

PHASE II STORM WATER MANAGEMENT PROGRAM PLAN

**TOWN OF PROSPECT
Prospect, Connecticut**

July 2004



Fuss & O'Neill

146 Hartford Road, Manchester, CT 06040
TEL 860 646-2469 FAX 860 533-5143

56 Quarry Road, Trumbull, CT 06611
TEL 203 374-3748 FAX 203 374-4391

7040 West Palmetto Park Road, #4812
Boca Raton, FL 33433
TEL 800 850-2348 FAX 561 368-5614

78 Interstate Drive, West Springfield, MA 01089
TEL 413 452-0445 FAX 413 846-0497

911 Central Avenue #237, Albany, NY 12206
TEL 800 395-4097 FAX 518 363-0294

2600 South Road, Suite 44-246
Poughkeepsie, NY 12601
TEL 800 394-8081 FAX 845 691-7098

610 Lynndale Court - Suite E, Greenville, NC 27858
TEL 252 355-1370 FAX 252 355-8186

The Foundry Corporate Office Center
275 Promenade Street, Suite 350, Providence, RI 02908
TEL 401 861-3070 FAX 401 861-3076

1419 Richland Street, Columbia, SC 29201
TEL 803 376-6034 FAX 803 376-6035

928 Falls Road, Shelburne, VT 05482
TEL 802 985-1512 FAX 802 985-2271

EXECUTIVE SUMMARY

The Town of Prospect currently implements many of the elements of a successful Storm Water Management Program. In order to fully comply with the National Pollution Discharge Elimination System (NPDES) storm water regulations and the Connecticut Department of Environmental Protection's (CT DEP) Phase II Storm Water Program, the Town must implement additional measures. The following table (also found in [Appendix K](#)) outlines those measures, identifies the responsible parties, measurable goals, and provides a schedule for implementation over the five year permit term. The listed measures were identified through workshops conducted with the Town. Technical Memorandums (TMs) were prepared for each of the six minimum control measures. At these workshops the TMs were reviewed and implementation alternatives were discussed. Where possible, the measurable goals are identified as quantifiable measures. In other instances the measurable goals are presented as discrete activities. For these, the conduct of the activity is intended to serve as the goal.

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This table identifies how the Plan complies with the General Permit (DEP-PED-GP021) requirements for the six minimum best management practices. While this report identifies many alternatives, the items that the Town has committed to are specified in this table.

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.h	Storm water monitoring to be conducted annually from at least two (2) outfalls for each of three (3) CT DEP chosen land use areas (i.e., industrial, commercial, residential). In total six (6) outfalls monitored per year. Town may submit an alternate sampling plan to CT DEP for approval (i.e., in-stream monitoring).	DPW, Storm Water Committee, Mayor	Monitoring completed. Results compiled. Submitted to CT DEP as part of Annual Report.	Monitoring completed by September, results compiled by November, make available to public in draft report by December 1 of each permit year (submit with Annual Report)	As discussed in Section 6.4 of the SWMPP.
6.i	Submit Annual Report to CT DEP	Mayor	Annual Report completed	January 1 of every permit year (commencing 2005)	As discussed in Section 11.2 of the SWMPP. Annual Report Template included in Appendix M .
1.	Public Education and Outreach				
6.a.1.A.i	Distribute Storm Water Awareness Package (Neighbor to Neighbor)	Storm Water Committee, DPW	Materials compiled. Information distributed. Number of packages distributed (distributed with Recycle Bins, copies at Town Hall and Library).	Start distributing media by: 12/2005	As discussed in Section 4.4 of the SWMPP. Example educational materials for potential use included in Appendix B .
6.a.1	Distribute storm water flyer.	Storm Water Committee	Material selected. Audience identified.	Material developed, audience identified by: 6/2006 Distributed by: 12/2006	As discussed in Section 4.0 of the SWMPP. Example educational materials for potential use included in Appendix B .
6.a.1 and 6.a.2	Continue school programs and meet with local school officials annually to identify past activities and upcoming curriculum.	Storm Water Committee, Board of Education	Annual meeting.	Meeting held by October each permit year to compile information for annual report	Continue educational programs as discussed in Section 4.2 of the SWMPP.
6.a.1 and 6.a.2	Make the Storm Water Management Plan available to the General Public	Storm Water Committee	Make plan available at Town Hall, Library and in schools. Consider putting the plan on the Town's web site.	Make copy of SWMPP available at Town Hall, Library, Schools, Town website by: 9/2004	
6.a.1 and 6.a.2	Develop strategies to inform public (visitors, employees, residents) on how to become involved in storm water program. Develop strategy for topics and media to be used.	Storm Water Committee	Strategies decided, information packaged for chosen media(s). Information distributed to the public.	Strategy developed by: 12/2006 and implemented in following years.	Opportunities are discussed in Section 5.2 of the SWMPP.
6.a.1 and 6.a.2	Develop strategies to use partnerships with other governmental and non-governmental entities.	Storm Water Committee	Meeting(s) held with other community groups (governmental and non-governmental). Strategy developed.	Strategy developed by: 12/2006 and implemented in following years	Potential partners discussed in Section 5.2 of the SWMPP.

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Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.i	Evaluate the success of this minimum measure.	Mayor, DPW, Storm Water Committee	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

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2.	Public Participation				
6.a.2	SWMPP was developed by a Storm Water Committee that included DPW, School, Fire, Police, Mayor's Office, Planning and Zoning, and Inland Wetland representatives. Plan was also made available for public comment and public noticed June 10, 2004.	Storm Water Committee	SWMPP available for review	SWMPP available for review prior to submission to CT DEP	
6.a.2	Develop local Storm Water Committee to continue to develop and implement the Plan.	Mayor	Committee developed. Meetings conducted.	Developed since 5/2004 (for first annual report)	
6.a.2	Conduct annual Storm Water Plan meeting for the public.	Storm Water Committee	Conduct annual meeting.	Meeting conducted prior to January of every permit year (commencing 2005).	
6.a.2	Develop a storm drain stenciling program.	Storm Water Committee, DPW	Areas/Basins identified. Volunteers organized, basins stenciled.	Organize program by: 10/2005 Begin stenciling by: 4/2006	
6.a.2	Sponsor and support cleanup projects.	Storm Water Committee, DPW	Program developed, volunteers organized	Organize program by: 3/2006 Begin cleanups by: 8/2006	
6.a.2.A.i	Provide adequate public notice prior to submitting the annual report. Allow the public to comment and review report.	Mayor, Storm Water Committee	Annual Report made available at a specified community location. Public meeting held annually.	Draft available December 1 of each permit year. Public Meeting scheduled prior to January submission (commencing 2005).	
6.i	Consider amending the draft annual report based on significant comments during public notice.	Mayor, Storm Water Committee	Comments reviewed, report amended (if necessary)	As needed	
6.i	Evaluate the success of this minimum measure.	Mayor, Storm Water Committee, DPW	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

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3	Illicit Discharge Detection and Elimination				
6.a.3.A.i	Develop and introduce an ordinance or other regulatory mechanism to effectively prohibit and enforce unauthorized non storm water discharges into the system.	Mayor, Town Attorney, Town Council	Draft language and legal review. Conduct informational meetings as necessary.	Developed by: 6/2005	As discussed in Section 6.3 and Sections 6.4 of the SWMPP. Potential model ordinances are included in Appendix C .
6.a.3.A.i	Adopt an ordinance or other regulatory mechanism to effectively prohibit and enforce unauthorized non storm water discharges into the system.	Mayor, Town Council	Submit and schedule for adoption. Regulatory mechanism in place.	Adopted by: 12/2006	As discussed in Section 6.3 and Sections 6.4 of the SWMPP. Potential model ordinances are included in Appendix C .
6.a.3.A.ii	Public education and municipal employee training programs will inform about hazards associated with illegal discharges and improper disposal of waste. Coordinate with Minimum Measure #1 and 6.	Storm Water Committee	Ensure that educational materials developed include illicit discharge awareness. Materials developed and distributed.	Materials selected by: 6/2007 Distribution commenced by: 12/2007	As discussed in Section 4.0 and Section 6.4 of the SWMPP.
6.a.3.A.iii	Develop an outfall map including locations of all outfalls with a diameter of 15" or greater in the Town.	DPW	Mapping completed, consider integration of asset management system. Include names, locations, and Surface Water Quality Classification of all receiving waters.	Developed by: 12/2007 Conduct initial outfall surveys for illicit discharges	As discussed in Section 6.2 and Section 6.4 of the SWMPP.
6.a.3.B.i	Develop an outfall map including locations of all outfalls with a diameter of 15" or greater and names of receiving waters in the urbanized areas.	DPW	Mapping completed, consider integration of asset management system. Include names, locations, and Surface Water Quality Classification of all receiving waters.	Developed by: 12/2006 Conduct initial outfall surveys for illicit discharges	As discussed in Section 6.2 and Section 6.4 of the SWMPP.
6.a.3.B.i and 6.a.3.B.ii	Watershed area that drains to sensitive waters, endangered species habitats, and the downtown area will be first priority.	DPW	Investigations identified, prioritized, conducted. Suspected illicit connections investigated. Source identified and scheduled for removal. Enforcement actions taken or referred to other entity such as police or CT DEP.	Program implemented by: 12/2006	As discussed in Section 6.4 of the SWMPP.
6.a.3.B.ii	Develop an outfall map including locations of all outfalls with a diameter of 12" or greater and names of receiving waters in the urbanized areas.	DPW	Mapping completed, consider integration of asset management system. Identify names, locations, and Surface Water Quality Classification of all receiving waters.	Developed by: 12/2008 Conduct initial outfall surveys for illicit discharges	As discussed in Section 6.2 and Section 6.4 of the SWMPP.

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Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.a.3.B.iii	Develop a procedure to respond to complaints associated with illicit discharges. Complaints should be directed to the DPW where these complaints will be logged. DPW will review these complaints upon receipt and determine the appropriate action to take. Develop compliance response system.	DPW	Number of complaints logged and responded to. Track for Annual Report.	Complaint procedures implemented by: 12/2006.	
6.a.3.B.iii	Procedures for tracing sources of illicit discharges are detailed in <u>Section 6.4</u> of the SWMPP.	DPW, Ches-Pro-Cot Health District	Number of illicit connections detected.	Procedures completed.	As discussed in <u>Section 6.4</u> of the SWMPP.
6.a.3.B.iv	The process for detecting and removing future illicit discharges will be defined by the mechanism that will be used to prohibit and enforce illicit discharges.	DPW	Sources identified and removed.	Adopted by: 12/2006	The regulatory mechanism will define this process which must be approved as part of its adoption.
6.i	The illicit discharge and detection program will be evaluated and assessed annually prior to the preparation of the Annual Report. This will consist of reviewing the areas evaluated, findings, whether changes in procedures and priorities need to be made. A summary of this evaluation will be included in the Annual Report.	DPW	Completion of annual review.	January of every permit year (commencing 2005).	
6.i	All actions taken to detect and address illicit discharges will be recorded in both field notes as well as on outfall mapping prepared for 6.a.3.	DPW	Submittal of findings in Annual Report.	January of every permit year (commencing 2005).	
6.i	Evaluate the success of this minimum measure.	Mayor, DPW, Storm Water Committee	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

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4	Construction Site Runoff Control				
6.a.4.A.i	Develop and introduce an ordinance or other regulatory mechanism to require sediment and erosion control and control of other wastes at construction sites. <u>Section 7.3</u> and <u>Section 7.4</u> of the SWMPP identifies alternatives for the Town to accomplish this. The <u>Connecticut Guidelines for Soil Erosion and Sediment Control</u> (as amended) will serve as the minimum standard.	Mayor, Town Attorney, Town Council	Draft language and legal review. Conduct informational meetings as necessary.	Developed and introduced by: 12/2005	
6.a.4.A.i	Adopt an ordinance or other regulatory mechanism to require sediment and erosion control and control of other wastes at construction sites.	Mayor, Town Council	Submit and schedule for vote at Town Meeting. Regulatory mechanism in place.	Adopted by: 12/2006	As discussed in <u>Section 7.3</u> of the SWMPP.
6.a.4.A.i	Issue and track permits for all construction projects resulting in land disturbance of greater than 1 acre in Town to ensure compliance with erosion and sediment control ordinance. Permit issuance procedures will be defined in the ordinance. Current tracking procedures will be reviewed and amended as necessary to comply with this program.	Building Official, Planning and Zoning, Inland Wetland Agency, Land Use Inspector DPW	Review current procedures. Improved procedure developed and implemented. Number of permits issued and tracked.	Developed by: 12/2005	As discussed in <u>Section 7.2</u> and <u>Section 7.3</u> of the SWMPP.
6.a.4.A.i.d	Procedures for reviewing plans and SWPPPs for construction projects resulting in land disturbance of 1-5 acres, not reviewed by other State programs will be defined based on the ordinance developed to comply with 6.a.4.A.i.	DPW, Mayor, Planning and Zoning, Storm Water Committee Land Use Inspector	Ordinance developed. Number of plans and SWPPPs reviewed.	Develop by: 12/2005 100% reviewed by: 12/2007	As discussed in <u>Section 8.3</u> and <u>Section 8.4</u> of the SWMPP
6.a.4.A.i.e	Public comments or complaints regarding new development projects and construction runoff related impacts will be directed to Planning and Zoning where these complaints will be logged. Planning and Zoning will review these complaints upon receipt and determine the appropriate action to take. Develop procedures for receipt and consideration of information submitted by the public.	Planning and Zoning, Inland Wetland Agency Land Use Inspector	Procedure developed. Number of complaints logged and responded to.	Complaint procedures implemented by: 12/2007.	
6.a.4.A.i.f	Procedures for site inspection and enforcement of erosion and sediment control measures and other measures for control of wastes at construction sites will be defined in the ordinance developed to comply with 6.a.4.A.i.	Inland Wetland Agency, Planning and Zoning, Land Use Inspector	Review current procedures. Improved procedure developed and implemented.	Procedures implemented by: 12/2006	As discussed in <u>Section 7.3</u> and <u>Section 7.4.4</u> of the SWMPP. Sample of contractor self-inspection reports are included in <u>Appendix D</u> .

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6.i	Evaluate the success of this minimum measure.	Mayor, Storm Water Committee Planning and Zoning, Inland Wetland Agency Land Use Inspector	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

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5	Post-Construction Runoff Control				
6.a.5.A.i	The Town will rely on the <u>Connecticut Stormwater Quality Manual</u> (as amended) as a standard to address storm water runoff from new development and redevelopment projects. At this time, no additional modifications are proposed. The revised manual is soon to be released by CT DEP.	Planning and Zoning	Program developed. Priority areas specified (as necessary).	Program in place by: 12/2006	As discussed in <u>Section 8.0</u> . A model watershed management plan is included in <u>Appendix E</u> .
6.a.5.A.ii	The Town shall identify opportunities for smart growth such as in-fill development, direct growth to identified areas, and protect sensitive areas will be identified. Additionally, non-structural BMPs as described in the <u>Connecticut Stormwater Quality Manual</u> (as amended) will be considered. Public education will include discussion of ways to limit runoff. Consider including information in application packages or at pre-construction meetings.	DPW, Storm Water Committee, Inland Wetland Agency, Planning and Zoning, Town Council	Items developed and distributed.	Materials selected, distribution commenced by 12/2008	As discussed in <u>Section 4.0</u> and <u>Section 8.3</u> .
6.a.5.A.iii	Develop and introduce a regulatory mechanism to address post construction runoff from new development and redevelopment projects. State standards will be included by reference.	Mayor, Town Attorney, Town Council	Draft language and legal review. Conduct informational meetings as necessary.	Developed and introduced by: 12/2005	As discussed in <u>Section 8.2</u> , <u>Section 8.3</u> , and <u>Section 8.4.2</u> . Model ordinance is included in <u>Appendix G</u> .
6.a.5.A.iii	Adopt a regulatory mechanism to address post construction runoff from new development and redevelopment projects.	Mayor, Town Council	Submit and schedule for vote at Town Meeting. Regulatory mechanism in place.	Adopted by: 12/2006	As discussed in <u>Section 8.2</u> , <u>Section 8.3</u> , and <u>Section 8.4.2</u> . Model ordinance is included in <u>Appendix G</u> .
6.a.5.A.iv	Adopt a regulatory mechanism with language and enforceable mechanism requiring long term operation and maintenance of post-construction runoff controls. Regulatory mechanism shall include language to provide DPW authority to ensure proper operation and maintenance of all BMPs tributary to the Town's storm sewer system. Procedures will be developed as part of the development of new ordinances as described in 6.a.5.A.i.	Mayor, Town Council	Ordinance or regulation developed. Submit and schedule for vote at Town Meeting. Voted and adopted.	Adopted by: 12/2006	As discussed in <u>Section 8.3</u> and <u>Section 8.4.3</u> . Suggested BMP operation and maintenance guidelines are included in <u>Appendix H</u> .
6.i	Evaluate the success of this minimum measure.	Storm Water Committee Planning and Zoning, Inland Wetland Agency Land Use Inspector	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

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6	Pollution Prevention and Good Housekeeping in Municipal Operations				
6.a.6.A	Identify and list locations and description of all structural BMPs owned or operated by the MS4.	DPW	Number of structures identified.	Initial list: 12/2006 Update: Included in annual report	As discussed in <u>Section 9.2.2</u> of the SWMPP.
6.a.6.A	Operation and maintenance and good housekeeping practices and BMPs for municipal operations have been identified in <u>Section 9.0</u> .	DPW, Storm Water Committee	Continue to implement	Implementation by: 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.6.A.i	Develop an operation and maintenance program that includes training of municipal employees and contractors regarding prevention and reduction of pollutant runoff from municipal operations. Coordinate with 6.a.6.A.ii.	DPW, Storm Water Committee	Formalize existing programs and practices. Training completed. Educational materials distributed.	Procedures developed by: 12/2006	Operations under MS4s legal control that have the potential to introduce pollutants into the storm water system are addressed in <u>Section 9.0</u> . As discussed in <u>Section 9.6</u> of the SWMPP
6.a.6.A.ii	Incorporate storm water awareness training into existing training for maintenance staff, equipment operators, and mechanics (Health & Safety, Right to Know).	DPW, Mayor	Training completed. Educational materials distributed. Maintain consolidated list of trainings as well as in individual personal files.	Procedures developed by 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.6.A.ii	Develop procedures for implementing proper erosion and sediment and water quality controls for all construction projects undertaken by the Town.	DPW, Mayor	Procedures developed	Procedures developed by: 12/2007	
6.a.6.A.iii	Formalize current street and road sweeping program. Town will continue to sweep all streets once per year.	DPW	Maintain records of curb-miles swept, approximate volume of material collected.	Formalized by: 12/2006 Annually commencing 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.6.A.iv	Formalize procedures for inspections, cleaning and repair of storm water structures and catch basins once per year. The Town is already conducting a portion of these tasks. Maintain records of all inspections and corrective actions required and completed. During these inspections, odors or flow and any other observations will be noted and reported for the purposes of determining whether illicit discharges should be investigated discharging to those structures.	DPW	Identify the structures tributary to the system. Conduct a catch basin sediment accumulation pilot program. Establish a routine inspection and maintenance program. Maintain records of inspections conducted, number of structures/catch basins cleaned, approximate volume of material collected. Number of corrective measures required and completed.	Developed by: 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.5.A.v	Develop a program to evaluate and if necessary prioritize conveyances, structures, and outfalls in the MS4 for repairing, retrofitting, or upgrading. List planned capital improvements in the Annual Report.	DPW, Mayor, Storm Water Committee	Meeting held to discuss municipality's needs. Improvements assessed and listed.	January of every permit year (commencing 2005)	

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6.a.6.B.i	Develop a program to evaluate and prioritize those streets that may require sweeping more than once a year.	DPW, Storm Water Committee		Developed by: 12/2006 Implemented by: 12/2007	
6.i	Evaluate the success of this minimum measure.	DPW, Mayor, Storm Water Committee	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

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**PHASE II STORM WATER MANAGEMENT PROGRAM PLAN
TOWN OF PROSPECT
Prospect, Connecticut**

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1.0 INTRODUCTION

On December 8, 1999, the U.S. Environmental Protection Agency (USEPA) promulgated Phase II of its National Pollution Discharge Elimination System (NPDES) storm water regulations. Phase I of the USEPA storm water program established regulations for storm water discharges from municipal separate storm sewer systems (MS4s) in municipalities with populations of 100,000 or greater, construction activities disturbing five or more acres of land, and ten categories of industrial facilities. The Phase II Final Rule expands the Phase I program by requiring smaller communities with MS4s in urbanized areas to implement programs and practices to control polluted storm water runoff through the use of NPDES permits.

Urbanized areas are identified based on the 2000 census. The USEPA defines an urbanized area (UA) as “a land area comprising one or more places – central place(s) – and the adjacent densely settled surrounding area – urban fringe – that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile.”

The Town of Prospect is one of 130 municipalities in Connecticut that are located either completely or partially within an urbanized area (for the urbanized area in the Town of Prospect see [Figure 1-Urbanized Area](#)). These communities must seek permit coverage with the Connecticut Department of Environmental Protection’s (CT DEP) Phase II Storm Water Program. CT DEP issued the final *General Permit for the Discharge of Storm water from Small Municipal Separate Storm Sewer Systems* on January 9, 2004. ([Appendix M](#))

Compliance with the MS4 permit is a two part process. The first part is the submission of a registration form including primarily administration information and basic mapping. The second part of the process is the submission of a Storm Water Management Program Plan (SWMPP). The SWMPP addresses how the regulated MS4 will comply with six minimum control measures. These six minimum measures include:

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

Chapters 2 through 3 of this Plan provide a discussion of the water resources and land uses in the community as potential targets or prioritization of activities to address the six minimum control measures. Chapters 4 through 9 provide a discussion of the existing programs and practices for each of the minimum control measures. This includes a section of “Implementation Alternatives”. These are modifications to existing programs or activities or additional measures which could be used to satisfy the permit requirements. Chapter 10 presents the selected alternatives for implementation. This includes a summary of how Prospect intends to address the minimum control measures, responsible parties for implementation, schedule for implementation, as well as the measurable goals for each measure. This is also included as [Appendix K](#). Chapter

11 provides a discussion of standard permit requirements and SWMPP evaluation measures. An Annual Report Template is included as Appendix N.

2.0 WATERSHED INVENTORY

2.1 Existing Water Resources

The Town of Prospect is divided into seven watersheds, the Willow, Beaver Pond, Fulling Mill, and Beacon Hill Brooks and Tenmile, West, and Naugatuck Rivers. The Tenmile River is the predominant watershed in the Town. A watershed is the area of land where all of the water that is under it or drains off of it migrates to a common location. A watershed generally includes lakes, rivers, estuaries, wetlands, streams, and the surrounding landscape.

