ensure adequate long-term operation and maintenance BMPs as well as develop and implement strategies to reduce overall runoff volume.

6.3 Best Management Practices

6.3.1 Ordinance Requiring Post-Construction Stormwater Management

The Storm Sewer Use Ordinance will have a provision of BMPs, as described in the *Connecticut Guidelines for Soil Erosion and Sediment Control*, not only during the construction process, but after the project is completed. The ordinance will require BMPs on all projects disturbing one acre or greater initiated after the effective date of the ordinance and for all projects that require modifications of storm sewer connections in the form of physical alterations or significant changes in the quantity or quality of stormwater discharge to the storm sewer.

BMP 6A – Require through an ordinance the installation and proper maintenance of post-construction runoff controls in compliance with state and local laws. The Town may require post-development stormwater controls for smaller sites.

Measurable goal – Incorporate post-construction runoff controls in the Storm Sewer Use ordinance by end of year two.

6.3.2 Requirements for Structural and Non-Structural BMPs

The Town of North Haven will require structural and non-structural BMPs for projects disturbing one acre or greater.

The criteria are intended to help evaluate stormwater discharges and the methods that may be used for the treatment of stormwater before it reaches an outlet.

Several documents are utilized for establishing guidelines and procedures for addressing post construction runoff in planning, design and construction for state owned, state funded projects or projects tying into a state owned system. These documents include the following:

- Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34, 2002 and supplements thereto
- CTDOT Drainage Manual, October 2000 and supplements thereto
- CTDEP Water Quality Manual

CTDOT Drainage Manual

This document contains guidelines and procedures for the design of several of the structural BMPs including roadside channels, outlet protection, bank protection, rock riprap design and storage facilities as well as detention and retention ponds.

The design of outlet protection for all projects being designed or funded by the Town shall be in accordance with the Drainage Manual rather than the Connecticut Guidelines for Soil Erosion and Sediment Control. Outlet protection is discussed and the procedures for designing outlet protection are contained in Chapter 11.13 of the Drainage Manual. The methodology outlined in the Drainage Manual has been accepted by the CTDEP for use by the Town.

Connecticut Guidelines for Soil Erosion and Sediment Control

These guidelines are referenced by the Town's design manuals and made part of contracts by inclusion in the Town's standard specifications.

The guidelines contain information / procedures for the design of several BMPs for stabilization structures, drainage ways and watercourses, detention structures and energy dissipaters.

The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

BMP 6B – Develop and implement strategies which include a combination of structural and/or non-structural BMPs.

Measurable goal – Continue implementation of BMPs including projects one acre or greater in disturbance area in years one though five.

The following is a summary of recommended design guidelines and possible BMPs / treatment measures developed from the BMPs, as described in the *Connecticut Department of Transportation (CTDOT) Drainage Manual.*

For drainage systems containing four to ten catch basins which discharge within 50 feet of a regulated area where applicable;

- Eliminate curbing, design for sheet flow and utilize natural vegetation to help filter particulates. On steep embankment slopes, erosion protection measures should be employed.

- Utilize oversized catch basins with four-foot deep sumps. It may be justified to provide six-foot sumps at the last two catch basins in the system if there are no conflicts with groundwater, ledge rock, rights-of-way or underground utilities. If end treatments such as hydrodynamic separators (gross particle

separators), wet ponds, or detention basins are constructed at the terminus of the drainage system, deep catch basin sumps can be eliminated. Additionally, sumps (any depth) should not be specified for any manholes or for catch basins on storm drainage systems which are 36 inches or greater in diameter.

At all locations where deep sumps are specified, the maximum depth of structure shall not exceed 12 feet as measured from the top-of-grate elevation.

- Utilize outlet protection such as riprap energy dissipators; scour holes, stone check dam erosion control matting and vegetative linings in outlet channels.

For drainage systems containing ten or more catch basins which discharge within 50 feet of a regulated area where applicable;

Outlet areas shall be designed so that an open channel with check dams, a sediment basin, or a combination of both is specified; these shall be designed to accommodate the peak runoff associated with the "first flush", known as Water Quality Flow (WQF). The last option is to specify a Hydrodynamic Separator also known as a Gross Particle Separator.

Studies related to the efficiency of these chambers with respect to stormwater treatment are ongoing. Pending the publication and review of specific performance data, the following guidelines shall be applied:

- Hydrodynamic separators shall be designed to accommodate the peak runoff associated with the WQF. The WQF can be determined using the procedures outlined in Chapter 11, Appendix C of the Drainage Manual.