Because watersheds are defined by natural hydrology, they represent the most logical basis for managing water resources. A watershed protection approach is, therefore, a viable strategy for effectively protecting and restoring aquatic ecosystems and protecting human health. Major features of a watershed protection approach are: targeting priority problems, promoting a high level of stakeholder involvement, integrated solutions that make use of the expertise and authority of multiple agencies, and measuring success through monitoring and other data gathering. A watershed framework offers many opportunities to simplify and streamline the workload between involved parties, thus generating cost efficiencies. Each watershed presents unique opportunities and challenges. More importantly, they present an opportunity for partnering with watershed advocates, academic institutions, industry, private landowners, neighboring communities, or state agencies to achieve mutual beneficial goals.

While a significant amount of the Town has been developed, a number of water resources exist that should be the focus of future storm water management activities in Prospect. These resources include rivers, streams, and ponds.

Significant water resources in the Town of Prospect include:

- The Naugatuck River Watershed encompasses 312 square miles of land, 39 miles of the Naugatuck River and many miles of tributaries. Historically this watercourse was significantly polluted due to industrial activities. In recent years the quality has improved due to many water quality projects and fish restocking.
- There are several reservoirs (active and alternative water supplies) located within the Town of Prospect. These surface waters are not, however, owned nor operated by the Town (see [Section 2.3](#) for further discussion).
- McGrath Park Pond is a focus piece within the Town of Prospect. This is an example of the importance the Town places on its water resources. The Town installed aeration (fountain) to ensure aesthetic quality of the pond recognizing the value residents and visitors place on this resource.

The following lists other significant water resources in Prospect. It should be noted that this list does not include a number of small, unnamed ponds, watercourses and wetlands. Some of these are isolated while others are located along stream lengths:

Beacon Hill Brook

Fulling Mill Brook
Marks Brook
Mixville Brook
Mountain Brook
Roaring Brook
Sanford Brook
Turkey Hill Brook
West Brook
Beer Pond
Brewster Pond
Brooks Pond
East Mountain Reservoir
Lights Pond
Long Hill Reservoir
Passaro Pond
Prospect Reservoir
Reilly Pond
Straitsville Reservoir
West Brook Reservoir
William Moody Reservoir

2.2 Impaired Waters

The Connecticut Department of Environmental Protection (CT DEP) has prepared a list of impaired waters in Connecticut in compliance with section 303(d) of the federal Clean Water Act (CWA). These impaired waters are defined as those that do not meet State of Connecticut Water Quality standards. Total maximum daily loads (TMDL) are planned to be developed for each of these waters. The purpose of the TMDL is to identify the capacity of a surface water to assimilate pollutants without impacting its designated uses (e.g., fishable, swimmable) as well as meet the State Water Quality Standards. While many of the TMDLs are anticipated to focus on point sources of pollution such as wastewater treatment plants, future TMDLs may require more intensive storm water controls to more aggressively reduce sources of storm water pollution than is intended under the Phase II permitting program.

There are no surface waters within Prospect identified on the State's 303(d) list of Connecticut Waterbodies Not Meeting Water Quality Standards, drafted May 14, 2002.

2.3 Public Water Supply

The majority of businesses and residents in Prospect obtain drinking water through private well sources. There are, however, numerous reservoirs and public supply wells within Town limits. These facilities are owned by the City of Waterford, South Central Regional Water Authority, and the Connecticut Water Company. These three organizations also own large plots of land within the Town for watershed protection purposes. Within the watersheds of the public drinking water reservoirs the applicable owner (i.e., water authority) take increased interest in

the activities, land uses, and structures as they pertain to water quality. The septic systems in these areas may be formally inspected and water sampling may occur to ensure drinking water quality.

There is a large preliminary aquifer protection area in the western portion of Town as depicted in Figure 2-Aquifer Protection Areas. This area contains two aquifer protection area wells.

2.4 Wetlands

Approximately 1,781 acres of the Town is classified as wetland areas. These wetlands cover approximately 20% of the Town's land area depicted on Figure 3-Wetlands. Wetland areas can be found in areas of poorly to very poorly drained soils. Using land use data obtained from CT DEP, deciduous forested wetlands is the predominant wetland type found in Prospect, followed by coniferous and deciduous shrub wetlands. These wetland areas are scattered throughout Prospect.

2.5 Bathing Beaches

There are no bathing beaches within the Town of Prospect.

2.6 Rare Species Habitat

It is important to note where storm water discharges are likely to impact habitats. According to available CT DEP data there are four areas identified as rare species habitats in the following locations. The three areas are located along the eastern border of Town as depicted in Figure 4-Natural Resources. Two of the locations are near the Cheshire Reservoir, one is near the Roaring Brook, and the last is near Naugatuck State Forest. A listing of the endangered, threatened and special concern species inhabiting New Haven County is included in Appendix A. The list also includes the species current protection levels.

3.0 LAND USE

Land use directly affects the potential for storm water pollution and the types of pollutants found in storm water. Different land uses expose different pollutants to storm water. For example, residential land uses often result in higher nutrient (nitrogen and phosphorous) concentrations in runoff due to the use of fertilizers while metals concentrations are often higher in runoff from commercial areas due to traffic.

Based on Town mapping, the character of the area is rural, bordering on suburban. Most commercial and industrial development is focused on the Route 68 and 69 corridors, close to Town Center. Large portions of Town are owned by one of the three drinking water supply organizations that have watersheds in the area. This area is categorized as open space but may not be permanently reserved as this land use. In recent years the Connecticut Water Company and Regional Water Authority have sold some of their excess land for residential development.

In order to design an effective storm water management plan, it is essential to describe the land uses and percentages thereof, for the land uses in the Town. Table 3.1 and Figure 5-Land Use identifies the land uses in Prospect based on data available from CT DEP.

**TABLE 3.1
LAND USE**

Land Use	Acreage	Percent of Total Land
Commercial, Industrial & Pavement	212	2.3
Coniferous Forest	414	4.6
Coniferous Forested Wetland	1	<0.1
Deciduous Forest	6,258	69.0
Deciduous Forest & Mt. Laurel	98	1.1
Deciduous Forested Wetland	8	0.1
Deciduous Scrub Wetland	1	<0.1
Exposed Ground & Sand	15	0.2
Exposed Soil	104	1.2
Exposed Soil / Cropland	81	1
Forest / Clear Cut	3	<0.1
Mixed Forest	28	0.3
Non-Forested Wetland	7	0.1
Pasture, Hay & Grass	495	5.5
Pasture & Hay / Exposed Soil	14	0.2
Residential & Commercial	635	7.0
Rural Residential	237	2.6
Scrub & Shrub	86	1.0
Shallow Water & Mud Flats	7	0.1
Turf & Grass	111	1.2
Turf & Tree Complex	249	2.7
TOTAL	9,047	100%

High-risk land uses are those that have a higher potential risk or actual presence of pollutants such as sediment, metals, nutrients, and pathogens. The highest risk areas are those that contain a high percentage of impervious area, activities using toxic chemicals, and high human activity thus creating a higher degree of human impacts (including automotive impacts). These areas would have industrial, commercial, and transportation (pavement) land use designations. Industrial and commercial land uses can contribute solids, and oils and grease from high volume parking areas. They may also contribute toxics and metals dependent upon the activities conducted at the site from areas associated with manufacturing and waste disposal. Transportation related land uses have the potential to degrade water quality from vehicular spills and leaks (oils, grease, antifreeze), salting and sanding, and particulate deposition. Higher concentration of metals can also be found due to tire wear, brake pads, and body wear.

Medium risk areas are those that contain a considerable amount of impervious area and human impacts (including pet waste impacts). These areas consist of residential land use designations. Residential land uses can be significant sources of nutrients and pathogens. Improper lawn care can contribute excess nutrients to the storm drainage system. Sanitary systems that are not properly designed, constructed, or maintained can be significant sources of nutrients, pathogens,

and organic contaminants. Residential land uses may be a source of toxic contaminants due to improper disposal of household hazardous wastes.

The agricultural lands are associated with fertilizer and pesticide runoff pollution. We have included in this group turf, nursery stock, and pasture agriculture land uses.

Table 3.2 identifies the priority, higher risk, land uses in the Town of Prospect. Figure 6-Potential Target Areas depicts the proximity of higher risk land uses to critical or significant water resources such as wellhead protection areas and impaired waters within the Town. The CT DEP data does not have a high degree of accuracy or specificity; therefore, this information should be used for guidance purposes only.

**TABLE 3.2
CRITICAL LAND USE**

Land Use	Acreage	Percent of Total Land
High Risk:	848	9.4
Medium Risk:	237	2.6
Agriculture:	949	10.5
TOTAL	2,034	22.5%

3.1 Implementation Alternatives

The Town of Prospect, given the current environmental and land use conditions, has the opportunity to prevent further storm water impacts and preserve the existing conditions. In order to prevent damage from storm water runoff, the Town should consider focusing their efforts on the following:

- Preserve the largely untouched portions of Town. Consider achieving this through low impact design strategies and programs such as the Green Cities Initiative through the Trust for Public Lands (TPL). See www.epa.gov/nps/lidnatl.pdf and www.tpl.org for additional programs and information on the USEPA Low Impact Design Manual and TPL, respectively.
- Maintain the large areas of open space as such. Focus efforts on preserving areas surrounding natural resource areas and aquifer protection areas and wells.
- Establish an illicit connection detection program to encompass the entire Town. The higher priorities for this program should be centered on the downtown area and aquifer protection areas.

- Target an educational campaign towards industrial and commercial entities. This program should include discussions of proper hazardous waste disposal and suggestions for technological upgrades. Voluntary audits of these industries may be beneficial to determine current practices.
- Develop a town-wide educational program to increase the awareness of the importance of our water resources. Target materials to change current behaviors to protect and preserve the water quality in Prospect. Topics that should be included are proper septic system maintenance and pet and solid waste management.
- Develop a plan for controlling development, particularly commercial and industrial, throughout the Town to ensure groundwater quality and the infiltration of potable water to the maximum extent practicable. The topics of groundwater quality and groundwater recharge are not discussed in this plan or in the governing Phase II regulations but the fragile nature of Prospect's groundwater is a notable water resource. This is normally accomplished through aggressive land use management controls. We suggest making education and participation critical components of this effort.

4.0 PUBLIC EDUCATION AND OUTREACH

4.1 State and Federal Regulatory Requirements

The success of any storm water management program hinges on educating the public about the impacts of certain behaviors and practices on surface water quality in their watershed. In addition, public education will improve the Town's ability to gain support to implement this program as well as secure required funding. For this reason, the United States Environmental Protection Agency (USEPA) has included public education and outreach as a minimum control measure of the Phase II regulations. The requirements to satisfy this minimum control measure are:

1. Implement a public education and outreach program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on local water bodies and the steps that can be taken to reduce storm water pollution; and
2. Determine the appropriate Best Management Practices (BMPs) and measurable goals for this minimum control measure.

4.2 Available Resources

There are a number of resources and public education currently available or in-place to assist Prospect to achieve the requirements of this minimum control measure. Examples of education and outreach materials are provided in Appendix B. The following is a list of the groups or programs that represent opportunities for education and outreach to the public.

4.2.1 School Programs

The local school system is an important and effective way to educate the children of a community as well as their parents. Not only can communities use existing curricula to educate students, but schools often support extracurricular activities which can bolster the education component of storm water management programs. Moreover, schools provide an excellent venue for distribution of educational materials for students and parents.

In Prospect, there is a regional school system in which neighboring communities educate their students at central locations. Though the community may not own or operate the schools, and the schools may not be located within the Town boundaries, any and all education that is provided to the students can be considered part of Prospect's educational program.

Due to the limited time given to prepare this program plan, representatives from the school system were not able to obtain, consolidate, and present detailed information about the current educational courses and programs provided to the students of Region 16 schools.

It is our recommendation that the Town of Prospect meet with representatives from School Board, administration, and select science teachers to discuss the current curriculum as well as the extracurricular trips and clubs provided for the students of Region 16. This information should be evaluated not only to identify existing programs, but to also identify opportunities to expand the Town's Public Education Program. We suggest that the Storm Water Committee include in each Annual Report a description of environmental education available, a summary of extracurricular/club activities, as well as any programs such as recycling programs or water quality related activities such as monitoring or stream clean ups.

Available Teaching Resources

Teachers in the Prospect school system have a number of resources and periodicals available to them that focus on environmental issues including water quality. Some of these resources are:

USEPA Environmental Education Center (EEC)

The on-line EEC provides teachers with technical background, curriculum and activities information, and workshops on a variety of environmental topics. This resource is useful in providing educators with the tools to teach students in grades K-12. The EEC web page is www.epa.gov/teachers. More information on educational resources, including having USEPA employees provide talks and presentations at public events or in schools, may be obtained from the USEPA Region 1 (New England) office located at 1 Congress Street, Suite 1100, Boston, MA 02114-2023, (888) 372-7341.

The Environmental Education Grant Program was developed to provide financial support for projects that “design, demonstrate or disseminate environmental education practices, methods or techniques.” Organizations eligible to apply for grant funds are:

- A local or tribal government education agency, college, or university; a state education or environmental agency; a 501(c)(3) not-for-profit organization; or a noncommercial educational broadcasting entity is eligible.
- A teacher's school district, an educator's not-for-profit organization, or a faculty member's college or university may apply, but an individual teacher is not eligible.
- The primary applicant must be based in the U.S.; partner organizations and project activities may be located outside the U.S.

USEPA Student Center

USEPA's Student Center web site provides information and activities for students to learn more about surface water ecosystems, environmental laws, and pollution. The site is located at www.epa.gov/students. There is also the Explorers' Club web page for younger students with games, activities and documents on the basics of environmental education. The Explorers' Club is found at www.epa.gov/kids.

President's Environmental Youth Awards

The President's Environmental Youth Awards is a program that recognizes young people across America for projects that demonstrate their commitment to the environment. Winners of regional certificates in the program are evaluated against winners in other USPEPA regions. The national winner receives a plaque issued by the President of the United States at an USEPA awards ceremony. Participants of completed projects will receive a certificate signed by the President. Projects can include a variety topics focused on environmental issues and environmental science. Participation in this awards program can be a mechanism to promote student interest in other education or participation programs.

Green Teacher

This magazine is produced by and for educators to enhance environmental and global education at all grade levels. It is produced four times per year and contains approximately fifty pages of ideas, activities, perspective articles, reports of what successful teachers, parents, and schools are doing, activities for various grade levels, evaluations of new books, kits, games and other resources. Green Teacher may be contacted at P.O. Box 452, Niagara Falls, NY 14304-0452, e-mail: greentea@web.net, (416) 960-1244.

EARTHWATCH

This magazine is produced bimonthly by the organization of the same name to link business, science, and the community in search of environmental solutions. Contact information: 680 Mt. Auburn Street, P.O. Box 403, Watertown, MA 02272, (800) 776-0188.

Earth Preservers

Earth Preservers is an "environmental newspaper" for kids in grades 3-9 published monthly during the academic season. Contact information: P.O. Box 6, Westfield, NJ 07090.

EE-Link

EE-Link is an on-line environmental education resource guide that can assist educators in locating materials and information for class study guides, activities, and programs (www.eelink.net).

Project WET

Project WET (Water Education for Teachers) is a national nonprofit water education program for educators and young people located on the campus of Montana State University. The goal of Project WET is to facilitate and promote the awareness, appreciation, knowledge and stewardship of water resources through the development and distribution of classroom ready teaching aids and through the establishment of Project WET programs. It is active in all 50 states, the District of Columbia, the U.S. islands and select provinces of Canada.

Certified Project WET facilitators conduct free workshops where educators, community leaders and natural resource managers receive instruction in the use of Project WET materials. A workshop lasts six hours and participants receive the highly acclaimed Project WET Curriculum and Activity Guide. Workshop participants are then encouraged to integrate activities from the Guide into the existing school curriculum or other appropriate forums. This guide is a 500-page publication filled with over 90 innovative, interdisciplinary activities for grades K – 12, most of which are hands-on. Designed to coincide with state and national standards, the Guide addresses the following content areas:

- Water has unique physical and chemical characteristics.
- Water is essential for all life to exist.
- Water connects all Earth systems.
- Water is a natural resource.
- Water resources are managed.
- Water resources exist within social contexts.
- Water resources exist within cultural contexts.

Please contact Roger Lawson, Program Facilitator at (203) 734-2513, or visit the Project WET website at www.projectwet.org for more information.

Project SEARCH

Project SEARCH is a water quality monitoring and aquatic studies program for high schools. It was designed to effect systemic change in the teaching of science and mathematics. Since 1994, the project has been funded by grants from the National Science Foundation, administered through the Science Center of Connecticut (SCC) and the CT DEP and an Eisenhower Professional Development Grant from the Department of Higher Education and 319 Funding from the USEPA. Due to the funding received for this program, it is provided to Connecticut high schools free of charge.

Through participation in Project SEARCH, students receive a high-quality, real-world application of science while generating useful information. Students utilize standard techniques to collect and interpret data from Connecticut rivers, streams, and wetlands. Student data is submitted to CT DEP and municipal officials. At the same time, students learn important lessons in Environmental Science, Biology, Earth Studies, Chemistry, Geography, and Mathematics.

The education for this program is administered to Connecticut high school science teachers. Teachers receive training during the summer months in data collection and analysis in order to conduct water quality monitoring with their students. Each school is provided with the field and laboratory equipment necessary to conduct field studies as well as training manuals and curriculum materials. SEARCH staff will also support teachers and provide field assistance to implement the program during the academic year. The SEARCH curriculum is designed to be integrated into regular high school science classes. SEARCH activities can be incorporated into biology, chemistry, earth and environmental science. Alternatively, the SEARCH curriculum can

serve as the core for classes in ecology and environmental science. Since its inception in 1994, Project SEARCH has trained 274 teachers from 142 high schools and middle schools across the State.

Students measure pH, temperature, dissolved solids, dissolved oxygen, hardness, alkalinity, nutrients and bacteria levels in local streams. Benthic invertebrates, which function as biological indicators, are collected and identified. Indices calculated from invertebrate data, along with chemical and bacterial test results are used to assess stream conditions. A variety of maps and aerial photographs allow students to evaluate local land use and identify factors that may affect water quality. From September 2001 through June 2002, 53 schools gathered water quality data at 61 sites on 45 streams. One hundred and fifty water samples were collected statewide.

Project SEARCH also has a "Summer SEARCH" program that provides high school students with the opportunity to learn while conducting environmental field investigations. Research projects are designed by CT DEP staff. There is a \$250 fee for this 5-day program. For more information about the Summer SEARCH program, contact Alberto Mimo at the CT DEP, Division of Environmental Education, 79 Elm Street, Hartford, Connecticut 06106, (203) 393-2705, alberto.mimo@po.state.ct.us or contact Richard Haley, Goodwin Conservation Center, (860) 455-9534.

For more information about Project SEARCH contact Chris Sullivan, Instructor/Coordinator, PO Box 435, 500 Hawthorne Avenue, Derby, Connecticut 06418, (203) 734-2513, chris.sullivan@po.state.ct.us.

Healthy Water, Healthy People

Healthy Water, Healthy People is an innovative water quality education program sponsored by Project WET and the Hach Scientific Foundation, which offers hands-on activity guides, testing kits, and training. Healthy Water, Healthy People is for anyone interested in learning and teaching about contemporary water quality education topics. The goal of the program is to raise the awareness and understanding of water quality topics and issues and their relationship to personal, public, and environmental health. The program attempts to provide a clear understanding of these relationships, the connection between water quality and land uses, and the process of analyzing and interpreting data. Healthy Water, Healthy People will help educators address science standards through interactive activities that interpret water quality concepts and promote diverse learning styles, with foundations in the scientific method.

The program comes with educator guides for the fourth grade through university level age students as well as testing kits and manuals. The Healthy Water, Healthy People Testing Kits yield in-depth information about eleven water quality parameters. The water quality testing kits include all materials and equipment needed for field and classroom analysis of water samples for chemical, physical, and biological parameters. Healthy Water, Healthy People Testing Kits are available for a variety of parameters, grade levels, skills, and prices.

For more information about the Healthy Water, Healthy People program contact Roger Lawson, Program Facilitator, at (203) 734-2513 or visit the program's website at www.healthywater.org.

Catch the Science Bug

Catch the Science Bug was created by Kim Bent as a traveling science program, bringing hands-on science activities to Boston-area elementary schools. The program has since expanded to include most of Massachusetts and a few schools in New Jersey. Kim Bent would be willing and able to bring this program to Connecticut as well. The program's mission is to excite and educate students about science and how it affects everyday aspects of life. The traveling programs feature interactive inquiry-based methods of presentation to enable students to take part in the learning process. Students learn by predicting outcomes, observing, comparing, experimenting and drawing conclusions through hands-on activities. Appropriate math concepts are also integrated. All programs are designed in accordance with the National Science Standards, the Massachusetts Science and Technology Curriculum Frameworks, and the Benchmarks on the Way to Environmental Literacy.

Catch The Science Bug offers five programs, which range across a variety of science topics. Environmental Programs include:

- "Clean-Up an Oil Spill" is a two hour program that challenges students to design the clean up of a hypothetical oil spill.
- "All Eyes on Earth" combines four different programs including catch the recycling bug, where do you get your drinking water from, protecting our land and water resources, and contaminant hydrogeology.
- "Watersheds" addresses several topics directly related to storm water pollution prevention. Students learn how to define a watershed using a topographic map and are given different cards describing everyday activities that take place in a watershed. Participants each model a different everyday business or residential activity, which when acted out together, shows how various land-uses affect water quality.
- "Protecting our Land and Water Resources" includes explanation of non-point source pollution and storm water.
- "Where Do You Get Your Drinking Water" addressed pollution prevention and preserving surface water supplies through the use of a model. The model shows different non-point sources of pollution and shows how these sources affect both the ground water and surface water supplies.

These programs are also available to youth organizations such as scouting troops and church groups.

Catch the Science Bug will soon offer a children's show to be televised over the Web at FreeNetTV. The show will feature a different science expert each week and will allow time for Kim to respond to questions that children send by e-mail while the show is "on the air." More information about available education programs can be found at www.catchthesciencebug.com and by contacting (508) 854-1681 or sciencebug@charter.net.

4.2.2 Citizen's Groups

Several organizations exist that either currently provide public education resources on storm water quality issues or could provide a public outreach avenue in developing storm water awareness and developing partnerships with the public. The organizations that have the best potential to support future storm water education programs in Prospect are the following:

New England Wild Flower Society (NEWFS)

The New England Wild Flower Society (NEWFS) is the oldest plant conservation organization in the United States, promoting the conservation of temperate North American plants through key programs: Conservation, Education, Research, and Horticulture. They do not focus their efforts on any one watershed or town, but are an available resource for New England towns. NEWFS's offers many education programs that are informative to both children and adults. There were 2,000 people register for their fall session. A total of four sessions are offered each year. A portion of their education programs cover wetlands and courses include "Wetland Identification and Delineation," "Wetland Species", and "Vernal Pool Ecology." The Connecticut Chapter is coordinated by Ellen Bender, President, 25 Lanz Lane, Ellington, Connecticut, 06029, (860) 871-8085, ctnewfs@att.net.

Connecticut Audubon Society (CAS)

Connecticut Audubon Society, an independent non-profit, is the state's oldest (founded in 1898) and largest environmental education organization, dedicated to advancing people's knowledge and appreciation of Connecticut's diverse wildlife and habitats. Their mission is accomplished by providing excellence in environmental education, encouraging conservation of the state's natural resources and advocating for enlightened leadership on ecological matters. With a comprehensive network of professional educators, seven nature facilities and 19 wildlife sanctuaries around the state (preserving 2,400 acres), Connecticut Audubon's environmental programs, conservation activities and legislative advocacy engage over 200,000 people annually.

The main Audubon facility is the Connecticut Audubon Coastal Center at Milford Point. This facility is located on the barrier beach at the mouth of the Housatonic River overlooking the Sound and Nells Island. The Center is owned by the Connecticut Department of Environmental Protection and leased to the Connecticut Audubon Society who manage and operate the building. The center contains an exhibit area, classrooms, a 3-D puzzle of the entire Housatonic River watershed and a tidal marsh touch tank for the kids.

Connecticut Audubon Society offers educational programs at there nature facilities as well as in classroom programs and educator workshops. Their School Programs are designed to encourage experiential learning and ecological literacy. They are also designed to fit the School's curriculum and teaching objectives. The programs have a various fees, based on the facility used and the number of students participating, scholarships may be available. The storm water related ecological concepts that are stressed in their programs include ecosystems and abiotics and the cycling of material. The latter discusses gases, water, and rocks; each cycles through forms, states, or locations over time. It explores how they are essential to life, and disruptions in their cycling can create

ecological crises. Students understand this concept by testing water, rocks, and minerals to determine their characteristics. They also follow the route of a stream or a storm drain to Long Island Sound and measure how fast rain or snow falls. Some of the applicable youth programs include the following:

- Coastal Connections (grades 3-6): Through discussion and indoor activities students learn how the Long Island Sound estuary is connected both to the Atlantic Ocean and the watersheds that flow into it. Using outdoor games and discussion students discover how organisms (including people) within the estuary are connected as part of the food web.
- Our Watery World (grades 4-8): Through discussion and demonstrations, students recognize the importance of water in an ecosystem and learn about the water cycle. They construct their own “watershed”, helping them understand how their actions impact water resources. Students explore ways they can be responsible citizens of our watery world.
- Quest for Water Quality (grades 4-8): After a brief discussion of pollution and human impact on water, students make predictions on the quality of two different water samples. They then test their hypothesis using chemical test kits to measure basic water parameters such as dissolved oxygen, nitrogen, and pH. The class compares their results to the predictions and draw conclusions about the data.

Teacher-training workshops and seminars are scheduled year round. Teachers and educators can choose from a variety of topics offered on evenings, weekends, development days, and summer vacation. For most programs, teachers can receive Continuing Education Units (CEUs). Some of the applicable programs include “Exploring Vernal Pools” and “Using School Nature Areas for Education.” These educator workshops have a \$25-\$35 fee. For more information regarding Educator Workshops call (860) 246-6285.

The main Audubon facility located in New Haven County is the Connecticut Audubon Coastal Center at Milford Point, 1 Milford Point Road, Milford, CT 06460, (203) 878-7440, www.ctaudubon.org.

Rivers Alliance of Connecticut

The Rivers Alliance of Connecticut is the non-profit statewide organization (founded in 1992) representing all of the State’s rivers and streams. The Rivers Alliance of Connecticut was formed to protect and enhance Connecticut's rivers and streams by promoting sound river and watershed policies, uniting and strengthening the state's many river and watershed groups, and educating the public about the importance of river conservation. Its focus has been on coordinating watershed planning; promoting sound public policies for water protection; strengthening grassroots organizations for river conservation; and providing information, educational materials, and speakers for member groups and all others interested in river preservation and restoration.

Rivers Alliance of Connecticut headquarters are located at 111 Main Street, Collinsville, Connecticut 06019. For more information contact Margaret Miner, Executive Director, at (860)

693-1602, email info@riversalliance.org. The Rivers Alliance also maintains a website at www.riversalliance.org

Long Island Soundkeeper (Soundkeeper)

Soundkeeper was founded in 1987 by the shellfishing and fisheries communities who were concerned about the progressive pollution and destruction of habitat in the Sound. This organization is dedicated to the protection and enhancement of the biological, physical, and chemical integrity of Long Island Sound and its watershed. The Soundkeeper strives to work as the link between concerned citizens and the lawmakers to ensure that the Clean Water Act and other related regulations are upheld. The ultimate goal is to make the waters of Long Island Sound fishable and swimmable. Their daily work consists of patrolling, investigating, intervening, and raising public awareness of the Sound's problems. Soundkeepers work with the proper authorities when necessary to see that problems are resolved.

Soundkeeper places high priority on educating citizens who live around the Sound. Their first effort was *The Soundbook*, which continues to be a staple in schools for local environmental education. To date, we they have distributed almost 20,000 copies of the publication on both sides of the Sound.

Soundkeeper also wrote and published a 32-page coloring and activity book, *Super KeeperKids Challenge Megablob: A Long Island Sound Coloring and Activity Book*, based on the theme of protecting and preserving the Sound and its watershed. The book was underwritten by grants from Iroquois Gas and the CT DEP's License Plate Fund. The book is an educational, problem-solving, and creative experience for children from age 5 to 10, all pertaining to Long Island Sound and the responsibilities of an environmentally-aware kid. The book is distributed to children and parents through the schools, through shops at children's museums and maritime centers, at waterfront public events, and on request through the Soundkeeper offices. Reportedly, over 10,000 copies have been distributed.

The last major publication written and distributed by Soundkeepers is the *Clean Boater Guide* which includes environmental information surrounding boating such as toxics, sewage, and garbage. Reportedly over 15,000 copies have been distributed.

Soundkeeper's headquarters are located at 7 Edgewater Place, Norwalk Connecticut. For more information call (203) 854-5330 or 1-800-933-SOUND or email info@soundkeeper.org. Soundkeepers also maintains a website at www.Soundkeeper.org.

The Long Island Foundation, Inc. (LISF)

The Long Island Sound Foundation was established in 1992 to fill a void within the environmental community and to promote a greater awareness and understanding of Long Island Sound as a natural resource and treasure. Their goal is to facilitate the exchange of information and enhance the ability of individuals and organizations to address issues impacting Long Island Sound.

Through strategic planning, the Board of Directors developed a program to provide the environmental community an avenue to circulate information, raise public learning and awareness focused on Long Island Sound. They also maintain an environmental fund by fund-raising and fund-dispersing to support scientific and public policy research, education and community programs.

This group offers the following resources: brochures (including Connecticut Coastal Access Guide), conference proceedings, lectures, and speakers. Since 1992, the foundation has sponsored a biennial Long Island Sound Research Conference, published important technical conference proceedings and provided supporters of the sound an avenue to network and develop common programs.

The Foundation also organizes an annual art contest for young students and a photo contest for older ones. The ultimate product of the art contest is a calendar focused on the Long Island Sound and Its Watershed. The art contest is open to all Connecticut students, kindergarten through grade six. Participating schools are asked to select one drawing from each eligible grade to be submitted in the contest. The photo contest of the same theme is for all Connecticut students grades 7-12 and the winning photos are used on educational posters.

The LISF is also associated with the Long Island Sound Resource Center. The Resource Center was formed under the joint sponsorship of the Connecticut Department of Natural Resources and the Marine Science & Technology Center of the University of Connecticut. The Center's primary functions are to collect, catalogue and archive the "grey" literature concerning Long Island Sound, Geographic Information System (GIS) Services, Long Island Sound Habitat Mapping and Characterization. The Center's is located at 1084 Shennecosset Road, Groton, CT 06340. For more information about the Center call (860) 405-9015 or (860) 405-9016.

The LISF headquarters are located at 1080 Shennecossett Road, Groton, CT 06340. For more information contact Sue McNamara, Executive Director at (860) 405.9166 or email her at susan.mcnamara@uconn.edu.

Schooner Sound Learning

Schooner is a private, non-profit marine education organization dedicated to the conservation of the environment, particularly Long Island Sound and the rivers of Connecticut, and appreciation of their culture, history and future. Schooner Sound Learning uses a 91-foot gaff-rigged schooner, the *Quinnipiack*, to facilitate their research, education, and advocacy activities as well

as field locations. Reportedly, the Schooner Sound Learning program reaches 15,000-16,000 participants per year.

Schooner Sound educational programs are year round, while the *Quinnipiack* sails from April through November. The staff provides outdoor programs for schools in the spring and fall and for camps in the summer. Throughout the winter they conduct classroom presentations and a one-week winter program during school vacation. Groups of people as young as pre-schoolers through senior citizens are provide with a platform to explore life in salt marshes, sandy beaches, rocky intertidal areas and mud flats -- all places where the land meets the sea. Groups may use their field site at Lighthouse Point, or Schooner staff may use a field site designated by the group. If the *Quinnipiack* is used, the students on board learn sailing, seamanship, marine biology, water chemistry, local history and a variety of other subjects. The majority of programs are focused on water quality issues and experiments. All Schooner Sound Learning programs can be altered to fit the needs of the class' curriculum or age group.

The Schooner Sound Learning offers summer programs for students in grades 1-8. Students in grade 1-4 participate in the Sea Sprite program spending a week exploring four different habitats: salt marsh, sandy beach, rocky intertidal zone and mud flats. Students in grades 5-8 spend a week aboard the *Quinnipiack* as Seafaring Scientists. They learn not only sailing, navigation and knot tying, but also about the marine life of Long Island Sound through water chemistry and studying live animals. They also offer a program for kindergarten children ages 4 and 5. It's a half-day program similar to the Sea Sprites called Sea Urchins.

Schooner Sound Learning also brings their programs into classrooms, libraries, and meeting halls. Many of their indoor programs include live marine animals. Others include hands-on water experiments, water chemistry, land use and environmental planning and discussions about marine pollution. Staff speaks to adult groups as well as schools.

The programs offered by Schooner Sound Learning have an associated fee which varies by the number of participants, program, length, and location. This fee ranges from \$9-44 per student for on the water, \$4-12 for on the shore, and \$4-6 per student for in the classroom activities. The organization is able to offer educational programs at a subsidized rate by also offering their resources (particularly the *Quinnipiack*) for recreational activities and corporate sails.

Schooner Sound Learning's headquarters is located at 60 South Water Street, New Haven, Connecticut 06519. For more information regarding Schooner educational programs email the Education Director at educator@SchoonerSoundLearning.org. For general information regarding the organization contact Beth McCabe, Executive Director, at (203) 865-1737.

Save the Sound, Inc. (Save the Sound)

Save the Sound is a bi-state, non-profit (501(c)(3)) membership organization dedicated to the restoration, protection, and appreciation of Long Island Sound and its watershed through advocacy, education and research. The organization was originally founded in 1972 as the Long Island Sound Taskforce is affiliation with the Sierra Club, then the Oceanic Society. In 1989 it

became an independent organization. Save the Sound employs 8 full-time staff members and over 42 additional part-time volunteers and seasonal staff.

Save the Sound works with local, state and federal governments to support policies or legislation which improve land-use practices to ensure that the Sound is a viable waterway for boaters, swimmers, finfish, shellfish, and other natural resources.

Save the Sound has recently worked out an arrangement with the Maritime Aquarium at Norwalk to handle all of our traveling education programs. For more information or to book an education program, please call The Maritime Aquarium at Norwalk reservations department at 203-852-0700 x 2206.

Save the Sound headquarters are located at 18 Reynolds Street, East Norwalk, CT 06855 and also has offices on Long Island at Garvies Point Museum, Glen Cove, NY and at UCONN's Marine Technology and Research Center in Groton, CT. For more information call (203) 354-0036 or 1-888-SAVE-LIS or email savethesound@savethesound.org. Save the Sound also maintains a website at www.savethesound.org.

Long Island Sound Study (LISS)

The Long Island Sound Study (LISS) is a cooperative effort involving researchers, regulators, user groups and other concerned organizations and individuals. Federal, state, and local government agencies, private organizations, and educational institutions work together to protect and improve the health of the Sound by implementing the Sound's Comprehensive Conservation and Management Plan completed in 1994.

The LISS has an education multimedia program on "Life Under the Surface." This photographic journey of the undersea life of Long Island Sound on CD was created by two scientists from the University of Connecticut in Groton. A limited number of copies of "An Underwater Tour of Long Island Sound" are available for free upon request by using our contact form. You can also view an abridged version of the tour that appeared in the Long Island Sound Study's Sound Health 2003 report.

The Environmental Protection Agency's Long Island Sound Office produced four posters that stress the importance of reducing non-point source pollution at home. Pollution problems from human activities such as vehicle oil leaks, car wash soaps, overuse of lawn fertilizer, and disposal of pet waste are the topics of the posters. The posters are being made available to the general public as part of the Long Island Sound Study's public education and outreach efforts.

The LISS is also associated with "Beach Watch", a USEPA survey that provides information on whether the water at a specific beach is being monitored, who is responsible for the monitoring, the pollutants that are being monitored, and if advisories or closures have been issued. In total, 240 swimming beaches in Long Island Sound are monitored by local health departments and other agencies to test if the water is safe from disease-causing microorganisms

LISS also has a Public Outreach Involvement and Education Small Grants Program providing grants for a variety of projects, programs, and products that educate and involve the public in the protection and restoration of Long Island Sound and its watershed. Funding is available to not-for-profit organizations, local governmental or public agencies, and educational institutions (including public and private K-12, and college).

In 2004, the program is offering three categories of funding. The first category is for proposals (maximum \$2,000) that focus on activities for National Estuaries Day (September 25, 2004) www.estuaries.gov. National Estuaries Day is an interagency campaign to promote the importance of estuaries and the need to protect them. The Long Island Sound Study encourages local organizations to host special events to celebrate the Sound. Examples may include but not limited to festivals, mobile exhibits, boat tours, theater, native plant sales, fishing clinics, or beach grass plantings.

The second category is for proposals (maximum \$5,000) that focus on public education and participation activities relating to the restoration and preservation of the Sound. Examples may include but not limited to watershed initiatives, impervious surface inventories, beach cleanups, fish ladder installation, septic system maintenance, or storm drain stenciling.

The third category is for proposals (maximum \$10,000) that focus on awareness of exotic (introduced) species in Long Island Sound. Examples may include but at not limited to exotics curriculum, signage, pet store and garden store programs, posters, inventories or workshops.

LISS Offices are located at Stamford Government Center, 888 Washington Blvd. Suite 6-5, Stamford, CT 06904-2152. For more general information, call (203) 977-1541. For information regarding the LISS grants program contact Kimberly Zimmer at (631) 632 – 9216 or by email at ksz1@cornell.edu. Additionally, the Long Island Sound Study maintains a website at www.longislandsoundstudy.net.

South Central Connecticut Regional Water Authority

The South Central Connecticut Regional Water Authority (Authority) is a non-profit organization serving the water needs of approximately 400,000 consumers in 12 cities and towns in the New Haven area. They provide an average of 55 million gallons of water a day to their consumers through a system which includes reservoirs, community wells, water treatment facilities, pumping stations, storage tanks and hundreds of miles of pipe. The Authority is also a sizable land owner in the region.

The Authority offers many educational opportunities to those living in the region. These educational campaigns surround issues such as water quality and proper hazardous waste disposal. The hazardous waste program is located at HazWaste Central in New Haven. The educational aspect of HazWaste Central includes the distribution of educational magnets, pens, school visits and TV program advertisements (weather channel tags).

The majority of Authority programs is offered to children grades K-8 surrounding water and water quality. These opportunities can be divided into three areas as described below:

Water Science Programs: The Authority created the Whitney Water Center (WWC) as an innovative education center offering hands-on water science programs to school classes, scouts, and other groups. WWC is located adjacent to the Eli Whitney Museum. Classes take place either at the Water Center or at area schools. Current offerings dealing with source water protection include:

- Waterworks - Waterworks explores the parts of the water cycle - condensation, precipitation, collection (surface and groundwater) and evaporation. Hands-on activities and demonstrations of each component help students understand how water is recycled through the environment.
- Watershed Walk - On a short walk through a section of East Rock Park, students learn what plants and animals live in the Mill River Watershed and how the lay of the land affects how water moves in the watershed.
- Watersheds - In this class, students explore what a watershed is and learn more about the effects our activities can have on our drinking water.
- The Rogue Turtle – By performing some simple chemical tests on some water samples for various water quality parameters, students will be able to match water samples with specific sites and learn about the connection between land use and water quality.
- Can You Point It Out? – Nonpoint water pollution is the largest source of water pollution. Most nonpoint sources are related to land use activities. Students will discover how different uses of land can contribute to water pollution.
- Macroinvertebrate Messages – Benthic macroinvertebrates are small critters that live on the bottom of a stream. Students will find out how scientists use macroinvertebrates to see how healthy a stream is.
- From the Ground Up – Students will make models of aquifers to learn what groundwater is, how it moves, and what causes groundwater contamination.
- The Magic of Microscopy – Students will look at and identify some of the smallest plants and animals in the food chain, and will try to determine how healthy the water is.

Water Science Loan Boxes: Educators may borrow the Water Science Loan Boxes which are self-contained teaching units that contain everything needed to teach about an aspect of water science. Topics related to source water protection include:

- Troubled Waters – students explore some of the common avenues of water pollution.
- Watersheds – students learn what a watershed is and how land use affects water quality.
- Invasion of the Aliens – students learn about invasive alien species.

Project W.A.T.E.R.: For students in grades 6 – 8, the Authority offers Project W.A.T.E.R. (watershed, aquatic, terrestrial, ecosystem research). After four classroom visits by one of the Authority's educators, The Project W.A.T.E.R. bus will pick up students from school and transport them to one of the Maltby Lakes for a field experience. During the experience, the students are split into in order to gather data in the field on all interrelated aspects within an

ecosystem. The field experience is followed by one more classroom visit to help students understand the connections between land use and water quality.

The Authority provides educational programs free of charge to the residents in their region (including Bethany, Madison, Orange, Branford, Milford, Prospect, Cheshire, New Haven, Regional District #17, East Haven, North Branford, West Haven, Guilford, North Haven, Woodbridge, and Hamden). The water science programs are also available to groups from other communities for a fee (currently \$3/student).

South Central Connecticut Regional Water Authority headquarters are located at 90 Sargent Drive, New Haven CT 06511-5966. For additional information on educational programs contact Kate Powell at 203-401-2738 or by email at kpowell@rwater.com. The Authority's website, www.rwater.com is also a resource for further information.

Southwest Conservation District (formerly New Haven County Soil and Water Conservation District)

Southwest Conservation District was originally established in 1946 and recently was restructured and renamed from the prior conservation district. The current District covers Fairfield and New Haven County townships. The District works to improve the harmony between people and natural resources to enhance the balance between the need for land development and for quality of life. To accomplish this the District helps land owners, land users, and communities cope with the mounting complexity of conserving natural resources on one hand and meeting land use needs on the other.

The District has many partnerships with agencies such as the U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS), CT DEP, the Connecticut Department of Agriculture (DOA) and the Connecticut Council on Soil and Water Conservation.

The District plans, coordinates, and provides advice on soil and water conservation matters. It does not enforce or regulate. These services include: the review of land development proposals, subdivision plans, and erosion and sediment control plans; environmental reviews of proposed developments; consultation with local commissions and departments regarding erosion control on roadbanks and streambanks, drainage and rainwater runoff problems, and the need for planting trees and other vegetation to hold soils in place; and planning for the management of public open spaces.

The District also provides educational programs including workshops for town officials and employees, as well as, programs for schools, youth groups, and the general public. At government level, the District offers training on erosion and sediment control and the technical aspects of watershed management to reduce cumulative impacts of storm water.

The Southwest Conservation District is located at 900 Northrop Road, Suite A, Wallingford, Connecticut, 06492. For more information contact Roman Mrozinski at (203) 269-9594.

4.2.3 Regional, State and National Resources

There are a number of educational resources available for homeowners and businesses such as storm water guidance documents, programs for children, and educator training workshops. Many of the education and outreach materials developed can, in many cases, eliminate the need for Prospect to develop its own materials. Some of the available resources are listed below.

U.S. Environmental Protection Agency

The Office of Wastewater Management (OWM) provides technical resources to persons responsible for designing and implementing BMPs recommended to achieve the goals of the six minimum control measures. These resources are available electronically at USEPA web sites. While the resources provide some background to the development of the Phase II regulations, they are largely oriented to municipalities and organizations that are developing storm water management plans as opposed to the general public.

The Office of Water has created Adopt Your Watershed, a campaign to encourage citizens and groups to work at protecting and restoring surface and groundwater quality (www.epa.gov/adopt). The program provides a resource for communities or groups to network with other groups nationwide. This networking and watershed approach can enable a community to share, develop or Use successful strategies from existing programs. The resources available include training courses and publications offered by the Watershed Academy to assist with implementing storm water programs. These educational materials can be used by educators, private groups that adopt a watershed, or by municipal employees responsible for implementing the program. The Watershed Academy also offers Academy 2000, an internet-based learning tool for distance learning (www.epa.gov/owow/watershed/wacademy).

New England Interstate Water Pollution Control Commission (NEIWPCC)

New England Interstate Water Pollution Control Commission (NEIWPCC) provides educational programs, promotes participation in water quality restoration programs, and supplies outreach materials. NEIWPCC is involved with many projects in the region that currently includes developing outreach strategies and products for the Narragansett Bay Estuary Program with RIDEM. Highlights of the NEIWPCC offerings are the NEIWPCC website, an Environmental Training Center, youth programs, newsletters such as L.U.S.T.LINE and Water Connection, informational brochures, workshops, and technical advice.