- Chambers shall be placed "off-line" and a bypass system shall be designed to convey the peak flow rate for the design storm.

- Hydrodynamic separators are best suited for the treatment of storm runoff from site drainage related to transportation facilities such as bus or train stations, maintenance garages, rest areas or commuter parking lots. Roadway applications should be limited primarily to urban areas.

Additional BMPs may include the following:

Structural BMPs

Ponds

- Dry Extended Detention Ponds

Figure 8 - Dry Extended Detention Pond

- Sedimentation Basin
- Wet Ponds

Infiltration Practices

- Infiltration Basin
- Infiltration Trench

Filtration Practices

- Bioretention

Vegetative Practices

- Stormwater Wetland
- Grassed Swales

Figure 9 - Grassed Swale

- Grassed Filter Strip

- Interlocking Reinforced Grass Panels (Limited to Merritt Parkway)

Runoff Pretreatment Practices

- Manufactured Products
  (Swirl separators or hydrodynamic structures)

Detention and retention structures will be utilized to limit increases in peak flow rates and volumes when required by CTDEP Inland Water Resource permit requirements. These facilities will be designed and constructed in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control and/ or CTDOT Drainage Manual.

Non-Structural BMPs

- Urban Forestry (Use of trees, plantings and landscaped areas around parking lots)
- Limiting Curbs and Gutters for roadways
- BMP Inspection and Maintenance

Figure 10 - Outlet Structure Requiring Maintenance

6.3.3 A Plan to Address Post-Construction Runoff

Through the Soil Erosion and Sediment Control Ordinance and Subdivision Regulations, the Town requires that all new construction incorporate BMPs for all permanent drainage structures after construction. The Erosion and Sediment Control Ordinance applies to all proposed developments projects. The Building Official must review and approve soil erosion and sedimentation controls before land-clearing activities can commence.

The Subdivision Regulations require the proposed drainage system to be designed to accommodate stormwater flows such that post-construction conditions result in a zero net increase in runoff from pre-construction and pre-development conditions. The Drainage Plan must show BMPs that will be used to meet the specific requirements, including

- The maintenance of the natural drainage system whenever possible
- All existing drainage systems shall be left open unless approved otherwise
- A continuous drainage system will be installed and connected to a natural or manmade drainage system or to an existing piped storm drainage system
- All new drainage systems will be seeded, sodded, or paved, depending on grades and soil types
- The destinations of drainage systems shall be permanent natural water bodies or wetlands, unless found to be impractical by the Planning Board

Additionally, the Town requires the overall design of the stormwater drainage system to incorporate BMPs for non-point source pollution control and design guidelines where appropriate. The Town will continue to evaluate alternatives, develop a plan, and adopt it to implement post-construction inspection and maintenance for all developments by the end of year five.

BMP 6C – Develop a plan to address post-construction stormwater runoff during the plan review, construction inspection, and post-construction maintenance inspection process.

Measurable goal – Develop and adopt a plan by the end of year five.

7.0 POLLUTION PREVENTION AND GOOD HOUSEKEEPING PROGRAM

7.1 Advantages/ Benefits

Pollution prevention and good housekeeping allow a town to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that: (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems. While this measure is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the Town, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

7.2 Requirements

The Town must develop and implement an O&M program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system. The Town must include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm sewer system maintenance. The Town must also must develop and implement a program that will ensure that all Town streets are swept at least once a year and include a program to evaluate and potentially clean catch basins and other structures at least once a year.

7.3 Best Management Practices

The primary goal of the program is to develop and implement a municipal O&M Plan that addresses pollution prevention and good housekeeping procedures for the following municipal activities:

- Park and Open Space Maintenance
- Fleet and Building Maintenance
- New Construction and Land Disturbances
- Stormwater System Maintenance
- Road, Highway, and Parking Lot Maintenance

An O&M Plan is essential to ensure that all municipal activities and programs impacting stormwater are implemented efficiently and effectively. The O&M Plan is intended to reduce the amount of pollutants carried by stormwater runoff into the storm drainage system. Comprised of a description of procedures and associated schedules, the O&M Plan serves as a tool for all municipal employees that are directly involved in stormwater management or administer programs that impact stormwater. It also served as the basis for employee training.