American Rivers

American Rivers is a national, non-profit, conservation organization dedicated to protecting and restoring healthy natural rivers and the variety of life they sustain for people, fish, and wildlife. They provide innovative solutions to improve river health; raise awareness among decision-makers; serve and mobilize the river conservation movement; and are collaborating with their partners to develop a national "river agenda." This will create a unified vision for improving river health across the country. Along with conservation efforts, they promote public awareness about

why healthy rivers matter for fish and wildlife, kayakers, canoeists, and anglers, and for our communities as a whole. American Rivers works closely with grassroots river and watershed groups across the country. Staff members also collaborate with other conservation groups, local citizens and businesses, and various federal, state, and tribal agencies to build coalitions and provide technical support. Their website provides educational resources including a Lewis and Clark animation about how the Missouri River has changed, River ABC's for kids and teachers, and a tools and links page. American Rivers has also published a Draft River Threats List and a River Agenda, which is a plan for creating healthy rivers. For more information, please visit www.amrivers.org.

National Watershed Network (NWN)

The National Watershed Network (NWN) is a coordinated national effort to encourage the formation of local, voluntary watershed partnerships and help assure that these partnerships successfully attain their goals. More than 70 diverse National Partners representing private and public corporations, government agencies, and non-profit organizations sponsor the initiative. Each National Partner agrees to provide financial and/or in-kind support. The Conservation Technology Information Center (CTIC), a non-profit data and technology information transfer center coordinate the national effort. In addition to maintaining the watershed network, National Watershed Calendar, and many other on-going tools for watershed coordinators, NWN also provides the following:

- Consistent messaging among all National Partners to state and local leaders of organizations, government agencies and companies.
- A connection between National Partners who have useful tools and coordinators of local watershed partnerships.
- A resource to share state activities and successes with state-level stakeholders in other states and regions.
- Encouragement for broad-based state-level partnerships that provide support to local watershed partnerships.
- A way to use and share processes and methods that have been found to work successfully for watershed coordinators.

For more information, please visit www.ctic.purdue.edu/KYW/nwn/nwn.html.

Natural Resources Conservation Service (NRCS)

The Natural Resources Conservation Service (NRCS) is a federal agency that works hand-in-hand with the people of Rhode Island to improve and protect their soil, water and other natural resources. For decades, private landowners have voluntarily worked with NRCS specialists to prevent erosion, improve water quality and promote sustainable agriculture. This includes helping landowners develop conservation plans, create and restore wetlands, restore and manage other natural ecosystems as well as advise on storm water remediation, nutrient and animal waste management, and watershed planning. NRCS is also an active participant in the "Year of Clean Water" Observance. NRCS provides has several educational resources including tip sheets on

topics like nutrient management and multi-media information on topics like backyard conservation. Conservation Programs offered and assisted by NRCS include:

- **Environmental Quality Incentives Program (EQIP)** – Provides technical, educational, and financial assistance to farmers to help them comply with environmental laws while encouraging environmental enhancement.
- **Connecticut's Open Space Initiative** – Provides scientists and community planners to help communities develop and implement their open space objectives.
- **Farmland Protection Program (FFP)** – Provides funds to purchase the development rights to farmland, thus preserving quality farmland for agricultural use.
- **Wildlife Habitat Incentives Program (WHIP)** – Provides both technical assistance and cost-share assistance for farmers who want to voluntarily improve fish and wildlife habitat and restore and managing natural ecosystems on their property.
- **Watershed and River Basin Planning and Installation (PL566)** – Provides technical and financial assistance in cooperation with local sponsoring organizations, state agencies, and others for watershed-based projects. NCRS cooperates on projects for watershed protection; flood prevention; water quality improvements; soil erosion reduction; rural, municipal and industrial water supply; irrigation water management; sedimentation control; fish and wildlife habitat enhancement and wetland restorations.
- **Resource Conservation and Development (RC&D)** – Provides local people with the means to solve natural resource problems and promote sustainable use of natural resources in rural areas. The program aims to improve the quality of life by providing practical solutions for community development, land conservation, environmental enhancement and water management.
- **National Resources Inventory (NRI)** – This is a compilation of natural resource information on non-federal land throughout the United States. It captures data on land cover and use, soil erosion, prime farmland, wetlands, habitat diversity, selected conservation practices and related resource attributes at more than 800,000 scientifically selected sample sites.
- **Emergency Watershed Protection Program (EWP)** – It is a disaster recovery program made available in emergency situations when neither the state nor the local community is able to repair a damaged watershed.
- **Earth Team Volunteer Program** – Provides volunteers with opportunities to use their talents on behalf of conservation. Earth Team volunteers do not receive a salary from NRCS but they perform services that are essential to the conservation mission of the agency. Anyone 14 years of age and older can join the Earth Team by calling a local NRCS office.
- **Wildlife Habitat Incentives Program (WHIP)** – Focuses on restoring habitats along coastal features, freshwater wetlands, upland grasslands, and forest edges to restore specific native species and to improve overall biodiversity in these areas.

More information about NRCS can be found at www.nrcs.usda.gov, while Connecticut programs can be researched at www.ct.nrcs.usda.gov or by calling (860) 871-4011. Margo L. Wallace, State Conservationist, is the contact for the Connecticut program. She is located at 344 Merrow

Road, Suite A, Tolland, Connecticut 06084, (860) 875-6928 (phone), (860) 871-4054 (fax), (860) 871-4070 (voicemail).

Connecticut Chapter of the American Planning Association (CCAPA)

The American Planning Association is the national organization of professional planners and citizens involved in planning for the nation's communities. CCAPA is dedicated to advancing the practice of good planning in Connecticut by providing members with up-to-date information about current planning issues and techniques, by building public and political awareness of the importance and benefits of good planning and by bringing the Chapter's diverse membership together from throughout the state to share experiences with colleagues. CCAPA members include professional planners working at all levels of government, private consultants, land use professionals from business and industry, university students and professors, attorneys and land use board members.

CCAPA provides many workshops and events that are valuable to local planners, the environment, and water quality including: "Connecticut's Future: Can We Grow Smart", "Brownfields Redevelopment: An Innovative Approach," "Let Nature Do the Work! Low Impact Development - New Site Development Techniques to Reduce Storm Water Runoff and Protect Water Quality and Biodiversity," and "Too Much Parking." "Too Much Parking" explores whether parking in small/rural communities is well matched to the actual demand, how land use regulations guide the provision of parking, and mechanisms to minimize impervious parking surfaces and green up" parking areas. These events are held at various locations throughout the State and do have an associated fee (usually less than \$40 per event/workshop with members receiving a discounted rate). Reportedly, the Connecticut Chapter has approximately 250 participants per year.

The CCAPA co-sponsors the Land Use Education Partnership. The Partnership is a group of volunteers representing several areas of land use expertise. The Partnership's goal is to offer regularly scheduled workshop sessions for local land use board members with up-to-date information on the regulations, processes, and technical issues that face them as decision makers. Sessions are being offered, free of charge or at nominal cost, throughout the state on various dates. For more information on the Partnership or upcoming workshops call Jim Gibbons at the UCONN Cooperative Extension System, (860) 345-4511 or Elizabeth Stocker, CCAPA's Partnership Coordinator, at (203) 270-4271.

The American Planning Association (national) also presents an audio conference training series with the Lincoln Institute of Land Planning. The audio conference program was started in 1995 and since then has reached thousands of officials, planners, researchers, students, and allied groups. It is a convenient, easy-to-use program that is delivered straight to a desktop or conference room. For more information visit the American Planning Association's audio conference website at www.planning.org/audioconference.

For more information on the Connecticut Chapter of the American Planning Association or to inquire about membership, view their website at www.ccapa.org or contact Daniel A. Tuba,

President and Town Planner of the Town of Monroe, by mail at 7 Fan Hill Road, Monroe, Connecticut 06468, by phone at (203) 452-5424, or by email at datuba@aol.com.

Non-point Education for Municipal Officials (NEMO)

Non-point Education for Municipal Officials (NEMO) is an educational program for local land use officials, which addresses the relationship of land use to natural resource protection. They believe that better land use decisions are the key to protecting the natural resources, community character, and long-term economic health of communities. Since proper land use is their focus, the people making land use decisions are the target audience. In the United States, this means local officials serving on land use boards at the county and municipal levels. NEMO provides research-based, non-advocacy professional outreach type education to these municipalities given that the local land use decision-making process is complex, political, and widely varying. Their education supplements state and federal regulations that push for better land use policies and practices. Some of the applicable workshops offered free of charge include:

- Linking Land Use to Water Quality - addresses the relationship of land use to natural resource protection with an emphasis on water quality. It explains the concepts of non-point source pollution and watersheds as well as reviewing the impacts of land use on water resources. Natural resource-based planning is introduced as a framework for dealing with land use issues.
- Natural Resource-based Planning for Watersheds – assists municipal members to overcome the two major stumbling blocks to local watershed efforts, an inability to get started and an overload of maps/information.
- Reducing Runoff - goes over planning and site design options to reduce both the amount and the impact of impervious surfaces. It also includes information on road and parking lot designs and alternative materials that promote infiltration.
- Clean Waters: Starting in Your Home & Yard - focuses on protecting water resources through changes in common activities in and around the home. Three major areas are covered: septic system design and maintenance, hazardous household waste management and "water-friendly" gardening and landscaping practices. This workshop is also useful for garden clubs, homeowner's associations and other civic groups.

In Connecticut, NEMO is supported by UCONN. For more information, please visit their website at <http://nemo.uconn.edu>, email nemo@canr.uconn.edu, or contact Laurie Giannotti, Natural Resources Management Educator, at (860) 345-4511.

University of Connecticut Cooperative Extension System (CES)

The Cooperative Extension System (CES), a branch of the University of Connecticut's College of Agriculture and Natural Resources, is an educational resource for all Connecticut citizens. CES' missions are to aid in developing people and their resources, protect the environment, and guide agriculture through practical education. Some of the applicable programs offered by the CES include the following:

- **Integrated Pest Management Program (IPM):** Coordinates with producers to minimize the use of pesticides. IPM uses a variety of pest control methods designed to protect public health and the environment and to produce high-quality crops and commodities with the most judicious use of pesticides. Pesticides are used only when needed and when other control methods will not prevent economically important pest-related injuries from occurring. IPM applies to any situation, agricultural or urban, and is flexible enough to accommodate the changing demands of agriculture, commerce, and society. The Homegrounds IPM program provides information to homeowners. For more information on IPM programs contact Richard A. Ashley, Ph.D., IPM Coordinator University of Connecticut, Storrs, Connecticut, Department of Plant Science at rashley@canr.cag.uconn.edu, (860) 486-3438, or visit the IPM website at www.hort.uconn.edu/ipm.
- **Cooperative Extension Forestry:** Provides citizens with information on forest stewardship, wildlife management, and urban & community forestry in Connecticut. The Urban and Community Forestry program provides information for Connecticut tree wardens and community forestry programs regarding duties, funding, and using volunteers.
 - The Cooperative Extension Forestry also has a volunteering element including the Meskwaka Tree Project (Mesk-wa-ka is an Algonquin word meaning Always Green), which is a training and outreach program for urban and community forestry citizen volunteers. The project is designed to support selected volunteer community leaders, innovators, and activists so they may develop new or enhance existing programs and organizations. For more information on the Meskwaka Tree Project contact Robert Ricard by phone at (860) 570-9257 or by email at rricard@canr1.cag.uconn.edu.
 - In association with the Tree Warden Association of Connecticut (TWC), the CES offers the Connecticut Tree Warden School and Certification Program. This program trains approximately 25 municipal tree warden each year on proper tree management and their powers and responsibilities as appointed tree wardens. This course and certification has a fee (\$200 for TWC members, \$250 for non-members). For more information on the Tree Warden Certification Program contact Robert Ricard (see above).

For more information regarding this division of the CES contact Stephen H. Broderick, Extension Forester, at the Brooklyn Extension Office, 139 Wolf Den Road, Brooklyn, CT 06234, call (860) 774-9600, email sbroderi@canr1.cag.uconn.edu or visit the programs website at www.canr.uconn.edu/ces/forest.

- **Non-point Education for Municipal Officials (NEMO):** See previous section on NEMO

The state administrative office of the CES is housed at the College of Agriculture and Natural Resources on the campus of the University of Connecticut in Storrs, Connecticut. This office oversees eight centers located throughout the state. The regional locations are in Bethel, Brooklyn, Haddam, North Haven, Norwich, Torrington, Vernon and West Hartford. New Haven County Extension Center is located at 305 Skiff Street, North Haven, Connecticut

06473. For more information about this location call (203) 407-3161. For more information about the Cooperative Extension System contact the Home and Garden Education Center at ladybug@canr.uconn.edu or visit the CES website at www.canr.uconn.edu/ces.

Center for Environmental Research Education

The Center for Environmental Research Education (formerly Bethany Technical Training Center) provides environmental education in Environmental Monitoring, Inventorying and Research Methods and Techniques in the areas of fresh water and marine ecology, terrestrial systems ecology, and environmental science education. The Center provides the following programs:

- Programs for Teachers - The Center provides a variety of teacher workshops throughout the school year and during the summer in the areas of environmental research, monitoring and inventorying field and laboratory techniques. This includes workshops for the SEARCH program (see above section) and the Long Island Sound Secondary Research Program.
- Programs for Junior and Senior High School Students - The Center also provides opportunities for Junior and High School students to work in research and monitoring programs taking advantage of the technology of the Bethany facility. Students can use sophisticated laboratory facilities to improve their skills and understanding of science. Programs include school programs, day programs and summer camps and institutes.
- Programs for Wetland Commissions, Land Trust and Lake Association Members and the General Public - The Center provides resources and education programs for adults in the community to help them in their task of obtaining technical scientific information to resolve their own environmental issues using best management practices and modern technology. Programs include environmental habitat evaluation techniques, biological inventorying techniques (rapid bioassessment), map reading, map making and surveying techniques, environmental chemistry monitoring and mathematical modeling. These programs have an associated fee to cover the cost of necessary equipment and laboratory equipment.

For additional information, contact the Center for Environmental Research Education at (203) 734-2513.

Center for Coastal and Watershed Systems at Yale University (CCWS)

The Center for Coastal and Watershed Systems (CCWS) serves as a connection between the New Haven area's academic and public communities. Staff and students are heavily involved in local watershed associations as board members, researchers, and other technical staff. Some of the groups the CCWS works with include the Mill River Watershed Association, the Quinnipiac River Watershed Association, and the Quinnipiac River Watershed Partnership.

One of the recent community initiatives facilitated by the CCWS was the Yale Short Course in River Processes. The course was offered to about 20 local conservationists in October 2002 as an introduction to the current scientific understanding of how river ecosystems function and how

human activities disrupt that functioning. The goal of the course was to provide non-scientists with the basic scientific tools and technology needed to understand and evaluate scientific data relevant to the management of rivers. Reportedly, this course will be offered again in 2003 to the first 30 to sign up.

CCWS is currently developing a workshop with the South Central Regional Council of Governments to be held in May 2004. This workshop will discuss current local land use regulations including the purpose of these regulations, the uses, and the powers that it grants local officials. This workshop will be offered to those local officials nominated by the South Central Regional Council of Governments.

For information on future courses or general information about CCSW, contact Martha Smith, Director of CCWS, by email at martha.smith@yale.edu or by phone at (203) 432-3026. The Center has a website at www.yale.edu/ccws.

4.3 Educational Targets

While a future education program should be designed to offer a broad discussion of storm water quality issues, there are issues that should be targeted in every municipality as the focus of the program. These targets can include diverse audiences, subwatersheds and sources of pollution. Based on the current conditions and storm water quality issues in Prospect, several targets have been identified where a future educational program should be focused.

4.3.1 Subwatersheds

Critical subwatersheds in Prospect include those where surface water quality has already been impaired or where current land uses have greater potential for future water quality impacts.

There are seven watersheds contained within Prospect's political borders. These include the Tenmile, West, and Naugatuck Rivers and the Willow, Beaver Pond, Fulling Mill, and Beacon Hill Brooks. The Tenmile River is the predominant watershed in the Town. There are currently no impaired waters within the Town of Prospect. Regardless of current quality, both point and non-point sources and illicit discharges to storm sewer systems inside and outside of the Town may cause future impairments.

Critical land uses in Prospect that have greater potential for water quality impacts include the following:

- The area located along the Rt. 68 (Union City and Cheshire Roads) and Rt. 69 (Prospect Road) corridor is susceptible to the polluting effects of high traffic volume including metals impacts from car brakes and various road litter. This corridor also contains the Town's aquifer protection area (preliminary), which the Town should strive to protect.

4.3.2 Diverse Audiences

Data obtained from the 2000 U.S. Census of Prospect indicates for persons over the age of 5 years, approximately 9.5% of the reporting population speaks a language other than English and 3.2% indicated they do not speak English very well. English literacy levels were not reported, so it cannot be determined what percentage of the population that can speak English “very well” can also read well. The ancestries reported were quite varied, but the ethnic ancestral groups represented are listed in order of greatest number first as follows: Italian (29.3%), Irish (21.6), French (except Basque)(11.7%), and German (11.1%). 7.5% of the population reported ancestries other than the top twenty-seven listed. The percentages are relative to the total population. The ancestry question allowed respondents to report one or more ancestry groups; however, only the first two responses were coded. The data presented in the census refer to the total number of ancestries reported (up to two) by people living in Prospect. In 2000, 168 persons of Hispanic origin resided in Prospect, representing 1.9% of the population.

One way to reach diverse audiences, including the 7.5% that speak a language other than English and Spanish, is through advertising at local cultural centers or contacting religious leaders.

Approximately 1% of the population was below the poverty level in 1999. We do not recommend including this low-income group as an outreach target in the Town’s storm water program at this time.

We do not recommend targeting diverse audiences and publishing materials in alternate languages at this time.

4.3.3 Sources of Pollution

Given the current conditions in Prospect, a future public education program should target the following sources of pollution.

- *Illicit discharges:* An education program could be targeted to both landowners and contractors in Prospect, about what defines illicit discharges and the importance and consequences of adhering to illicit discharge regulations.
- *Pet waste management:* Another potentially significant source of pathogens is pet waste. An education program could be targeted to pet owners on the importance of proper disposal and collection of pet wastes. This can be accomplished by providing informational pamphlets to residents seeking dog licenses, through veterinarians, at pet supply stores, signs in public places such as parks, or through the general media.
- *Solid waste disposal:* Improper waste disposal has been observed in watercourses by the river associations and their volunteer groups, even though the Town offers means for the proper disposal of these wastes. Every year, there are regularly scheduled clean-up efforts, such as Earth Day, to remove debris from Prospect’s water bodies. An education program could be targeted to residents regarding proper waste disposal practices and outlining available waste disposal options (i.e., recycling and household hazardous waste collections).

- *Turf management*: Target proper turf management education at the potential polluting land uses abutting Prospect's water bodies. This is essential as excess fertilizer use increases nutrient loading and has been proven to promote eutrophication (oxygen depletion and algae growth) in impounded waters. Improper pesticide use can also introduce toxic chemicals that can be harmful to aquatic species, wildlife, and humans. Pertinent educational materials are available through UCONN's Homegrounds program.

4.3.4 Municipal Officials and Board Members

The following education programs related to storm water have been attended in the past by Prospect municipal officials including members of the Inland Wetlands Agency, Planning and Zoning Department as well as interested residents.

- The Planning and Zoning Department and Inland Wetlands Agency participate in NEMO training every couple of years. These workshops include various environmental topics. See the above section on NEMO for further information on their programs.

4.4 Implementation Alternatives

The goal of a public education program in Prospect should include several elements as follows:

- Provide a general education to the public about storm water quality issues that will both improve their awareness, change habits that could impact water quality, and build support for funding of storm water quality programs.
- Develop school programs that will build long-term awareness and support for storm water programs.
- Target specific areas and issues where enhanced public education could provide significant benefits.

While a number of resources are available to Prospect for a future public education program on storm water quality, work still needs to be completed in actually organizing and implementing a formal program. The following outlines alternatives for implementing this minimum control measure.

4.4.1 Provide General Education

Collaborate with neighboring municipalities (i.e., Cheshire, Bethany) to build or to jointly request assistance from groups such as South Central Connecticut Regional Water Authority and the Ches-Pro-Cot Health District to develop an educational campaign for this focus area. These campaigns should center on common themes in this region such as proper septic system maintenance, pet waste management, and proper turf management.

- Develop a “New Neighbor” welcoming program. This program would inform residents of the town’s storm water program, BMPs, and information about storm water pollution and proper septic system maintenance. Provide simple, attractive pamphlets with the basic information necessary for new residents to determine how to prevent storm water pollution and the importance of citizen involvement including a list of community organizations. It may be beneficial to develop watershed specific programs that focus on the critical resources in that area, why the resource is important, how they can individually protect their watershed. The package should also include emergency phone numbers, such as CT DEP, a local storm water hotline, the fire department, and what to do in the event of an accidental spill. Southwest Conservation District, the Prospect Land Trust, CT Water Authority, and/or the South Central Water Authority should be contacted to determine if they would want to coordinate this program. NEMO could be contacted for relevant educational material, reportedly, they are compiling a database of current resources to be available in June 2003. Materials that could be included to focus on local issues are:
 - *A Green Home is a Healthy Home* (CT DEP, Office of Pollution Prevention)
 - Backyard Conservation: *Mulching* (NRCS, www.ct.nrcs.usda.gov/yardhome.htm)
 - Backyard Conservation: Nutrient Management (NRCS, www.ct.nrcs.usda.gov/yardhome.htm)
 - Backyard Conservation: *Pest Management* (NRCS, www.ct.nrcs.usda.gov/yardhome.htm)
 - Backyard Conservation: Terracing (NRCS, www.ct.nrcs.usda.gov/yardhome.htm)
 - Backyard Conservation: *Tree Planting* (NRCS, www.ct.nrcs.usda.gov/yardhome.htm)
 - Backyard Conservation: *Wetland* (NRCS, www.ct.nrcs.usda.gov/yardhome.htm)
 - *Integrated Pest Management for the Home* (CT DEP)
- Urge municipal officers to attend programs from UCONN’s non-point source education for municipal officers (NEMO), so that they can make more informed storm water and land use management decisions. UCONN Cooperative Extension System provides many of these programs at their campus and may be able to offer some presentations at Town facilities.
- Notify those in the local landscaping community of UCONN CES’ Homegrounds IPM program. Additionally, provide CES pamphlets in “New Neighbor” packages and at public fertilizer providers. Proper pesticide and fertilizer use could greatly reduce the amount of excess nutrients that reach Prospect’s water resources.
- Establish a Phase II Storm Water Committee of local stakeholders (Inland Wetland Commission, Health Department, Ches-Pro-Cot Heath District, Land Trust, Conservation Commission, Planning and Zoning Commission). The purpose of the local committee would be to continue the work in planning and organizing public education events, coordinating with school curriculum committees and providing a potential source of speakers for a speakers’ bureau. Media, such as newspapers (Waterbury Republican-

American, Prospect Pages) or the Town's website should be used to notify residents of the need for a committee and an organization meeting.