7.4 Operation and Maintenance Plan

The O&M Plan contains a description of the required maintenance activities and procedures as it related to existing municipal operations and programs, a list of responsible departments and personnel for each activity, and a schedule of activities, including maintenance, inspections, and reporting. The O&M Plan is the responsibility of the Public Works Department, and will require coordination with the Department of Parks and Recreation.

O&M is an integral component of all stormwater management programs. This measure is intended to improve the efficiency of these programs through appropriate maintenance practices, internal procedures and scheduling. Proper development and implementation of these programs reduces the risk of water quality problems. There are several elements that are essential for the success of an operation and maintenance program including, training, record keeping, internal reporting, maintenance and preventative maintenance. The Town will include the following elements in the development and implementation of their program.

BMP 7A – Revise existing maintenance activities and procedures to include new BMPs that reduce pollutants in stormwater.

Measurable goal – Develop a revised O&M Plan by the end of year one.

Measurable goal – Continue O&M requirements in years two through five.

7.4.1 Employee Training

A training program for public employees will be developed for personnel involved with stormwater management activities. Training will be provided for Department of Public Works and Recreation Department employees on demand and by prior arrangement through the Town's human resources department to ensure that all employees are adequately trained to fulfill their job responsibilities.

North Haven is committed to ensuring that employees with stormwater management responsibilities receive training to ensure that they can fulfill their responsibilities and improve their performance for the protection of water quality. The Town's goal is to provide training to all appropriate employees throughout and after the five-year planning period.

Training will focus on pollution prevention, BMPs and good housekeeping. Training may also include topics such as illicit discharge detection, water quality monitoring, inspection, record keeping, internal reporting, general maintenance, preventative maintenance and other topics relating to proper stormwater management and the requirements of the General Permit for the Discharge of Stormwater from Small MS4s

Initial training efforts will provide personnel with an understanding of the Town's stormwater management plan, including BMPs, processes and materials with which they are working, safety hazards, practices for preventing discharges, and procedures for responding quickly and properly to toxic and hazardous material incidents. They will also be informed of the proper procedures for reporting and documenting any potential pollutants discovered.

Future topics will include sedimentation and erosion control, permanent BMPs, and permit requirements. Employees will be advised of modifications to current practices and the incorporation of new procedures along with their anticipated implementation dates and the position(s) responsible.

BMP 7B – Develop and implement a training program for public employees to provide education on pollution prevention and good housekeeping practices.

Measurable goal – Annually train public employees and attend any relevant training seminars.

7.4.2 Record Keeping

The Town's procedures for record keeping will incorporate the documentation of information and data, resulting from the General Permit procedures. Keeping records of spills, leaks, and other discharges provide useful information for ensuring proper maintenance of facilities and equipment, and improving best management practices to prevent future spills. The following list of topics are essential for a successful records keeping program, some of which are required for General Permit for the Discharge of Stormwater fromSmall MS4s annual reports to CTDEP:

- Public Education
- Public Participation
- Illicit Discharges (including corrective measures)
- Water Quality Monitoring
- Employee Training
- Drainage Facility Inspections
- Street Sweeping
- Catch Basin Cleaning

The key to a successful records keeping program is to maintain records through regularly scheduled updates. The Town will utilize one or more of the following suggested techniques to document and report their data and results:

- Field notebooks
- Timed and dated photographs
- Drawings and maps

- Computer spreadsheets and database programs

Record keeping will be coordinated with internal reporting and other BMPs as it is integrated into the development of the Town's stormwater pollution prevention plan.

The Town will submit annual reports containing records required by the General Permit for the Discharge of Stormwater from Small MS4s to the CTDEP. These annual reports will include the information as described in the Section 8 "Additional Requirements" of this plan.

7.4.3 Internal Reporting

Internal reporting provides a framework for "chain-of-command" reporting of stormwater management issues, and is an essential part of any good records keeping program. When properly employed, an internal reporting program can clearly define individual's roles and responsibilities for implementing and maintaining the stormwater pollution prevention program, thereby making it easier to prevent and contain potential stormwater contamination.

The Town's internal reporting procedures will incorporate the additional effort needed with this stormwater management program, and the position(s) responsible for each stormwater management task. Typically stormwater management issues will follow similar internal routing procedures for the offices of maintenance, construction and facilities. Stormwater problems identified in the field will be relayed from the field personnel to the immediate supervisor, and then to the department head. If the issue requires special attention, the department head will notify the CTDEP.

7.4.4 Maintenance Program

Catch Basins and other Stormwater Structures

Pollutants that do manage to enter the storm drainage system can impede proper functioning of the system and create the need for costly repairs. Storm drain maintenance is conducted to prevent water quality impacts and to prevent local flooding due to a clogged pipe or catch basin. A long-term preventative maintenance program helps ensure that the system functions effectively while reducing the potential for pollution and significant infrastructure damage. Procedures for this municipal activity include regular inspections, cleaning, proper disposal of waste removed from the system, and record keeping.

During the development of the storm sewer map under Section 4, Illicit Discharge, Detection and Elimination, catch basins and other stormwater drainage system facilities were identified and used to locate outfall pipes. Comments were made regarding the overall maintenance status of these areas. This information was recorded into a database that will be used to address stormwater structures that are in poor condition or immediate need of maintenance. A summary of the information stored in this database is included in

Appendix F. The Town currently inspects and cleans all catch basins and other stormwater drainage system facilities associated with local roads and developments.

Substantial amounts of sediment and pollutants are generated during daily roadway and facility use, and these pollutant loadings can threaten local water quality by contributing heavy metals, hydrocarbons, sediment, and debris to stormwater runoff. Good cleaning practices, including street sweeping and catch basin cleaning, can help limit impacts to stormwater runoff. Sweeping of heavily traveled roadways to remove sediment and debris can reduce the amount of pollutants in runoff. Regular cleaning of runoff control structures such as catch basins can also help improve the overall quality of stormwater discharges.

The Town will institute a catch basin maintenance program that will consist of inspecting and if necessary cleaning catch basins on a regularly scheduled basis. The data obtained from the inventory will be used to prioritize stormwater structures in highest need of attention.

If necessary, the Town will attempt to annually clean their catch basins and other stormwater structures that have reached at least half of the capacity of the sump. These catch basins may be selected based upon routine scheduled field inspections and also inspections resulting from other program requirements. Priority areas will be established to maximize the effectiveness of the Town's available resources for the routine inspections. These priority areas will be developed using the database summary as well as the Town's knowledge of problem areas, where sediment/debris has been known to accumulate in higher quantities. Geographical location, climate, traffic patterns and vertical sag locations may also be factors in determining priority areas.

The Town will conduct routine inspections once every year on a selected, representative number of catch basins and other stormwater structures for each town roadway, parking lot and facility,. If a catch basin is found to be more than one half (1/2) full, the catch basin will be cleaned and recorded as a priority area.

Figure 11 - Typical Catch Basin Cleaning

The Town's maintenance plan for sweeping roadway, parking lot and facility surfaces and cleaning catch basins will meet the requirements of this stormwater management program.

BMP 7C – Implement catch basin cleaning and stormwater system maintenance pollution prevention and good housekeeping practices.

Measurable goal – Inspect and maintain, as needed, catch basins and other stormwater drainage system facilities based on a schedule described in the O&M Plan by the end of year five.

Street Sweeping

Street sweeping is practiced in most urban areas, to remove sediment buildup and large debris from curb gutters. Street sweeping is also used during the spring snowmelt to reduce pollutant loads from road salt and to reduce sand export to receiving waters.

The Town will conduct street sweeping on a scheduled basis to minimize pollutant export to state and local water bodies. These cleaning practices will remove sediment, large debris from curb gutters and other pollutants, from roadways, parking lots and facility surfaces, which are a potential source of pollution impacting state and local water bodies. Street sweeping frequency will range from one time per year, to multiple times per year, if necessary, for areas with heavier concentrations of sediment and debris. Priority areas will be identified by field inspections conducted in conjunction with BMP 7C. Areas where excessive roadside sediment is observed with reoccurring frequency will be identified as a priority area that would require additional maintenance.

BMP 7D – Implement a street sweeping program that evaluates and establishes priority areas as part of stormwater system maintenance pollution prevention and good housekeeping practices.

Measurable goal – All Town roads will be swept based on a schedule described in the CTDEP General Permit, which will be incorporated into the Town's O&M Plan by the end of year one.

Measurable goal – All Town roads will be swept once a year, with priority areas being swept with greater frequency as determined by field inspection, years two through five.

8.0 ADDITIONAL REQUIREMENTS

8.1 Authorization Under The General Permit

8.1.1 Eligible Activities

The discharge of stormwater from or associated with a Regulated Small MS4 is authorized by the CTDEP General Permit for the Discharge of Stormwater from Small MS4s, provided the requirements of Section 3(b) of that permit are satisfied and the activity is conducted in accordance with the conditions of this SWMP.