- Use groups such as the Land Trust and CAS to develop language for public kiosks and/or signage to be placed on public lands, which provide access to natural resources (i.e., boat launches, fishing locations, hiking/nature walk areas). They should provide information to the public about the significance of that water's quality, the effects of storm water, and conservation.
- Identify and prioritize areas where storm drain outfalls have the greatest impacts (along the near the Town center) and then coordinate efforts to post signs at publicly accessible storm water outfalls identifying the outfall serial number and a phone number (usually the DPW) to call if problems are identified.

Prospect Outfall # 43

Call (203) 758-4461 to report any problems

The Prospect Land Trust, Naugatuck River Steward, Naugatuck River Watershed Association, local Scouting Troops, and Prospect School District may be resources to assist in posting signs.

- Develop a storm water awareness exhibit to be displayed at Town Hall, libraries, schools, community events, or even recreation facilities during youth sporting events. The display can be changed to address varying issues throughout the permit term, some recommended features include Year 1, general education (particularly focused on changing behaviors that negatively affect the quality of storm water), Year 2, ways to identify and remediate illicit discharges, Year 3, proper turf management.
- Develop a series of flyers to be distributed to the residents of Prospect. Newspaper releases and annual updates in the Waterbury Republican-American and Prospect Pages may also be helpful to generate some interest with this issue. An example of a five year public education curriculum is as follows:

**TABLE 4.1
SAMPLE PUBLIC CURRICULUM**

Year	Focus Topic(s)
Year 1	General storm water/storm drain education, "What is a watershed?"
Year 2	Illicit discharge detection, Proper septic system maintenance
Year 3	Proper turf management
Year 4	Proper waste & pet waste management
Year 5	Plan for the future, low impact development

- Expand the Town’s current municipal website to include general storm water information, electronic copies of educational flyers, information included in the New Neighbor pack, links to water resource websites (UCONN, USEPA, CT DEP, etc.), schedules for educational workshops and presentations, location(s) of educational exhibits, and an electronic copy of this Storm Water Management Program Plan once completed.
- Use current educational materials to create a storm water pollution prevention based series of posters for display at public facilities.

4.4.2 School Programs

- Meet with school officials responsible for environmental/science curriculum development. Ensure that these officials are made aware or provided with copies of the educational resources presented herein. The Regional Water Authority and CAS can be contacted for more educational opportunities. And the school district should consider supplementing the current curriculum with programs such as AWESome! and Project Wet.
- Assist the school district to support the continuation or the introduction of environmental extracurricular clubs and activities at the regional school system. Consider having environmental and/or volunteer clubs at each school facility. This could enhance the science curriculum with more hands-on activities to engaged students. It would also be beneficial for each school to publish a newsletter or newspaper with a column educating the student body and community of local environmental news, achievements, volunteer opportunities, and applicable education and conservation tips.
- It would be beneficial to order a subscription to the Green Teacher as a resource to be circulated throughout the system. Other resources discussed in this manual should be shared with local educators.

- Educate teachers by holding seminars for those interested. A consultant, UCONN, CT DEP, or other agency could host these seminars.
- Use current educational materials to create a storm water pollution prevention based series of posters for display within the public schools.
- Sponsor an annual environmental art contest for the school district. Provide the participating students with a recognition event and the winner with a prize. The artwork could then be displayed at Town Hall, the local library(ies), and included in a storm water exhibit.
- To assist in the funding of these educational efforts, Environmental Educational Grants are available through the USEPA and National Science Foundation.

4.4.3 Target Specific Areas and Issues

- Identify businesses in Prospect that have significant potential to impact water quality. These businesses could include significant commercial developments that generate large traffic volumes, and vehicle maintenance facilities that have potential for exposed materials and who handle hazardous wastes. Develop and distribute a mailer to these businesses about pollution prevention, proper waste management, BMPs, and operation and maintenance issues. A volunteer audit of these facilities may also be proposed. Annual or biannual attendance at a Chamber of Commerce meeting may be a way to reach these businesses. An incentive program such as an annual award to most environmentally focused businesses that is advertised in the newspaper could encourage participation in the audit. Based on a cursory review of federal and state databases there are approximately nine USEPA regulated facilities within Prospect.

5.0 PUBLIC PARTICIPATION/INVOLVEMENT

5.1 State and Federal Regulatory Requirements

The objective of this minimum control measure is to encourage public participation in the Town's storm water program. The anticipated benefits of public involvement and the success of the program are: free intellectual and labor resources; greater support for programs operated by citizen volunteers; faster implementation of minimum control measures (such as illicit discharge detection); fewer legal challenges; and a potential measure of program success. Involvement can include participating in public meetings, providing legislative activism, developing and implementing BMPs, or becoming an educator. To satisfy the requirements of this minimum control measure, the Town must:

1. Comply with applicable State and local public notice requirements; and
2. Determine the appropriate BMPs and measurable goals for this minimum control measure.

5.2 Available Resources

The following section describes some of the organizations and programs that may help the Town implement the public participation component of its storm water program. Encouraging public participation in existing volunteer programs that are offered by local and regional groups can minimize the need for creating new programs and allow the Town to focus its financial and human resources on outreach and sponsorship for these programs.

5.2.1 School Programs

The local school system is an important and effective way to engage the children of a community as well as their parents. Schools provide an excellent venue for distribution of educational materials for students and parents. They also provide a wealth of resources including teachers' knowledge, extracurricular activities, volunteer labor, and an excellent venue to mobilize these resources.

Reportedly, the regional school system has a community service requirement for high school students. In the past, students have completed clean ups along Prospect roadways to fulfill this requirement.

We suggest that the Storm Water Committee include in each Annual Report a summary of extracurricular/club activities, as well as any programs such as recycling programs or water quality related activities such as monitoring or stream clean ups.

5.2.2 Boy and Girl Scouts of America

Boys and girls may be involved in Scout programs from ages 5 through 17 and are supervised by adult volunteers. Scouts are involved in various community service projects and can be beneficial to implementing outfall identification, storm drain marking, and river cleanup projects or environmental awareness outreach programs.

Coordination with local Scout leaders is necessary to implement any activity with their group. The Boy Scouts have eight District Executives that meet monthly to discuss possible projects. Material about potential storm water related projects can be distributed at this meeting and then passed on to troop leaders. The Girl Scouts have Field Coordinators and Service Managers in every town. Information about potential projects can be shared with the Field Coordinators, who will in turn pass the information to the Service Managers and then the troops. Distributing information about the impacts of polluted storm water on our environment, the Town's Phase II program, and the capacity in which Boy and Girl scouts can help their community are the first steps to promote participation.

The Boy Scouts provides its youth with a conservation program designed to be incorporated throughout the Scouting program and teaches awareness and understanding of conservation as a wise and intelligent management of natural resources. The conservation "Good Turn" program is an opportunity for scouts to join with conservation and environmental organizations (federal, state, local, and private) to carry out a conservation "Good Turn" in their home communities. The Boy Scouts also provide an outdoor adventures program of which their "Leave No Trace" policy plays a key role. This principles of this policy include planning ahead (not bringing materials that create waste and knowing the area to be explored), traveling and camping on durable surfaces (not trampling vegetated areas which can lead to erosion), dispose of waste properly (pack out what you pack in, dispose of wastewater far enough from surface water), leave what you find, minimize campfire impacts, respect wildlife, and be considerate of other visitors. A "Leave No Trace Awareness Award" is available to scouts who successfully follow these principles. In Rhode Island, scouts have participated in many activities in their communities including storm drain marking projects and Earth Day cleanups.

The Girl Scouts are offering a partnership initiative called Linking Girls to the Land. This partnership is between the Girl Scouts of the USA and nine natural resource conservation agencies including USDI Bureau of Land Management, USDA Forest Service and USDA Natural Resource Conservation Service. This initiative encourages girls to become involved in conservation and natural resource issues and careers on a national and local level. Most program activities fall into four areas: environmental education; volunteer service; outdoor skills development; and career awareness.

The Water Drop Patch, a facet of Linking Girls to the Land, is a project jointly developed by the United States Environmental Protection Agency and the Girl Scout Council of the Nation's Capital (GSCNC). The participants gain hands-on skills in water management and resource conservation by encouraging the girls to:

- Make a difference in their communities by becoming watershed and wetlands stewards;
- Use their skills and their knowledge to educate others in their community about the need to protect the nation's valuable water resources;
- Explore the natural world to gain an interest in science and math; and
- Use the Internet as a source of information.

For additional information about the Water Drop patch view the project booklet at www.epa.gov/adopt/patch/ or by calling the National Service Center for Environmental Publications at (800) 490-9198.

Funding for these can be acquired through the EarthPACT (Plant and Animal Conservation Team), which will award implementation grants to each council for up to \$2,500. The EarthPACT encourages the formation of partnerships with local environmental education, nature, or science-related organizations, business or county government agencies.

The Girl Scouts are also offering a new program called GirlFACTS (Girls, Families, and Communities Together in Science). This program offers two related activities entitled “geology rocks” and “weather wise” which discuss the topics of the water cycle and acid rain. The topics of storm water runoff pollution and prevention could easily be added as a topic to these established programs.

The Girl Scouts Connecticut Trails Council office is located at 20 Washington Avenue, North Haven, Connecticut 06473, (203) 239-2922 or (800) 922-2770 and may be found at www.girlscoutscctrails.org.

Eagle Scout candidates have successfully cleaned up and otherwise rehabilitation local parks and nature trails in past years.

The Boy Scouts of Connecticut Rivers Council office is located at 60 Darlin Street, East Hartford, Connecticut 06128 and may be found at www.ctrivers.org. Prospect is located with in the Mattatuck District. The District Executive of the area is Mr. Brian Castler, lcastler@snet.net.

5.2.3 Citizen's Groups

The groups outlined in the Public Education/Outreach minimum control measure may also provide opportunities for public involvement in a variety of watershed based or specific water body protection and cleanup projects. Some existing projects may help achieve Prospect's goals in their program with or without modification and, in some cases, new programs may need to be established. The following is a listing of groups and a summary of some of their current activities available to residents

University of Connecticut Cooperative Extension System (CES)

The Cooperative Extension offers many volunteering opportunities to Connecticut adults and youth. Currently, more than 2,600 Cooperative Extension trained adult and youth volunteers partnered with CES faculties to reach Connecticut citizens with educational programs. CES volunteers supported 4-H youth, individual and community horticulture, urban tree programs, forest stewardship and financial management training. Of the 2,600 volunteers, more than 740 youth and adults implemented community improvement projects.

For more information about volunteering opportunities visit the CES website at www.canr.uconn.edu/ces or contact Nancy H. Bull, Associate Director, at (860) 486-1987.

Rivers Alliance of Connecticut

The Rivers Alliance offers many membership options at varying amounts. Currently the Alliance has 750 members including over 100 organizations representing 60,000 individuals. Some of these membership options include for the individual, family, non-profit organization, or business or corporation. Currently rates are \$30, \$30, \$50 and \$250, respectively.

For more information regarding membership or volunteer opportunities visit the Rivers Alliance website at www.riversalliance.org or contact Margaret Miner, Executive Director, at (860) 693-1602.

Connecticut Audubon Society (CAS)

The Connecticut Audubon Society offers volunteering opportunities to state residents including being a Sanctuary Rangers and Docents and participating in Earth Day and beach clean ups. There is also the opportunity for volunteers to donate handmade nature crafts to be sold at nature center stores.

CAS also offers many membership options at varying amounts. Currently, CAS has a statewide membership of over 25,000 people. Some of these membership options include for the family, individual, student or non-profit organization. Current rates are \$50, \$35, \$25 and \$50 respectively. Members are eligible for benefits including the following:

- Informative publications: *Connecticut Audubon News*, a quarterly newsletter containing program and event listings as well as environmental education, conservation and advocacy information. Upon request, members receive *Capitol Alert*, a periodic update on legislative environmental issues needing citizen support
- Preferred membership discounts on programs and nature store items
- Advance notification of special events, trips and educational programs
- Free access to all Connecticut Audubon sanctuaries and facilities

For current volunteer opportunities please contact the Membership Services department at (203) 259-6305, Ext. 105 or contact the local Audubon nature facility.

Schooner Sound Learning

Schooner Sound Learning offers volunteering and intern opportunities. Schooner volunteers participate in a wide variety of activities including working as deckhands on board the *Quinnipiack*, as marine educators for a wide variety of educational programs, staffing booths and displays at local festivals and helping out in the organization's office with everyday operations. Schooner volunteers have donated over 3,500 hours of their valuable time over the past year, allowing the organization to educate over 17,000 people from ages three through senior citizens about environmental concerns on Long Island Sound

Schooner Sound Learning offers many membership options. The organization currently has about 300 family and individual members. Membership costs \$60 for a family, \$35 for an individual, and \$15 for students (H.S./College). Memberships are for one full year. Members receive free tickets to the *Quinnipiack*, standby on special sails, advanced notification of all special events -- like Ports-Of-Call educational seminars and seasonal mailings, including Schooner's quarterly newsletter, *Waterline*. Family members get discounts on summer programs and all other schooner sponsored events.

For current volunteer opportunities please visit the website at www.schoonersoundlearning.org, contact Beth McCabe, Executive Director, at (203) 865-1737, or email director@SchoonerSoundLearning.org.

Long Island Soundkeeper (Soundkeeper)

Soundkeeper use volunteers to assist in the monitoring and patrolling of the Long Island Sound. Given the size of the Sound, many eyes are need to ensure that illegal and environmental insensitive behaviors and actions are discovered and resolved.

Soundkeeper also offers many membership options. Basic membership costs \$30, \$50 for a Sound Supporter, \$100 for a Sound Defender, \$250 for a Sound Steward, and \$1000 for the Sentinel's Circle.

For current volunteer and membership options call (203) 854-5330 or 1-800-933-SOUND or email info@soundkeeper.org.

The Long Island Foundation, Inc. (LISF)

Refer to [Section 4.2.2](#) for information regarding LISF's art and photo contests for Connecticut students.

For more information about the contests contact Sue McNamara, Executive Director at (860) 405.9166 or email her at susan.mcnamara@uconn.edu.

Save the Sound, Inc.

Save the Sound uses volunteers for many projects including administrative support, attend advocacy meetings, promotional material producers, library and information center, photo scanning, collecting news clippings, assist at special events, research the internet, legislative support, and time sheet data entry.

They also need many volunteers to conduct ongoing water quality research in harbors and bays in Long Island Sound. Currently, Save the Sound staff and volunteers monitor 7 harbors and bays in New York and Connecticut for dissolved oxygen, chlorophyll, salinity, water temperature, turbidity, and observations such as spills, fish kills, and interesting wildlife. The locations in Connecticut include Bridgeport Harbor in Bridgeport, Essex Harbor in Essex, Southport Harbor in Fairfield, and Stamford Harbor in Stamford.

Each spring, Save the Sound recruits and trains 100 volunteers to use federally approved scientific methods. Volunteers test waters weekly from May to October. Staff scientists coordinate their efforts and enter the data and report it to government, the media and the general public. Additionally, Save the Sound offers training manuals and videos to assist others starting water monitoring programs.

Save the Sound is the Connecticut's Coordinator for International Coastal Clean Up Day (September 20th), a global event to rid our shorelines of marine debris. The 2002 clean up resulted in 337 bags of garbage removed from twenty different sites along the CT shoreline. To learn more about this event, visit www.oceanconservancy.org

Save the Sound also assists in storm drain stenciling projects. Stencils or markers that read, "Don't Dump, Drains to Long Island Sound" are provided free of cost from Save the Sound along with a packet of information on how to plan an event.

Save the Sound also offers various memberships including the basic level for \$35, Porpoise Club for \$50, Sound Friend for \$100-249, Porpoise Club, Sound Saver for \$250-499, Leadership Council for \$500 and up. Membership benefits include receiving the organization's quarterly newsletter "Sound Bites" which provides updated information on the environmental happenings around Long Island Sound, scheduled events, volunteer opportunities, updates on Save the Sound restoration projects, environmental stewardship tips, etc., invitations to special events including beach walks and other outings, and advance notice and cost savings on courses, conferences, and field trips. Those joining as Porpoise Club members are invited to a special reception.

For more information on current volunteer and membership options call (203) 354-0036 or e-mail membership@savethesound.org.

Long Island Sound Study

The Connecticut Department of Environmental Protection, on behalf of the Long Island Sound Study (LISS), conducts a Long Island Sound Water Quality Monitoring Program. Surface and bottom waters are monitored by staff aboard the Department's Research Vessel John Dempsey at 284 stations. Testing parameters include water temperature, salinity, dissolved nitrogen, particulate nitrogen, and dissolved oxygen. Volunteer groups are used for many of these activities.

5.2.4 Regional, State and National Resources

Adopt Your Watershed

As described in the public education and outreach section of this report, the USEPA has created this campaign to encourage citizens and groups to work at protecting and restoring surface and groundwater quality in their watershed. The networking and training resources available from this program can help educators, communities, or private citizens improve water quality and implement their local storm water program through education and participation.

Give Water a Hand

This is a national watershed education program of the University of Wisconsin Environmental Resources Center. Support for Give Water a Hand is provided by National Fish and Wildlife Foundation, the U.S. Department of Agriculture, CSREES and NRCS designed to involve young people in local environmental service projects (www.uwex.edu/erc/gwah). The program provides guidance to students on how to complete an environmental service project and the basic information necessary to understand their watershed. Free guides are available on the internet, but printed copies require printing and shipping fees. The publications are the youth Action Guide (also in Spanish) and the teacher's Leader Guidebook.

5.2.5 Local Media Resources

The local media can be a valuable asset to the Town of Prospect as part of their public education and outreach. There are several available resources for cable television and newspapers including:

Waterbury Republican-American

The Waterbury Republican-American and its associated website at www.rep-am.com/index.html cover local, state, federal, and world news items on multiple media. The website also has areas for classified, features, and editorial sections. This is a popular paper among Town residents.

The Waterbury Republican-American headquarters are located at 389 Meadow Street, Waterbury, CT 06702. For more information contact: William J. Pape II, Editor and Publisher, at (203) 574-3636 ext. 1900.

Prospect Pages

The Prospect Pages and its associated website at www.prospectpages.com provide free monthly news coverage for the Prospect area. The circulation is currently 7,000 with 5,800 copies mailed to residents, including the entire town of Prospect, and bordering sections of Waterbury, Cheshire and Naugatuck. Free copies are available for pick-up every month at local stores, coffee shops, restaurants and public buildings.

The Prospect Pages headquarters are located at 4 Summit Road, Prospect, Connecticut 06712-0100. Call (203) 758-6934 for more information or to notify the staff of a news item.

New Haven Register

The New Haven Register is a daily paper which covers the news of much of South Central Connecticut. The Register also has an associated website at www.nhregister.com. This paper contains world, national, state, and local news items. It also has classifieds and editorial sections.

The New Haven Register headquarters are located at 40 Sargent Drive, New Haven, CT 06511. For more information contact Jack Kramer, Editor, (203) 789-5601 or email editor@ctcentral.com.

Town of Prospect Website– www.prospectct.com

The Town of Prospect created their website to better serve their citizens through an electronic Town hall. The website contains Town government, boards and commissions, bulletin board, the Town calendar, contact information for Town officials, and other electronic links that Prospect residents may find helpful. The website also includes information about the Town transfer station and how and when residents can dispose of their recyclables and household hazardous wastes. This website could be an easy and cost-efficient way to notify the public about new Town programs and, additionally, as a vehicle to educate the public about local clean ups, this storm water pollution prevention plan and its recommended educational topics.

Public Access Channels (Channels 13, 16, 21)

There are three cable channels available for local broadcast and to provide information to Prospect residents. This could be an effective vehicle to provide education to the public. Public meetings pertaining to this SWMPP or to subsequent annual reports could also be broadcasted on one of these channels.

5.3 Implementation Alternatives

To comply with this control measure, the Town must, at a minimum, conduct a public notice the availability of the Town's Phase II program to allow citizens an opportunity to provide input on the program that is ultimately implemented by the Town. However, it is recommended that the

Town expand its public participation program to take advantage of the intellectual and labor resources of its citizens. Specific alternatives are as follows:

- Create a Phase II Storm Water Committee addressing the public education/outreach component of the program. The group should include member(s) from Inland Wetland Commission, Health District, Land Trust, Conservation Commission, Planning and Zoning Commission. This committee could assist the Town with recruiting and coordinating resources to implement recommended measures.
- Continue the Town's storm drain stenciling program with the help of community groups, students, businesses, and residents. Businesses may stencil their own catch basins or those located in their business district. A limited amount of storm drain stenciling has already occurred in Prospect.
- Develop an Adopt a Street/Stream program to provide continuous clean up efforts for areas of particular debris build up. Provide participating business and groups with publicity for there efforts including listing on the Town's website and signage for display within there organization.
- Encourage residents and local businesses to participate in the GreenCircle Awards Program. This CT DEP program recognizes businesses, institutions, individuals and civic organizations who have undertaken pollution prevention, waste reduction, or other projects promoting natural resource conservation and environmental awareness. For more information about this program contact CT DEP's Office of the Ombudsman by mail at, CT DEP, 79 Elm Street, 3rd Floor, Hartford, Connecticut 06106 or by phone at (860) 424-3003.
- Investigate if any local groups have been conducting water quality sampling projects. An effective way to employ the program would be to initially screen storm water outfalls with dry weather discharges as part of the illicit discharge detection program.
- Coordinate with local Boy and Girl Scout organizations to discuss potential resources that they could contribute to the program (i.e., flyer distribution, storm drain stenciling).
- Inform local Girl Scout troops about the Water Drop Patch. Provide them with the information found herein and encourage them to participate as a means to foster environmental stewardship in Prospect. This program would not only benefit the scouts but also would provide an avenue for a broader public education, as the scouts become watershed and wetland stewards. The Boy Scouts could also be encouraged to use their conservation "Good Turn" program in the Prospect area.
- Coordinate with existing regional organizations to discuss enhancing their recruiting efforts and targeting specific storm water related issues in Prospect.

- Use volunteers from the community and local organizations for simple tasks that would improve water quality as well as raise the public's awareness. Public participation will enhance the public education component of the storm water program with the following tasks:
 - Stencil or otherwise mark catch basins with informational phrases such as, "NO DUMPING, DRAINS TO RIVER."
 - Assist with installing and operating kiosks.
 - Identify outfalls to Town waters.
 - Clean-ups along recreational waters.
 - Create local speakers panel to discuss the Town's storm water program and pollution prevention with targeted residents and businesses. Broadcast the discussions over a local cable station. The Town should consider contacting URI for possible speakers. The Town officials could be used for these speaking opportunities. Below are some sample speaking opportunities:
 - Water in my Community: Drinking water, Storm water, and Sewage - DPW
 - Municipal Government and Storm Water – Mayor
 - Municipal Government and Illicit Discharge Detection – DPW
 - BMPs in your Community: Form and Function – DPW
 - Preventing Soil Erosion – Planning and Zoning or Inland Wetland Agency
 - You, Your Pet, and Your Water – DPW or Parks and Recreation
 - Sound Tree and Shrub Management – Tree Warden
 - Your Land in Trust – Preserving Prospect's Open Space – Land Trust
- Provide the School District guidance departments with possible volunteering opportunities for the High School Community Service requirement. Examples of these activities include local clean ups, storm drain stenciling, located and marking storm water outfalls, and serving as environmental stewards for younger students.
- Expand the Town's current municipal website to include information pertaining to volunteering opportunities either through the Town itself or contact information for other non-profit organizations serving the area. The website should also include notices of upcoming stenciling and cleanup events (including those sponsored by groups other than the Town).

Specific tasks that could be completed as part of the public participation program include:

- Establish "neighborhood watershed" groups to encourage protection of surface waters and report spills and illegal dumping.
- Inventory storm water outfalls. This activity could be linked with recreational outings such as canoeing and kayaking.

- Sponsor or co-sponsor biannual cleanup projects that allow businesses, schools, volunteer organizations, and residents to get involved. Provide incentives to businesses by providing them with stickers or plaques to display at their businesses. Efforts should be initially targeted at publicly assessable streams that receive road runoff from Prospect and then expanded town wide.
- Establish partnerships with local businesses or community groups to remove litter from portions of streets and watercourses.
- Recruit volunteer educators to speak to business and industry owners through workshops. Local professionals may wish to contribute their time or resources for this task. UCONN may be contacted for possible speakers.
- Recruit local high school students to serve as environmental stewards for younger students. Coordinate with local community service programs and offer incentives to volunteers such as media recognition or trips to environmental science fairs.
- Contact the NRCS in regards to their Earth Team Volunteer Program for community environmental service projects. The Town should consider funding a summer program to employ a few high school students during the summer months if this Earth Team program is not possible.
- Conduct public meetings annually to present the Town's annual report required by the permit. The annual report should also be posted on the Town website and printed in the local paper.

6.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION

Under this Minimum Control Measure, the Town is required to develop and implement a plan to detect and eliminate illicit discharges to its MS4, including development of a storm sewer outfall map showing the location of all outfalls and the names and location of all waters of the State that receive discharges from those outfalls. This also requires an education and outreach component that is addressed under the Public Education Minimum Control Measure (see [Section 4.0](#)). The potential for illicit discharges remains with illegal connections that are often the result of failing septic systems. The following sections detail the regulatory requirements for this effort, the Town's existing programs and controls to meet these requirements, and recommended measures for the Town to become fully compliant with these regulatory requirements.

6.1 State and Federal Regulatory Requirements

Commonly, municipal separate storm sewer system (MS4) discharges include wastes and other wastewaters from non-storm water sources that can significantly impact water quality. Sanitary sewage, process wastewater, floor drains and other wastewaters have been documented in MS4 systems throughout the country. A common impact is elevated levels of bacteria and pathogens as a result of improper sanitary connections. Because of these water quality impacts, these discharges must either be permitted or removed. These non-storm water discharges are often more common in older storm sewer systems due to less awareness and enforcement in the past when these connections were made, as well as failing infrastructure.

National Pollution Discharge Elimination System (NPDES) Phase II Storm Water Regulations define these discharges as "illicit discharges," which are further defined by CT DEP in the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (Section 2. Definitions).

Specific requirements of this program consist of the following:

1. Implement an ordinance or other regulatory mechanism to effectively prohibit non-stormwater discharges, except as provided in Section 3(a)(2) (see [Table 6.2](#)), into the MS4, as well as sanctions to ensure compliance, to the extent allowable under State or local law.
2. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
3. Develop a map or series of maps at a minimum scale of 1"=2000' and maximum scale of 1"=100' showing all stormwater discharges from a pipe or conduit with a diameter of 15" or greater (or equivalent cross-sectional area) owned or operated by the municipality. For each discharge the municipality must collect detailed information including type, material, size of conveyance, outfall or channel flow, name of Surface Water Quality Classification of the immediate surface waterbody or wetland to which the stormwater runoff discharges, name of watershed in which the discharge is located. This

task must be completed in the urbanized area by the end of the second year and in the entire municipality by the end of the third year.

4. Expand the mapping discussed above to include all outfalls of 12” or greater that are located within the urbanized area.
5. Develop, implement and enforce a program to detect and eliminate existing illicit discharges into the MS4 within the urbanized area.
6. Develop and implement a plan to detect and address future non-stormwater discharges including illegal dumping, to the MS4 with in the urbanized area.

Table 6.1 provides examples of sources of common illicit discharges.

**TABLE 6.1
EXAMPLES OF SOURCES OF ILLICIT DISCHARGES**

Sanitary Wastes
Improper Oil Disposal
Radiator Flushing
Laundry Wastewaters
Automobile and Household Hazardous Wastes

Section 3(a)(2) of the general permit states that the following discharges are authorized provided they are identified in the Storm Water Management Plan, approved by the Commissioner, and are not significant contributors of pollutants. Table 6.2 lists allowable non-storm water discharges, provided they do not adversely impact water quality.

**TABLE 6.2
ALLOWABLE NON-STORM WATER DISCHARGES**

Landscape Irrigation
Pumped Uncontaminated Ground Water
Foundation Drains
Crawl Space Pumping
Footing Drains
Irrigation Water
Lawn Watering Runoff
Residential Street Wash Water
Discharges from Fire Fighting Activities (except training)
Rising Ground Waters
Uncontaminated Ground Water Infiltration
Springs
Diverted Stream Flows
Flows from Riparian Habitats and Wetlands

With the exception of discharges listed above, current CT DEP regulations prohibit non-storm water discharges to a storm sewer system without specific authorization from CT DEP in the form of a NPDES permit.

6.2 Mapping

It is understood that the Town of Prospect does not have town-wide electronic mapping (i.e., GIS base mapping). The Town has plans to develop GIS mapping in the future incorporating utilities such as storm water structures in accordance with the MS4 general permit.

This element of the storm water management plan will likely be the most intensive component of the plan. As a result, it is recommended that the Town use a public participation program in an effort to minimize the costs to implement the program. In addition, it is recommended that the Town prioritize its efforts for waters of the state that have known water quality impacts that may be caused by illicit discharges. These waters are identified in the State of Connecticut 303(d) list (discussed in Section 2.2).

6.3 Existing Municipal Regulations

In accordance with the MS4 general permit the Town must regulate or otherwise control unauthorized discharges to the Town’s MS4 and regulated water bodies. This may already be accomplished through existing ordinances and regulations (i.e., code of ordinances, subdivision and zoning regulations). The Town should review their current regulatory mechanisms and identify those sections which accomplish the requirements of the MS4 permit in its entirety or a portion thereof. This review will identify areas which require alterations, omission, and/or adoption in order to comply with the above stated permit requirements. This review of current

regulations should be done in the first years of the permit period and any necessary development and adoption of regulatory mechanisms should be completed in subsequent years. In accordance with the MS4 general permit, a regulatory mechanism regulating or otherwise controlling unauthorized discharges to the Town's MS4 and regulated water bodies will be in place by the end of the five year permit period.

6.4 Implementation Alternatives

The following Potential Alternatives have been developed for the Town to fulfill the requirements under the Phase II storm water program.

6.4.1 Mapping

A plan has been developed for the Town to develop mapping to satisfy the following requirement under the Phase II program:

Develop a map or series of maps at a minimum of 1" = 2000' and maximum scale of 1" = 100' showing all storm water discharges from a pipe or conduit with a diameter of 15" or great (or equivalent cross-sectional area) owned or operated by the municipality. This map is required to include all outfalls of 12" or greater that are located within an urbanized area.

This plan includes a program to compile a map of existing storm sewer outfalls in Prospect based on existing municipal mapping and its future geographic information system (GIS). This program includes the following elements:

- Review existing municipal records, drainage mapping, storm drain mapping, aerial photography, orthophotos, and field surveys to identify known outfall locations. This information will be supplemented with interviews with municipal DPW staff to identify outfall locations. These locations could be shown schematically on a GIS base map in order to provide general locations for outfall inspections.
- During the effort to locate outfalls, the outfall should be located by geographic positioning system (GPS) or traditional survey. If a traditional survey method is used, this location could be recorded in a format compatible to the Town's future GIS system in order to develop a Storm Water Outfall data layer. Moreover, outfall location efforts should incorporate inspections as described below to satisfy the illicit discharge detection requirements of the permit.

6.4.2 Municipal Regulations

A proposed amendment to the Town's ordinance has been identified to satisfy the following requirement under the Phase II program:

Implement an ordinance or other regulatory mechanism to effectively prohibit non-stormwater discharges, except as provided in Section 3(a)(2) of the general permit, into the MS4, as well as sanctions to ensure compliance, to the extent allowable under State or local law.

This draft model ordinance has been prepared by the New England Interstate Water Pollution Control Commission for adoption by communities to meet the requirements of this program element. This ordinance is provided as Appendix C at the end of this report.

6.4.3 Illicit Discharge Detection and Elimination

A proposed strategy has been developed to satisfy the following requirements under the Phase II program:

Develop, implement, and enforce a program to detect and eliminate existing illicit discharges, as defined in 40CFR 122.26(b)(2), into the MS4.

Develop and implement a plan to detect and address future non-stormwater discharges, including illegal dumping, to the MS4.

At least initially, it is recommended that the goal of this program not necessarily be to detect all illicit discharges to the MS4, but instead to focus on identifying the discharges that may actually impact water quality within the community. For example, this program is focused on eliminating illicit discharges that are actually observed to be discharged to waters of the state as opposed to all discharges that may evaporate or infiltrate prior to being discharged from the MS4.

The development of the storm sewer map as outlined in this plan will complete the initial step to detect non-storm water discharges by locating outfalls where there is a dry weather flow component.

While dry weather flow could be groundwater infiltrating into the storm sewer, it is also potentially indicative of an illicit discharge. Once this initial step is completed, the following steps are recommended to first determine whether the observed flow is from an illicit discharge and, if so, to identify the source of the discharge.

- Inspect each outfall location (subject to the Town's ability to arrange for or provide access across private property as required) to document the following information on an outfall inspection report:
 - Observed dry weather flow (a digital photograph will be taken of each outfall),
 - Outfall size, material and condition,
 - Approximate height of outfall above receiving watercourse,
 - Outfall receiving watercourse,
 - Coordinate location as determined by GPS,
 - Any additional outfalls observed during the outfall inspections, and
 - Any other observations of the outfall and/or surrounding area (odor, turbidity, color, site conditions).

To the extent possible, at least 72 hours of dry weather should precede any fieldwork associated with this program. These inspections should occur during dry weather such that stream height will be lower to expose submerged outfalls as well as to better observe dry weather flows from outfalls that may be indicative of an illicit discharge.

In addition, each outfall will be numbered uniquely such that its data can be correlated with a location on the storm sewer base mapping to be developed. All collected data will be organized and reviewed by the person responsible for implementing this element of the program.

- Where dry weather flow is observed, collect samples to be analyzed for pH, temperature, specific conductivity, ammonia, surfactants and fecal coliform (E. coli or enterococcus as appropriate). If the results of these analyses indicate that a potential illicit discharge exists, the upgradient drainage system will be examined to identify the extent of the system where that dry weather flow exists. During these investigations, the following information will be collected on upstream structures:
 - Condition of the structure (including a digital photograph),
 - Pipe sizes, and
 - Specific conductivity of the flow as measured in the field.

An outfall inspection report will be prepared to document the results of the investigations. This report will include the following:

- a cost estimate and work plan to further identify the source(s) of the dry weather flow observed, and
- an opinion of construction cost to correct the anticipated problems.

In those outfalls identified as having a potential illicit discharge, the Town must identify sources of that discharge(s). The recommended approach to accomplish this task follows.

1. Delineate the drainage area of each outfall with a dry weather flow component to determine the extent of potential sources. This could be done by two methods.
 - Utilize TV inspection as necessary to identify sources of the dry weather flows. This inspection could identify the extent of the system where there is a dry weather flow component and identify connections to the storm sewer that are contributing dry weather flow.
 - Inspect the drainage system, structure by structure, to determine the extent of the system where there is a dry weather flow component. At this time, the system and its connections where a dry weather flow component was observed, should be mapped, or sketched a minimum. This should be the first task completed as it will limit the extent of the investigation.

2. Inventory the drainage area of each outfall of concern to evaluate the locations of potential pollutant sources. This will consist of reviewing land use and street maps to identify potential pollutant sources in the drainage area. In addition, water quality data from the outfall of concern should be reviewed to determine what the potential sources may be.
3. Conduct additional “targeted” wet or dry weather sampling at selected locations down-gradient of suspected pollutant sources to “bracket” sources of pollutants in the system. Sampling should include flow metering such that loads of pollutants of concern can be calculated and to minimize potential interferences from clean groundwater diluting the illicit discharge. Based on experience with past projects, this effort will also be able to specifically identify sources. Parameters monitored should be consistent with parameters observed in the discharge.
4. Conduct detailed field inventory. Field inventories should be performed on foot and via windshield surveys, beginning at the point discharge, and following the bracketed drainage system up-gradient. The purpose of the field inventories is to further define what the potential source(s) may be.
5. Conduct a site investigation for each suspected source. This can be completed via one of several methods to specifically identify a source. This can include the following methods:
 - TV inspection to find a specific connection that is contributing dry weather flow. In high groundwater conditions, this method will be less useful. Also, it may be difficult to pin point a specific source in densely developed areas.
 - Smoke testing could also be used to identify illicit connections. Neighborhoods would need to be warned prior to use of smoke testing in their area. Also, this method may not be effective if the illicit discharges are flowing full or are equipped with traps.
 - Dye testing would pinpoint a specific discharge. This would require access into buildings and inserting dye at all potential illicit discharges which will require the field staff to be thorough. Permission would be required to enter businesses.
6. Develop a plan and schedule to eliminate the illicit discharge once found.
7. Confirm elimination of illicit discharges by collecting appropriate confirmation samples or other appropriate method. This could either be done at the outfall or just downstream of the eliminated discharge.

Throughout the implementation of the above program, efforts will be made to maximize public participation. Depending on the success of the public participation program, interested citizens could provide a significant amount of labor to complete the fieldwork necessary to implement

these program components. Public participation in this program will require organization and training of the volunteers to ensure the quality of work is adequate and defensible for any future corrective actions.

Outfalls where access could be hazardous or would require access onto private property will be investigated by Town or other contract employees and not members of the public. The Town of Prospect should identify the person or persons who will be responsible for implementing this program and any resources that will be available for this purpose. Assigned staff should receive appropriate training that may include Occupational Safety and Health Administration (OSHA) health and safety training as well as confined space entry training.

6.4.4 Public Education

This following requirement under the Phase II program is addressed in the public education best management practice recommendations.

Inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.

6.4.5 Annual Storm Water Monitoring Requirement

Stormwater monitoring shall be conducted by the Regulated Small MS4 annually starting in 2004. At least two outfalls apiece shall be monitored from areas of primary industrial development, commercial development and residential development, respectively, for a total of six (6) outfalls monitored.

It will be necessary to develop an annual wet weather monitoring program as well as the dry weather flow identification program discussed above. It will be first necessary to identify the six outfalls from a drainage area primarily representing one of the three above mentioned land uses (two outfalls per land use). This may be done concurrently with outfall identification and mapping program discussed above.

Based on the requirements set up in the general permit, the Town will be required to obtain a grab sample from the six identified outfalls. All six samples must be collected from the discharge from a storm that produces greater than 0.1 inches of precipitation (not including snow) and during the first 6 hours of the storm's discharge. This storm must be at least 72 hours after any prior storm.

The following information needs to be recorded pertaining to the storm event being used for the annual storm water monitoring program:

- Date, temperature, time of the start of discharge, time of sampling, and total precipitation of the storm event.
- The duration between the sampled storm event and the previous storm event producing greater than 0.1 inch of precipitation.

The grab samples collected during the storm event must be analyzed for the following parameters per Section 6(g)(2) of the General Permit and tested according to the methods prescribed in Title 40, CFR, Part 136 (1990): pH, hardness, conductivity, oil and grease, chemical oxygen demand, turbidity, total suspended solids, total phosphorous, ammonia, total Kjeldahl, nitrogen, nitrate plus nitrite nitrogen, and e. coli.

Additionally, uncontaminated rainfall shall be analyzed for pH at the time of sampling.

Results of sampling must be included with the Annual Report as described in Section 11.2.

7.0 CONSTRUCTION SITE RUNOFF CONTROL

7.1 State and Federal Regulatory Requirements

Typical construction activities have significant potential to impact surface water quality in the State by creating the potential for sediment, construction materials, waste and other pollutants to be transported to surface waters by wind or storm water runoff. As a result, the USEPA promulgated construction site runoff control regulations as part of its Phase I storm water permitting program. This program focused on projects that disturb more than five acres of land (total project). As part of this program, these projects were required to secure a National Pollution Discharge Elimination System (NPDES) permit and prepare a detailed Storm Water Pollution Control Plan that specifies soil erosion and sediment control as well as waste and product management practices to control potential impacts.

The CT DEP currently regulates activities that disturb more than one acre of land through the use of their General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities. This general permit requires submittal of a registration form to CT DEP and the preparation of a Storm Water Pollution Control Plan that must be certified by a CT certified professional engineer.

The Phase II program that has been promulgated by the USEPA requires regulated municipalities to develop, implement, and enforce a program to reduce pollutants in storm water runoff to small municipal storm sewer system (MS4) from construction projects that result in a land disturbance of greater than or equal to one acre. Sites smaller than this would still require a permit if the land is part of a plan, such as a subdivision, that alters a total area greater than one acre. Small construction projects are eligible for waivers of permit requirements if either:

1. The value of the rainfall erosivity factor, "R," is less than 5 based on the revised Universal Soil Loss Equation during construction, or
2. A Total Maximum Daily Load (TMDL) establishes acceptable loads for pollutants of concern in impaired surface waters or an equivalent analysis that determines that allocations of pollutants of concern for the project are not necessary to maintain water quality.

The Universal Soil Loss Equation is as follows:

$$A = R \times K \times LS \times C \times P$$

Where:

- A = average annual soil loss (tons/acre/year)
- R = rainfall (erosivity) and runoff factor
- K = soil erodibility factor
- L = slope length
- S = steepness factor

C = cover and management factor
P = support practice factor

CT DEP or USEPA Region 1 office may designate small construction activities that disturb less than one acre of land if the activity contributes to a violation of water quality standards or for significant contribution of pollutants, such as Total Suspended Solids (TSS), to any surface water. The CT DEP Phase II Storm Water General Permit and General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities require regulation of one acre or more of land development.

The specific state and federal requirements of the construction site runoff control minimum measures, which the Town must develop and implement, are as follows:

1. An ordinance or other regulatory mechanism to require erosion and sediment controls on construction activities that result in a land disturbance of greater than or equal to one acre, as well as sanctions to ensure compliance, to the extent allowable under State or local law;
2. Procedures for notifying construction site developers and operators of the requirements for registration under the General Permit for Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities;
3. Requirements for construction site operators to implement appropriate erosion and sediment control best management practices (BMPs);
4. Requirements for construction site operators to control construction wastes, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary wastes at the construction site that may cause adverse impacts to water quality;
5. Procedures for site plan review which incorporate consideration of potential water quality impacts;
6. Procedures for receipt and consideration of information submitted by the public; and
7. Procedures for site inspection and enforcement of control measures.

7.2 Existing Municipal Ordinances

The Town of Prospect may currently have mechanisms in their municipal ordinances or regulations (i.e., code of ordinances, subdivision and zoning regulations) which the Town currently regulates construction site runoff. These mechanisms, therefore, should be reviewed to determine which sections fulfill the requirements of the MS4 general permit in its entirety or a portion thereof. In order to comply with the general permit the Town may need to alter, omit, or adopt additional regulatory mechanisms to ensure that construction site runoff and wastes are regulated. Specifically, the *Connecticut Guidelines for Soil Erosion and Sediment Control* (as

amended) should be listed as the standard for soil erosion and sediment control requirements, structures, and techniques. Additionally, it is important that the regulatory mechanism to control construction runoff allow for effective inspection and enforcement by a responsible Town official and/or department. The Town should review current regulations within the first years of the permit period and any necessary development, alterations, and/or adoption of regulatory mechanisms should be completed by the end of the five year permit term in accordance with the MS4 general permit.

7.3 Recommended Modifications

The Town's regulations may include many of the components required for Phase II program requirements for construction site storm water runoff control. The following paragraphs identify possible recommended modifications to existing regulations and practices in order to comply with the Phase II rules.

1. *An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law.*

The existing regulations may include provisions that require erosion and sediment controls. However, several recommendations, as follows, have been identified to allow the Town to fully comply with Phase II requirements and to assist with the future implementation of these regulations.

- If applicable, consider combining the erosion and sedimentation control requirements that may be stipulated in both the Zoning Ordinance and the Subdivision Regulations. Combining these requirements into a single standard would minimize potential misinterpretation of requirements. Providing a comprehensive list of regulations in the Zoning Ordinance may allow the Subdivision Regulations to refer to Ordinance and the *Connecticut Guidelines for Soil Erosion and Sediment Control* as minimum standards.
- Amend regulations as necessary to include the following: "Land disturbing activity will not take place within one hundred (100) feet of any drainage feature or structure tributary to a wetland or coastal feature."
- Consider altering all references to the *Connecticut Guidelines for Soil Erosion and Sediment Control* (1985) to (2002) or note "as amended" to allow for future redrafts.
- Consider inclusion of an emergency action plan for wet weather, spills, or BMP failure, especially in locations that would be sensitive to a failure such as an adjacent surface water or storm drainage system.