The General Permit authorizes the following non-stormwater discharges provided they do not contribute to a violation of water quality standards:

- Landscape irrigation
- Uncontaminated ground water discharges such as pumped ground water, foundation drains, water from crawl space pumps and footing drains
- Irrigation water
- Lawn watering runoff
- Residual street wash water
- Discharges or flows from fire fighting activities (except training)
- Naturally occurring discharges such as rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), springs, diverted stream flows and flows from riparian habitats and wetlands

8.1.2 Requirements for Authorization

The general permit authorizes the activity listed in Section 3(b) provided:

Coastal Management Act

Such activity is consistent with all applicable goals and policies in Section 22a-92 of the Connecticut General Statutes, and shall not cause adverse impacts to coastal resources as defined in Section 22a-93(15) of the Connecticut General Statutes.

Endangered and Threatened Species

Such activity shall not threaten the continued existence of any species listed as endangered or threatened pursuant to Section 26-306 of the Connecticut General Statutes and shall not result in the destruction or adverse modification of habitat designated as essential to such species.

National Historic Preservation Act

Stormwater discharges or implementation of the registrant's stormwater management program shall not adversely affect properties listed or eligible for listing in the National Register of Historic Places, unless the registrant is in compliance with requirements of the National Historic Preservation Act and has coordinated with the appropriate State Historic Preservation Officer to avoid or minimize impacts from any necessary activities.

8.2 Proper Operation and Maintenance

The Town will properly operate and maintain all facilities and systems of treatment and control, including related appurtenances, which are installed or used by the Town to achieve compliance with the conditions of the General Permit for the Discharge of Stormwater from Small MS4s. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by the Town when necessary to achieve compliance with this permit. Section 7 of this document contains detailed information for specific operation and maintenance measures.

8.3 Availability of Information

The Town will make a copy of the SWMP available to the following immediately upon request:

- The Commissioner of CTDEP
- In the case of an MS4 adjacent to or interconnected with the Town's storm sewer system, to the operator of that MS4
- In the case of a Town stormwater discharge to a water supply watershed, to the public water supply company

8.4 Keeping Plans Current

The Town will amend the SWMP whenever; (1) there is a change which has the potential to cause pollution of the waters of the state; or (2) the actions required by the SWMP fail to ensure or adequately protect against pollution of the waters of the state; or (3) the Commissioner of CTDEP requests modification of the SWMP. The amended Plan will be completed and all actions required by such SWMP will be completed within a time period determined by the Commissioner of CTDEP.

The Commissioner of CTDEP may notify the Town at any time that the SWMP does not meet one or more of the requirements of this general permit. Within 30 days of such notification, unless otherwise specified by the Commissioner of CTDEP in writing, the Town will respond to the Commissioner of CTDEP indicating how they plan to modify the SWMP to address these requirements. Within 90 days of this response or within 120 days of the original notification, whichever is less, unless otherwise specified by the

Commissioner of CTDEP in writing, the Town will then revise the SWMP, perform all actions required by the revised SWMP, and shall certify to the Commissioner of CTDEP that the requested changes have been made and implemented. The Town will provide such information, as the Commissioner of CTDEP requires, to evaluate the SWMP and its implementation.

8.5 Monitoring Requirements

The Town will perform monitoring in accordance with the requirements of Section 4.3.4 of this SWMP.

8.6 Reporting and Record Keeping

Records required by the general permit for the Discharge of Stormwater from Small MS4s will be kept for at least five years following its expiration or longer if requested by the Commissioner of CTDEP in writing. Such records, including the SWMP, will be available to the public at reasonable times during regular business hours.

The Town will submit an Annual Report to CTDEP by January 1, of each year beginning in 2005. The report will be submitted to:

STORMWATER PERMIT COORDINATOR
BUREAU OF WATER MANAGEMENT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

The annual report will include the following:

- The status of compliance with the general permit for the Discharge of Stormwater from Small MS4s, an assessment of appropriateness of the identified best management practices and progress towards achieving the implementation dates and measurable goals for each of the Minimum Control Measures.
- All monitoring data collected and analyzed pursuant of Section 4, Illicit Discharge Detection and Elimination, of this SWMP.
- All other information collected and analyzed, including data collected under Section 4 of this SWMP.
- A summary of the stormwater activities the Town plans to undertake during the next reporting cycle.
- A change in any identified measurable goals or implementation dates that apply to the program elements.