- Consider requiring the submittal of a construction schedule approved by the Zoning Official or other applicable officer prior to construction. This will assist the Town in scheduling future inspections.
 - Ensure that the regulations are such that any construction is not allowed prior to bonding and approval of final plans. Without a performance bond in place, the Town has no financial means to complete improvements or maintain erosion and sediment control on a site where the owner/contractor does not provide acceptable BMPs during construction or is unable to maintain BMPs, restore disturbed areas, or complete improvements.
2. *Procedures for notifying construction site developers and operators of the requirements for registration under the General Permit for Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities.*
- Consider incorporating these subjects into the Public Education and Outreach portion of the Town's Phase II Storm Water Plan. An education workshop or flyer sent to local contractors would meet this requirement. Consider including a flyer with application materials that highlights or summarizes municipal requirements as well as CT DEP storm water permitting requirements.
3. *Requirements for construction site operators to implement appropriate erosion and sediment control best management practices (BMPs).*

The Zoning Ordinance and the Subdivision Regulations may include standards for erosion and sediment control and plan preparation requirements. These regulations may require construction site operators to implement and maintain BMPs. The following modifications may be appropriate:

- Incorporate by reference the *Connecticut Stormwater Quality Manual* (as amended) as the standard for BMP related details such as design, installation, and maintenance.
 - Consider incorporating other BMPs, if desired, into the performance principles that are not currently addressed, such as dewatering operations. The Town may also want to consider whether there are any BMPs that would be disallowed, such as chemical stabilizers (soil binders).
 - Modify both the Subdivision and Zoning Regulations to require a pre-construction meeting for all projects that have an erosion control plan as part of the permit application if not already included in these regulations.
4. *Requirements for construction site operators to control construction wastes, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary wastes at the construction site that may cause adverse impacts to water quality.*

Current regulations may not address management of construction wastes. As a result, the following modifications are recommended:

- If not included in current regulations, require erosion and sediment control plans to include provisions for controlling construction wastes, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary wastes at the construction site that may cause adverse impacts to water quality. These controls should be described in the project narrative and site plans.
 - If not included in current regulations, consider including provisions for disposal of clearing/grubbing wastes such as stumps and asphalt that are often disposed on-site.
5. *Procedures for site plan review that incorporate consideration of potential water quality impacts.*

The current subdivision and site plan review processes may include review of erosion and sedimentation control plans by a Town Board or official. Sites receiving a wetland permit receive inspections by the Inland Wetlands Agency. The following items are recommended to assist with the SESC review process:

- Confirm that all personnel responsible reviewing site plans to determine compliance with the Town's SESC ordinance have received proper training for erosion and sediment control practices and are knowledgeable of allowable exemptions.
 - Develop a checklist, if not already in existence, to assist reviewers with confirming minimum application requirements are met and appropriate use of BMPs. This checklist may also assist in satisfying the education component of this minimum control measure.
6. *Procedures for receipt and consideration of information submitted by the public.*

As with many communities, informal mechanisms for the public to comment on construction related impacts exist in Prospect. The following recommendations are proposed to formalize this process as stipulated in USEPA guidance documents.

- Provide a form at the Zoning Official's office to document public inquiries and comments for construction projects.
- Consider providing an internet-based method of communicating public comment such as e-mail or an editable website document. The Town's current website could be modified to provide these links.

- Adopt procedures to respond or address public inquiries or concerns once submitted to the Zoning Enforcement Officer. It is not CT DEP's intention that Prospect should develop a burdensome process to respond to every public inquiry. The Zoning Officer may log complaints and direct the concern to the inspector responsible for a particular site. The inspector may also prioritize inquiries based on the severity of the suspected violation and investigate accordingly.

7. *Procedures for site inspection and enforcement of control measures.*

Along with the Town's review of current regulations, procedures for inspection oriented to SESC, pre- and post-construction should be examined. The responsible Town department or official should be indicated, however this might be site dependent (i.e., the inland wetlands officer typically inspect those site which required a wetlands permit). Those responsible for inspections should be receiving adequate training and resources to successfully perform these tasks. The following items are recommended to improve the inspection and enforcement process:

- If applicable, consider centralizing those groups doing inspections in the Town. There may be a benefit to combining some inspections such as building inspections with those for construction SESC. Regardless of consolidation, the Town should evaluate the need for additional staff to enforce the regulations and conduct appropriate inspections.
- Consider the use of summer interns to assist with a SESC inspection program. After some initial training they could at a minimum assist Town staff in determining whether controls have been installed and determine if sedimentation is occurring in downgradient streams.
- Prioritize inspections based on the scale of the construction project, sensitivity of nearby water resources, an approved construction phasing schedule, or potential impacts as determined by the scope of the project in order to conserve the need for inspectors.
- Consider development of an electronic database to track progress of construction, complaints and inspections. While adding some administrative commitment, this would also provide a readily accessible documentation of compliance with the regulations as well as assisting with annual report requirements.

While not specifically required in the regulations, some contractor training may be appropriate if development pressure has made frequent inspections or monitoring a strain for Town staff. This training would be valuable in educating contractors and designers on the Town's regulations, the need for SESC, and the minimum requirements for both the application and construction processes. The process could consist of the use of mailers and brochures distributed to local contractors, developers and engineers as well as more formal training. Since a program of this type would provide a regional benefit, we would recommend that the State of Connecticut or

other regional agency, such as the Council of Governments of the Central Naugatuck Valley and/or Southwest Conservation District, consider developing this program.

7.4 Implementation Alternatives

This minimum control measure of the Phase II regulations requires the Town of Prospect to implement certain best management practices (BMPs) in its storm water program. While the required BMPs are established by CT DEP, the details and measurable goals of each BMP are left to the operator of the MS4. To assist the Town with selecting appropriate controls, we have prepared several implementation alternatives and measurable goals for each of the required BMPs.

7.4.1 Soil Erosion and Sediment Control Regulations

The Town must have an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law. These regulations must include requirements for the implementation of BMPs and the control of construction site wastes. To comply with this requirement, the Town should:

- Draft modifications to the existing municipal regulations as outlined by our recommendations in Section 7.3. Additional ideas for modifications to the Town's existing regulations may be obtained from the *Connecticut Guidelines for Soil Erosion and Sediment Control* Appendix A. Often SESC regulation found in a Town's Subdivision and Zoning Regulations appear to be very similar to State published language but the Town should ensure that the final regulation incorporates all aspects of the model regulation. If the draft regulation is adopted in its entirety, existing regulations will have to be slightly modified and, in some cases, deleted.
- Conduct legal review of proposed draft modifications.
- Hold meetings, to promote awareness and seek comments. If required, hold meetings to ratify regulatory changes.
- Adopt mechanism.

7.4.2 Site Plan Review Procedures

The Town must implement procedures for site plan review that incorporate consideration of potential water quality impacts. For this required BMP to be effective, the following components should be included:

- Create a formal training program for municipal employees responsible for site inspections and review of construction plans to ensure compliance with the Town's regulations. The

program should assess current employee knowledge of soil erosion and sediment controls and the ability of staff to meet the labor demands required by plan reviews and site inspections. In developing this program, the Town should consider the following:

- Administer training to all new employees responsible for site inspections and review of construction plans.
- Provide “refresher” training at least every two years and supplemental training as required by regulatory changes, technological advances, etc.
- Maintain all records and certificates of training in each employee’s personnel file and in a consolidated training file of all employees who have attended each training event.
- Develop a checklist for designers and reviewers to confirm the minimum application requirements are met, potential water quality impacts are considered, and BMPs are used appropriately. The checklist can be compiled from the Town regulations and the *Connecticut Guidelines for Soil Erosion and Sediment Control*.

7.4.3 Management of Information Submitted by the Public

The Town must develop procedures for the receipt and consideration of information submitted by the public. We recommend the following to comply with this requirement:

- Provide a form at the Zoning Officer’s office to document public inquiries and comments for construction projects. Designate one Town official to consolidate this information.
- Provide a storm water page with a hyperlink to an e-mail address and/or editable document on the Town’s current website to allow public comment. This method allows easy electronic database entry and access by inspectors or other officials.
- Adopt procedures to respond or address public inquiries or concerns once submitted to the Zoning Officer. The Zoning Officer may log complaints and direct the concern to the inspector responsible for a particular site. The inspector may also prioritize inquiries based on the severity of the suspected violation and investigate accordingly. Use of a database can help track complaints, schedule inspections, and issue notices of violation.

7.4.4 Construction Site Inspection Procedures

The Town must develop formal procedures for site inspections (e.g., inspection schedule, responsibilities of inspectors, reporting, etc.).

- Consider developing a standard inspection frequency based on disturbance threshold or site complexity. Each site should be inspected at least three times: Initial, interim, and final.

- Develop or modify an existing checklist to assist inspectors with identifying and documenting deficiencies in construction site BMPs for soil erosion and sediment control BMPs. Check list forms for common BMPs may be developed early and modified based on comments provided by inspectors and office personnel. Checklists for less common BMPs and new technologies can be developed with experience, educational training, and governmental agency and manufacturer guidance. An example of a construction inspection policy may be found at the Delaware Division of Soil and Water Conservation internet website:

www.dnrec.state.de.us/dnrec2000/Divisions/Soil/Stormwater/Mgt/ConstRevPolicy.htm

- Develop an electronic filing system for inspections. Consider using database software that is able to store photos and is compatible with GIS software.
- Provide contractors with self-inspection reports with final plan approval. This strategy may promote contractor compliance and enable inspection officials to gauge the level of understanding of the design plan requirements and Town regulations. An example of a contractor self-inspection report has been provided in Appendix D.

8.0 POST-CONSTRUCTION SITE RUNOFF CONTROL

8.1 State and Federal Regulatory Requirements

New development and redevelopment projects have significant potential to increase pollutant loadings to receiving surface waters. These pollutants include suspended solids, nutrients, organics, metals as well as physical impacts such as increases in temperature. The USEPA Phase I Storm Water permitting program did not specifically address the post-development impacts from land development that were not classified as “industrial activities,” but the CT DEP general permit for storm water discharges associated with construction activities does include requirements for “post-construction storm water management” (Section 6(a)(5)). While requirements for post-construction management are not specifically detailed in the general permit, it does require that the SWPPP prepared for the site include “a description of measures that will be installed during the construction project to control pollutants in storm water discharges that will occur at the site after the construction operations have been completed.” No specific standards or goals for these controls are specified in the general permit.

The CT DEP’s Phase II Storm Water management program requires regulated municipalities to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb one acre or more of land and discharge into the municipality’s MS4 or directly into waters of the State. This program must include the following elements:

1. Ensure that controls are implemented to require appropriate infiltration practices, reduction of impervious surface, creation of or conversion to sheet flow, measures and/or structures to reduce sediment discharge and any other innovative measures that would prevent or minimize water quality impacts.
2. Develop and implement strategies, which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for the municipality;
3. Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, or local law; and
4. Ensure adequate long-term operation and maintenance of BMPs.

8.2 Existing Ordinances

The Town of Prospect may already address some aspects of post-construction runoff control in their ordinances and regulations (i.e., code of ordinances, subdivision and zoning regulations). These standards may focus on the control of storm water quantity and there may be some sections that specifically intend to minimize water quality impacts from storm water runoff. These mechanisms, therefore, should be reviewed to determine which sections fulfill the requirements of the MS4 general permit in its entirety or a portion thereof. In order to comply

with the general permit the Town may need to alter, omit, or adopt additional regulatory mechanisms to address post-construction runoff from new development and redevelopment projects. Some of the applicable topics include the rate of storm water runoff, land conservation, low impact design, required open space, buffers, post-construction operation and maintenance of storm water structures. Additionally, it is important that the regulatory mechanism to address post-construction runoff allow for effective enforcement by a responsible Town official and/or department. The Town should review current regulations within the first years of the permit period and any necessary development, alterations, and/or adoption of regulatory mechanisms should be completed by the end of the five year permit term in accordance with the MS4 general permit.

8.3 Recommended Modifications

While the Town's current regulations may include provisions for controlling post-construction runoff, municipal regulations are typically targeted to controlling runoff rates and volumes without targeting water quality. Several modifications are recommended to better focus these regulations on the water quality aspects of storm water management. The following paragraphs summarize recommendations to comply with the minimum requirements of this control measure.

1. *Develop and implement strategies that include a combination of structural and/or non-structural best management practices (BMPs) appropriate for the community.*

Typically, post-construction best management practices (BMPs) are proposed by developers and their engineers and reviewed by a municipality during the development plan review process. No formal requirements or strategies on BMPs typically exist providing guidance to Town staff. The following identifies our recommendations to comply with this requirement.

- Base required BMPs on the upcoming *Connecticut Stormwater Quality Manual*. At this time, we do not recommend that the Town develop independent BMPs in order to allow it to be consistent with statewide practices that will improve implementation by engineers and developers.
- Consider whether the Town, based on past experience, should expressly prohibit any BMPs. While BMPs may be specified in the *Connecticut Stormwater Quality Manual*, there are some controls such as infiltration trenches that while commonly shown in BMP manuals have limited application in the northeastern United States.
- Consider an alternative approach to addressing post-construction runoff that determines an appropriate level of controls based on the risk to water quality that a development poses. This would result in a lower level of controls for projects that posed less risk and a greater level of controls for projects that posed greater risks. Appendix E includes one approach that was implemented in Waterford, Connecticut to innovatively control water quality impacts as well as costs for BMPs to

developers. It outlines a matrix that defines three escalating tiers of controls that are based on location of sensitive receiving waters, land use, percent imperviousness and size of development. If desired by the Town, this approach could also be incorporated as part of a public participation program. This program should include both the regulated community as well as other stakeholders.

2. *Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State or local law.*

As with Construction Site Runoff Control, the Town should develop overlay districts and regulations for the Zoning Regulations to protect sensitive waters from degradation. The Town should consider the following recommendations in addition to developing other applicable regulations:

- Prohibit land uses with higher pollution potential in the above mentioned areas.
- Require BMPs that are specifically designed to prevent pollutants of concern from entering an area mentioned above.

The existing regulations do not address a number of storm water quality issues that need to be addressed to comply with Phase II requirements. These include planning and design standards for BMPs such as those currently specified in the *Connecticut Stormwater Quality Manual* as well as long-term maintenance and monitoring requirements. The following is recommended to comply with this requirement.

- Since the Subdivision Regulations apply to all non-exempt land development and redevelopment projects in Southbury, the amendments should be focused on these regulations. Two mechanisms exist that could be helpful to modifying these regulations including:
 - i. A model storm water control ordinance that has been developed by the Rhode Island Department of Environmental Management (RIDEM). A copy of this ordinance is included in [Appendix F](#) for guidance in developing the Town's regulations. This would require incorporating a separate ordinance into the municipal code or it could be added to the current zoning or subdivision regulations. It should be noted that some redundancy exists between the model ordinance and current regulations.
 - ii. Modify the current regulations to include specific provisions to address storm water quality. This could be completed by incorporating sections of the RIDEM model storm water control ordinance into the Subdivision Regulations. At a minimum, the following components of the model ordinance should be incorporated:

- Section 5.2 Performance Standards: An important component of this section is that an applicant must demonstrate that their controls remove the average annual total suspended solids (TSS) by at least 80%.
 - Section 5.5 Facilitation of Maintenance: This includes requirements that will result in designs that will minimize maintenance.
 - Section 6 Maintenance Requirements: This includes minimum maintenance requirements that need to be specified for BMPs. More detailed maintenance requirements are addressed in this section of the report.
 - Section 7.3(A) Site Plan Calculations and 7.4 Narrative Description: While the existing regulations currently include submittal requirements, future submittals are recommended to include detailed descriptions of BMPs, their effectiveness and maintenance in order to confirm that the selected BMPs will meet the intent of the Phase II regulations.
 - Section 8 Maintenance Agreements and Section 9 Performance Surety: Maintenance is an important component of the long-term performance of any BMP. These two sections require regulated land development projects to enter into enforceable agreements to maintain their BMPs, with performance surety in place to ensure maintenance.
 - Section 11 Enforcement: While some mechanisms exist for the Town to enforce its Subdivision and Zoning Regulations, we recommend incorporating this section as it provides a clearer mechanism for enforcement of non-reporting and maintenance issues.
- Implement regulatory modifications as part of a public participation program. At a minimum, this program will review proposed regulatory modifications with the public. However, the program can be expanded to form a committee of interested citizens, including other consulting engineers and developers, to develop final regulatory changes. This recommendation has benefits to the Public Education and Participation minimum control measure of Phase II.

The Zoning and Subdivision Regulations should be modified, if necessary, to require drainage facilities to be designed by a registered professional engineer consistent in accordance with the design criteria of the upcoming *Connecticut Stormwater Quality*

Manual. The manual addresses both water quantity and the minimum water quality standards established by CT DEP.

3. *Ensure adequate long-term operation of BMPs.*

- Unless contained in specific conditions of local or CT DEP approval language, existing regulations do not include provisions to ensure adequate long-term operation of privately owned BMPs. As a result, the following recommendations are made.
 - Amend the Zoning and Subdivision Regulations to require long-term maintenance of all storm water facilities. An example of a post-construction model ordinance is provided in Appendix G of this report to assist the Town with developing appropriate language for establishing long-term maintenance and compliance through the use of maintenance agreements, record keeping, and inspections. This language should also include provisions for reimbursement to the Town for O&M performed by Town staff when the property owner defaults on these responsibilities.
 - Consider development of an electronic database to track BMP maintenance, complaints and inspections. The administrative commitment could be part of that developed to track sites during construction and would also provide a readily accessible documentation of compliance with the regulations.
 - Consider adding a post-construction reporting component for the public (e.g., internet-based, etc.) that is part of a plan to receive inquiries under the Construction Site minimum control measure. This could help the Town in identifying non-compliance of BMP maintenance requirements and sources of potential pollution discharge into the Town's MS4 or waters of the State.
 - Consider implementing a public education program dedicated to land developers and owners of commercial and industrial properties that addresses more detailed maintenance needs for specific BMPs. Suggested practices for specific BMPs are summarized in Appendix H of this report.
 - Amend Regulations to include provisions for ownership and maintenance of storm water facilities.
 - Consider including requirements for long-term monitoring of BMPs, especially for land development projects near or tributary to sensitive areas such as those on the impaired waters list. Influent and effluent grab samples could be collected from storm events that generate between 0.5 and 1.0 inch of rainfall during a 24-hour period. Before sampling, there should be at least a 72-hour period of no rainfall, and pre-treatment (influent) samples should be collected during the first flush of the storm. Runoff generated by the first half-inch or first inch of precipitation is typically

considered the first flush. Post-treatment (effluent) samples should be collected after pre-treatment samples are collected with a delay in time equal to the time the water is detained in the treatment system during that storm. Initial and long-term post-construction monitoring of water quality controls is recommended.

Initial Monitoring: Initial monitoring should be performed within one year following installation and initial startup of the control system to assess the system's design and short-term pollutant removal efficiency. Sampling of five separate storm events is recommended in order to make a statistically valid conclusion as to the effectiveness of the treatment system. The samples should be collected during early spring (April) and late summer (August) in order to examine seasonal variation of treatment performance. At least two storm events should be sampled during each season.

Long-Term Monitoring: Biennial (i.e., once every two years) monitoring should be performed to provide information on the long-term pollutant removal efficiency and operation and maintenance of water quality controls for developments requiring secondary or tertiary controls. Biennial monitoring should be initiated following completion of the initial, first-year monitoring program.

The parameters that are recommended for initial and long-term monitoring are listed in Table 8.1 below. Discharge quality goals are also listed for each parameter. The ultimate goal would be for discharge quality to not be acutely toxic to aquatic life, however, this sampling does not account for stream dilution that would affect actual toxicity. At a minimum, it is recommended that storm water discharges achieve the listed quality goals that are achievable with proper storm water controls.

**TABLE 8.1
BMP MONITORING PARAMETERS AND QUALITY GOALS**

Parameter	Quality Goal
Oil & Grease	5 mg/l
BOD ₅	5 mg/l
COD	75 mg/l
Total Kjeldahl Nitrogen (TKN)	2.5 mg/l
Nitrate as Nitrogen	1.5 mg/l
Total Suspended Solids (TSS)	100 mg/l
Total Phosphorous	0.5 mg/l
Fecal Coliform	2000 /ml
pH	6 - 9

4. *Ensure controls are in place that would minimize water quality impacts.*

The Town's current development plan review process may ensure that controls are in place to control water quality impacts. With the proposed modifications to the

regulations, specific requirements for these controls will be stipulated, thereby minimizing the opportunity for inappropriate controls to be implemented as part of a development or redevelopment project. However, the Town's ability to ensure compliance with approved plans may be limited based on available staff. The following recommendations are offered.

- Require inclusion of storm water BMPs on as-built drawings for review by the Town Engineer for projects with complex systems or that pose substantial risks to water quality.
- Prioritize sites of concern and include those sites in periodic inspections (e.g., once every year) to ensure proper maintenance of implemented BMPs. As part of this, the Town could also require specified projects to submit annual maintenance records.
- Successful implementation of these efforts would require staff time for both enforcement as well as record keeping. This with the additional Phase II requirements will likely exceed available staff time. The Town could consider the use of a summer intern(s) to assist with this effort.

8.4 Implementation Alternatives

The Phase II regulations require the Town of Prospect to implement certain best management practices (BMPs) in its storm water program to address post-construction runoff for new developments and redevelopment projects.

We have described each of the requirements for the Post-Construction Runoff Control minimum control measure below and have provided, for the Town's use, several BMP alternatives with appropriate measurable goals.

8.4.1 Develop and Implement Storm Water Strategies

The Town must develop strategies that include structural and non-structural BMPs appropriate to the community. Prospect's geology and landscape require special consideration to prevent water quality impacts caused by development projects.

- Identify areas and resources where specific types of BMPs are most appropriate, such as watersheds of impaired waters or aquifer recharge areas. In aquifer recharge areas, development or redevelopment projects should infiltrate non-polluted runoff as part of a storm water management plan to maintain or improve pre-development recharge volumes. Restricting the size of impervious lot coverage and large, contiguous paved areas can also be effective BMPs in recharge areas. Thermal pollution should be considered when identifying areas where certain BMPs may affect the ability of surface water to sustain aquatic plants or wildlife.

- Prepare a map of areas where increased levels of controls and long-term monitoring will be required, such as those that are defined by the State list of impaired waters. Make the map a part of the current regulations and available to the public to raise awareness of required storm water controls in sensitive areas. Require proposed controls to be performance-based and able to achieve water quality goals.
- Implement a program similar to the one used by the Town of Waterford, Connecticut (see [Appendix E](#) of this report). This program uses a tiered approach to determine the appropriate controls that must be implemented at a site depending on the type and size of the development or redevelopment project, impact risks and environmental sensitivity of receiving waters.
- Prepare a list of BMPs appropriate for the community as part of its Storm Water Plan. BMPs may include a low impact development strategy for sensitive resources and areas within watersheds of impaired and sensitive waters. Additional information about post-construction runoff control BMPs may be found at USEPA's website.