8.7 General Discharge Requirements

- There will be no distinctly visible floating scum, oil or other matter contained in the stormwater discharge. Excluded from this requirement are naturally occurring

substances such as leaves and twigs provided no person has placed such substances in or near the discharge.

- The stormwater discharge will not result in pollution due to acute or chronic toxicity to aquatic and marine life, impair the biological integrity of aquatic or marine ecosystems, or result in an unacceptable risk to human health.

8.8 Total Maximum Daily Load (TMDL) Allocations

If a TMDL is approved for any waterbody into which the Town discharges, the Town will review its SWMP if the TMDL includes requirements for control of stormwater discharges. If the stormwater discharge(s) do not meet the TMDL allocations, the Town will modify its SWMP to implement the TMDL within four months of the TMDL's approval and notify the Commissioner if CTDEP of this modification.

8.9 Regulations of Connecticut State Agencies Incorporated Into The Discharge Of Stormwater From Small Municipal Separate Storm Sewer Systems

The Town will comply with all laws applicable to the subject discharges, including but not limited to, the following Regulations of Connecticut State Agencies which are hereby incorporated into this general permit, as if fully set forth herein:

Section 22a-430-3:

- Subsection (b) General – subparagraph (1)(D) and subdivisions (2), (3), (4) and (5)
- Subsection (c) Inspection and Entry
- Subsection (d) Effect of a Permit – subdivisions (1) and (4)
- Subsections (e) Duty to Comply
- Subsections (f) Proper Operation and Maintenance
- Subsection (g) Sludge Disposal
- Subsection (h) Duty to Mitigate
- Subsection (i) Facility Modifications, Notification – subdivisions (1) and (4)
- Subsection (j) Monitoring, Records and Report Requirements – subdivisions (1), (6), (7), (8), (9) and (11) (except subparagraphs (9) (A) (2) and (9) (c)
- Subsection (k) Bypass
- Subsection (m) Effluent Limitations Violations
- Subsection (n) Enforcement
- Subsection (p) Spill Prevention and Control
- Subsection (q) Instrumentation, Alarms, Flow Recorders
- Subsection (r) Equalization

Section 22a-430-4

- Subsection (t) Prohibitions
- Subsection (p) Revocation, Denial, Modification
- Appendices

8.10 Duty to Correct and Report Violations

Upon learning of a violation of a condition of the general permit for the Discharge of Stormwater from Small MS4s, the Town will immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation and prevent further such violation. The Town will report in writing such violation and such corrective action to the Commissioner of CTDEP within five days of the Town's learning of such violation. Such information will be filed in accordance with the certification requirements of this general permit.

8.11 Duty to Provide Information

If the Commissioner of CTDEP requests any information pertinent to the authorized activity or to compliance with the general permit for the Discharge of Stormwater from Small MS4s or with the Town's authorization under this general permit, the Town will provide such information within 30 days of such request. Such information shall be filed in accordance with the certification requirements of this general permit.

8.12 Correction of Inaccuracies

Within 15 days after the date the Town becomes aware of a change in any information in any material submitted pursuant to this general permit, or becomes aware that any such information is inaccurate or misleading, or that any relevant in formation has been omitted, the Town will correct the inaccurate or misleading information or supply the omitted information in writing to the Commissioner of CTDEP. Such information will be filed in accordance with the certification requirements of this general permit.

8.13 Other Applicable Law

Nothing in the general permit for the Discharge of Stormwater from Small MS4s will relieve the Town of the obligation to comply with any other applicable federal, state and local law, including but not limited to the obligation to obtain any other authorizations required by such law.

9.0 CERTIFICATION AND SIGNATURE

9.1 Certification Requirements

This plan and any document, including but not limited to any notice, information or report, which is submitted to the commissioner of the CTDEP under the general permit for the Discharge of Stormwater from Small MS4s shall be signed by the chief elected official or principal executive officer, and by the individual or individuals responsible for preparing such document as defined in Section 22a-430-3(b) (2) of the Regulations of Connecticut State Agencies.

9.2 Plan Certification and Signature

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Preparer's Signature

Richard Branigan.
Director
Director of Public Works
Town of North Haven, North Haven, Connecticut

Signature and Date

Preparer's Signature

Scott Shatzlein
Town Engineer
Engineering Department
Town of North Haven, North Haven, Connecticut

Signature and Date

Preparer's Signature

Neil S. Pade
Senior Environmental Planner
Maguire Group Inc.

Signature and Date

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