8.4.2 Post-Construction Runoff Control Regulations

Prospect must use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law. The Town should:

- Adopt storm water control ordinance such as RIDEM's draft model ordinance (modified) or modify existing regulations to require storm water controls and BMPs to comply with the upcoming *Connecticut Stormwater Quality Manual*. CT DEP has established these performance standards and design guidelines for structural BMPs to control storm water runoff quantity and improve the quality of storm water discharges.
- Require the submittal of "as-built" drawings that show the locations of all watercourses, wetlands, environmentally sensitive areas, and implemented BMPs, including the design specifications of each BMP used. Require that the as-built drawings are stamped and signed by a registered professional engineer. Also consider including operation and maintenance (O&M) plan schedules, and responsible parties on the as-built drawings, or at a minimum the as-built should refer to the appropriate documentation (i.e., O&M plan, SWPPP, etc)
- Develop regulations for Overlay District with sensitive watercourses in the Zoning Regulations. Use the regulation to minimize development and impervious surfaces and prohibit land uses with higher pollution potential.

8.4.3 Ensure Adequate Long-Term Operation of BMPs

In order for the Town of Prospect to comply with the USEPA Phase II requirements, a program must be implemented that ensures the continued long-term operation of structural and non-structural BMPs.

- Develop a standard, long-term inspection schedule that requires inspection of implemented BMPs by a registered professional engineer. A sample inspection checklist is provided in Appendix I and additional checklists for different types of BMPs may be obtained on the internet at www.stormwatercenter.net. In sensitive areas, more frequent inspections and reporting may be warranted.
- Amend existing regulations to require long-term operation and maintenance. Regulations could require: annual inspection and maintenance reporting from BMP owners; recording storm water operation and maintenance plans to be recorded in land evidence with the property's deed; or agreements that allow the Town to perform emergency maintenance at the expense of the BMP owner.
- Develop a public participation program that allows neighbors of developed sites to comment on the perceived function or dysfunction of implemented BMPs. Educate Town citizens at public hearings and through mailings of their right to comment on how well the storm water management systems function after construction is complete. Provide them with information as to where they can direct their comments (internet, mail-in reply card, storm water telephone "hotline," etc.).
- Require that maintenance and inspection records be maintained for a certain period of time (i.e., 5 years). Require that all maintenance and inspection records be forwarded to the Town Engineer, or other designated official trained in storm water controls upon request, for review.
- Solicit the help of Town citizens in tracking the performance of BMPs by recruiting volunteers, such as school classes and scout troops, to sample storm water runoff, streams, and rivers in environmentally sensitive areas.

9.0 POLLUTION PREVENTION /GOOD HOUSEKEEPING

9.1 State and Federal Regulatory Requirements

The goal of this element of the storm water pollution prevention plan is twofold. The first is to minimize the pollutants that enter the Municipal Separate Storm Sewer System (MS4) prior to being discharged to surface waters of the state. This would consist of pollutants from land uses that drain to Prospect's MS4 as well as those pollutants that are swept from municipally owned streets, parking lots, and facilities. The second goal is to minimize pollution caused by activities at municipal owned facilities such as storage of materials and wastes where they are exposed to precipitation.

The Phase II program that has been promulgated by the CT DEP requires regulated municipalities to develop a pollution prevention/good housekeeping element that achieves the above referenced goals. This element largely consists of properly maintaining existing infrastructure such as roads and drainage structures as well as implementing appropriate pollution control practices at municipal facilities. Specific regulatory requirements for this element of the storm water pollution prevention plan as they pertain to municipal activities and Town owned and operated structures are:

1. Develop and implement an operation and maintenance program with the goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system; and
2. Include employee training on incorporating pollution prevention/good housekeeping techniques into municipal operations such as landscaping, car and truck fleet maintenance, building and public works yard maintenance, new construction, land disturbances, and storm water system maintenance. Training materials available from the USEPA may be used to assist with this task.
3. Develop and implement a program to sweep all municipal roads at least once per year. CT DEP requires that this be completed as soon after snowmelt as possible. The MS4 permit also requires that the Town evaluate and prioritize those streets within the urbanized area which should be swept at greater frequency.
4. Develop and implement a program to clean catch basins and other storm water structures which accumulate sediment annually. CT DEP requires that those structures that require more frequent cleaning be identified and prioritized.
5. Develop and implement a program to evaluate and prioritize structures and areas within the municipality where storm water related repairs, upgrades, or retrofits are necessary.

The Town of Prospect currently implements a street and drainage system maintenance program with the goal of minimizing the pollutants that discharge from their MS4. Information regarding these current practices and responsibilities for pollution prevention and good housekeeping were

obtained from questionnaires and personal interviews with staff from the Department of Public Works (DPW), Police, and Fire Departments. The following summarizes the pollution prevention and good housekeeping techniques and policies employed by the Town.

9.2 Department of Public Works

A series of interviews and questionnaires were used to develop this section. Implementation alternatives are presented in Section 9.6.

9.2.1 Public Street and Parking Lot Sweeping

Annual sweeping is performed in the spring on all public streets and parking lots with some areas receiving additional sweeping as necessary to remove excessive sediment buildup. These areas include the center of Town prior to civic events. All sweeping activities bid out to a private contractor. In past years the contracted sweeping company has used six (6) sweepers to successfully complete the task.

There are parking bans in effect during the street sweeping season. Residents are notified of these bans through news articles in local papers and monthlies. Connecticut Water is responsible for hydrant flushing and do not coordinate their schedule with pavement sweeping. The Town is, however, given notice prior to any hydrant flushing. There is minimal coordination between street sweeping and curbside waste pick-up.

The Town does not record the amount of sediment collected during sweeping activities. The sweepings collected are the responsibility of the contracted company and therefore are not stored or used by the Town. During sweeping activities, operators take note of roadway problems or repairs when needed and then report these findings to the DPW Director. There is currently no formal logging of these observations.

9.2.2 Storm Water System Inspection and Cleaning

The Town does not believe that they have interconnections with other MS4s. The Town's illicit detection program is discussed further in Section 6.0.

The DPW cleans the catch basins in Town on a four year rotation (every basin is cleaned at least every four years). There are approximately 1,800 catch basins within the Town of Prospect, therefore, approximately 450 are cleaned annually. The DPW rents a vacuum truck to complete this task. There are four qualified DPW employees to operate the rented truck. Sediment gathered from these activities are consolidated at the DPW yard where it is mixed with subsoil to form a loam product that is used by residents and the DPW as clean fill and backfill for curbing.

There is currently no written cleaning program that targets specific areas. But, there are some areas of flat grade that are cleaned more often. The level of sediment in the catch basins is not tracked by the Town. Reportedly, there are no oil/water separators installed in the Town to inspect, maintain, or repair. The DPW does not have a formal program to investigate suspicious

connections/flows in catch basins nor is there training given to Town employees on this topic. However, if a Town employee observed something, they will report the suspicious flows to the Health District.

The Town is responsible for the maintenance of 12 detention ponds, 3 retention basins, and many miles of water quality swales and open drainage ditches. These structures are inspected annually or after a 50-year design storm and maintained as needed. Storm drain outfalls are inspected annually for erosion and receive maintenance as needed.

The Town does not require excavation permits for construction of drainage and/or sanitary structures on the street. Therefore, inspections do not occur to confirm construction is in accordance with approved designs and applicable building codes.

The Connecticut Department of Transportation (CT DOT) and the Town of Prospect do not usually coordinate their efforts but have an acceptable working relationship. If an issue with the State storm water system is noted, such as a clogged catch basin, then the DPW reports it to CT DOT who eventually corrects the problem. The State maintains their roads and storm water systems. The Town/State line is marked with different State road and Town road signs. Additionally both DPW and CT DOT employees are aware of the boundaries through experience.

9.2.3 Fleet Vehicle Maintenance

Maintenance and repairs of municipal vehicles and large equipment are handled by the DPW. Public Works maintains a fleet of 20 vehicles including pick up trucks, dump trucks, loaders, and automobiles, as well as none-plated large equipment. The DPW conducts maintenance on vehicles indoors at the Highway Garage at 221 Cheshire Road. Reportedly, there area floor drains at the Town Garage. This floor drain discharges to an oil/water separator and then to a holding tank which is emptied as necessary.

All maintenance fluids are stored inside the Town Garage in market containers. These areas are inspected by OSHA annually for compliance with safety standards.

The Town washes highway vehicles inside the Public Works Garage. This wash water drains to the above mentioned floor drains. Soaps are usually used when washing DPW vehicles.

9.2.4 Winter Road and Lot Maintenance

Public roads and parking lots in Prospect are maintained by both the DPW and a contracted plowing company. During a snow storm, the trucks apply a sand to salt mixture of 3 to 1 as necessary. Prospect does not uses any alternate deicing chemicals (i.e., calcium magnesium acetate, calcium chloride) or add any additives to the sand and salt mix. There is currently no written program for road salt preparation and application. The spreaders are equipped with speed dependent applicators with are calibrated seasonally. There are some areas of Town including Straitsville Road, Salem Road, Murphy Road, Cook Road, Talmadge Hill Road and

Nancy Mae Road which receive additional sanding and salting due to there shaded nature. Heavy traffic areas and sunny areas receive less salting and sanding. Application frequency and priority areas are determined by the DPW Director based on climatic conditions including the temperature and dew point. The Town of Prospect does not pretreat their roads prior to a snowstorm.

Sand, salt, and mix piles are stored in the Town's salt shed. Reportedly, there is no drainage from this sand and salt covered storage area. The Public Works Director is responsible for ordering all deicing materials. The DPW maintains purchasing records to track the amount and type of material used.

9.2.5 Solid Waste Removal and Handling

A private contractor is responsible for the solid waste and recyclables collection in the Town. This is set up by the homeowner and not the responsibility of the Town. The private hauler also collects wastes from Town facilities including the Fire Station, Police Department, etc. Solid wastes collected from these departments are discussed in later sections of this plan. The amount of refuse and recycling collected is not recorded. There is little coordination between the curb-side pick up and street sweeping.

Solid waste is collected daily from park locations throughout the Town by DPW staff. Most (80%) trash barrels located at Park locations are covered.

Wastes including recyclables, hazardous wastes, bulky wastes and white goods from Town residents and departments are accepted at the TROC recycling center. Recyclable collection is a public responsibility. A farm at 50 Roaring Brook Road accepts the Town's yard wastes. The DPW does not maintain records of the amount of material not collected by a public entity. They do maintain records regarding recyclables.

The DPW is responsible for regular litter removal along Town roads and at park locations, while CT DOT and CT DEP coordinate efforts along State roads and in State parks, respectively. There are signs at Town park sites to discourage littering.

Gene McCarthy, DPW Director, believes that Prospect has a problem with illegal dumping. The problem areas include 2-3 secluded areas around the Town. Items left at these locations include furniture, brush, appliances, etc. There are penalties for those who are caught dumping illegally. The local Police Department is responsible for enforcing illegal dumping penalties, while the DPW monitors and maintains these areas. In addition to signage at these locations, DPW staff has also attempted to deter litters by placing large boulders at access points.

9.2.6 Hazardous Materials Handling and Storage

The DPW Garage generates and controls a significant portion of the municipal hazardous waste generated in Prospect due to the nature of facility operations, such as automotive fleet maintenance.

The Town generated hazardous wastes including antifreeze, waste oil, oil filters, used speedi-dry, oil soaked materials, empty brake cleaner aerosol cans. Solid substances are drummed and stored at the DPW garage prior to bringing these items to the recycle center. Waste oil is brought to the transfer station for proper disposal. All other fluids are removed as needed by a contracted hazardous waste hauler. Wastes from the parts washer used by the Town Garage are self contained in the washer and then sent off-site for recycling as needed. All hazardous wastes are managed as Connecticut or USEPA regulated waste. All storage and handling areas are inspected regularly by Town staff. Currently no log sheets are used for record keeping purposes.

The Town funds household hazardous waste days at the DPW garage four times per year. During these events a contracted HazMat hauler accepts a wide range of waste items including cleaners, fuels, paints, strippers, etc. While at the facility, these items are kept in covered containers. The contracted waste hauler is responsible for the ultimate disposal of the hazardous wastes brought to the transfer station during these events. Records kept by the Town regarding the amount of material collected.

9.2.7 Transfer Station

The Town maintains a transfer station located on Plank Road. This station is associated with the BRRFOC facility. Metals, bulky wastes, wood, waste oil, batteries, and tires are some of the waste products accepted at the Town transfer station.

9.2.8 Recreational Facilities

There are 132-acres of park area within the Town of Prospect. It includes numerous ball fields and soccer and football fields. Anyone who wished to use these facilities for an event or club must receive approval from the Athletic Director. Charity car washes and agricultural events have not occurred at these areas in the past

The maintenance of these facilities is the responsibility of the DPW. Reportedly, there are no floor drains at any of the Town's recreational facilities. There are, however, catch basins at the associated parking areas. These structures are inspected and cleaned at the same frequency as the other catch basins within the Town. Storm water outfalls at park locations are inspected monthly by DPW staff.

All Town owned landscaping equipment is maintained with the other Town vehicles and equipment by the Town mechanic at the Town's DPW garage. The equipment is also stored inside the DPW garage.

9.2.8 Fertilizer and Pesticide Application

The Town hired a contracted fertilizer and pesticide applicator to maintain the park and town grassed areas. The contractor may choose to perform soil test prior to applying fertilizers to Town ball fields.

The Town does not presently implement a formal larvicide program to control mosquitoes in the Town.

The Town does not maintain a supply of a fertilizers or pesticides. The type of chemicals used is based on the contractor's suggestions and the signed contract between the two parties.

9.2.9 Tree Management

The Town does not have a Tree Warden, or tree ordinance to regulate public or private tree management activities. Any yard waste that is produced from maintenance at Town facilities (i.e., recreational facilities) is brought to the farm which accepts the rest of the Town's yard waste.

9.2.10 Pet and Bird Waste

Dogs are allowed in park areas within the Town. There is an ordinance to clean up after your pets in Prospect. There is currently signage at these locations notifying patrons of this ordinance. Additionally, the Town has placed a "Mutt-Mitt" dispenser at the one main park where residents bring their pets.

The Town of Prospect does not have an ordinance prohibiting the feeding of waterfowl at park areas. The DPW Director does, however, feel that birds are a problem in park area. The Town has unsuccessfully attempted to deter Canadian geese with the "goose-be-gone" product in the past.

9.2.11 Spill Response

The Fire Department is available as the first responder to handle significant spills at DPW facilities. Some materials, such as absorbent pads and speedi-dry are stored at the DPW garage and in the trucks for incidental spills.

9.2.12 Personnel Training Program

The Town does not have a formal Spill Response Plan nor are educational posters displayed at DPW facilities.

9.3 School Department

Due to the limited time given to prepare this program plan, representatives from the Region 16 school system were not able to obtain, consolidate, and present detailed information about the current facilities, practices, and activities regarding fleet and equipment maintenance, landscaping, winter lot maintenance, hazardous and solid waste handling and disposal, spill response personnel training and materials.

It is our recommendation that the Town of Prospect meet with representatives from the Region 16 custodial and maintenance staff to discuss current facilities, practices, and responsibilities. This discussion should center on facilities only located within the Town borders as all others do not pertain to Prospect's program plan. We suggest that the Storm Water Committee include in the first Annual Report a description of current facilities and practices and update this if activities and facilities change.

9.4 Fire Department

There is one main fire station which provides the fire protection to the Town of Prospect. The Station is located at 26 New Haven Road. There are passive floor drains located at the Station. The floor drains discharge into two 1,000 gallon tight tanks. The floor drains are not inspected regularly but are cleaned and repaired as needed by Fire Department staff. The holding tanks are pumped out by a contracted pump out company, Prospect Sanitation, approximately four times per year.

Catch basins are located in parking and ramp areas of all Station locations. These structures are cleaned by the DPW staff along with the remainder of the catch basins in Town on a four year rotation.

9.4.1 Vehicle and Equipment Maintenance

All vehicles including 11 pieces of equipment are maintained by, Gowan and Knight, a contracted repair facility. Department vehicles are washed inside the station using biodegradable soaps.

9.4.2 Waste Disposal

Solid wastes are collected weekly from the Fire Stations by the Town's contracted solid waste hauler. There are no records maintained regarding the amount of refuse collected.

9.4.3 Spill Response

The Fire Department is consulted regarding potentially hazardous conditions, spills or accidents. CT DEP is also notified and may call in CT DOT and/or a private cleanup company for assistance. All waste from spill response events are put into sealed barrels and disposed of by CT DEP.

The Department maintains various spill kits and materials including but not limited to absorbent pads, booms, and speedi-dry. These materials are stored on trucks and within the Stations. The materials are used for hazardous material response as well as for Fire Department spill situations.

9.4.4 Personnel Training Program

Firefighters are trained to hazardous materials awareness (50) and operational (15) level certification. This training is continual and maintained through licenses.

9.5 Police Department

The Prospect Police Station is located at 8 Center Street. There are catch basins but no floor drains at this facility. Reportedly, the catch basins discharge to other Town of Prospect land. The operation and maintenance of the catch basins are the responsibility of the DPW. As with all other catch basins in Town, the catch basins at the Police facility are cleaned on a four year rotation. They are repaired as needed.

9.5.1 Vehicle Maintenance

All Police Department vehicles (5) are maintained by Hometown Auto, a contracted garage facility. There is a small amount of maintenance fluids stored at the Police garage for immediate needs these materials include oil, antifreeze, and washer fluid. Vehicles are taken to a local car wash for regular car washes.

9.5.2 Waste Disposal

Solid wastes are collected weekly from Police facilities by a contracted waste hauler.

9.5.3 Spill Response

The Fire Department is available to handle spills at Police facility. The Police Department does not maintain spill kits or have a supply of spill containment materials such as speedi-dry.

9.5.4 Personnel Training Program

There is no specific spill and storm water pollution prevention training for Police employees.

9.6 Implementation Alternatives

The Town of Prospect currently implements many of the elements of a successful operation and maintenance program. Critical to the success of this program, is the need to define specific responsibilities and to create a documented schedule for implemented controls. The following paragraphs describe ways to achieve compliance with the standards of the Pollution Prevention/Good Housekeeping minimum control measure.

1. *Develop and implement an operation and maintenance program with the goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system; and*

While the Town of Prospect has incorporated many of the elements of a successful operation and maintenance program, this report offers several alternatives for the Town to consider upgrading the effectiveness of its current programs. These recommendations have been divided into each of the principal operation and maintenance functions provided by the Town.

a) Public Street and Parking Lot Sweeping

- With the exception of state and private roads the Town sweeps 100% of this pavement annually. Per MS4 permit requirements, the Town should continue to sweep all roads within the municipality once per year. CT DEP requires that this be done as soon after snowmelt as possible. Record keeping will allow the Town to determine if these efforts are bringing significant pollutant removal benefits.
- Develop sweeping records to allow the sweeping program to be evaluated and determine specifically what streets should be swept more frequently and at what intervals. These records could simply consist of noting the dates that the street was swept and the approximate volume of sediment removed. This data could be used to determine if more frequent sweeping should be conducted on some streets and less frequent sweeping on others. This data could also be used and compared to sand application data to determine the effectiveness of the sweeping program.
- Formally identify streets that will be swept more frequently and develop a schedule for sweeping those streets.
- Note areas that collect sediment or trash rapidly during sweeping operations as part of the record keeping process. These areas should then be further investigated to determine the source of the pollutants (e.g., erosion, poor waste handling operations, or construction activities).
- Continue to enforce on-street parking bans or limit parking to one side of the street during the scheduled day of sweeping. Sweeping effectiveness can be significantly enhanced if the sweepers have access to the curb.
- Modify existing training program for equipment operators to include operation of equipment to prevent pollution, record keeping and proper storage of sweepings. This training should also include discussions of methods to detect and isolate polluted sediment.
- The Town should petition the CTDEP to publish additional reuse opportunities for sediment removed from paved areas during sweeping activities and catch basin cleanings. The current CT DEP “Guideline for Municipal Management Practices for

the Reuse of Road Sand Sweepings” (see [Appendix J](#)) severely constrains storage, disposal, and re-use options for the Town of Prospect.

- b) Detention basin, catch basin and storm drain inspection and cleaning
 - Per MS4 permit requirements, the Town must clean all catch basins and other storm water structures that accumulate sediment within the Town annually. The Town may need to obtain an additional vacuum truck and staff to successfully complete this task.
 - Establish a documented inspection and cleaning schedule that prioritizes areas based on potential pollution and flooding impacts. Prior to establishing a formal storm drainage inspection and cleaning program above that which is required by CT DEP, the Town should conduct a pilot program where they select several catch basins in various parts of the Town representing different land uses. These basins should be inspected monthly after cleaning for one year to determine how rapidly sediment accumulates in them. This pilot program should provide Prospect with a basis to determine appropriate regularly scheduled cleaning.
 - Maintain records of all cleaning and inspections for the Town’s storm sewer system to allow easy reference by street and to identify potential problem areas.
 - Develop a checklist for inspection procedures and a reporting mechanism to allow any necessary cleaning to be scheduled.
 - In conjunction with planned roadway improvements, consider replacing or reconstructing catch basins, particularly in areas with chronic flooding problems or sedimentation in receiving waters.
- c) Fleet vehicle maintenance
 - Continue to notify and train employees about the Town’s spill prevention and cleanup procedures. Appropriate staff, including drivers and “first responders,” should continue to receive annual training in these procedures to both raise awareness as well as to minimize the potential for a spill to enter the MS4.
 - Consider collecting vehicle wash waters and either recycle the waters or discharge the waters to the sanitary sewer. The DPW currently wash some of their vehicles, those that can not be brought to the contracted car wash, at Town facilities.
- d) Winter road and lot maintenance
 - Continue to store salt/sand mix and sand piles enclosed in sheds and other buildings including providing sufficient amount of storage for the entire quantity of winter

deicing materials. Dissolved salts and sediments from exposed or semi-exposed (tarp covered piles on ground) piles have potential water quality impacts.

- Consider identifying areas and ways the Town can reduce the amount of sand and salt used on roads and parking lots without compromising safety. For example, ensuring proper spreader calibration and using road temperature sensors to estimate an appropriate level of salt application. Also, records of salt use, meteorological conditions, and effectiveness could be maintained for areas where large of amounts of deicing salts have historically been used.
 - Refer to CT DEP's "Best Management Practices for Disposal of Snow Accumulations from Roadways and Parking Lots" when disposing of or temporarily storing excess snow (see [Appendix J](#) for a copy).
- e) Municipal landscaped areas maintenance
- Consider targeting an education campaign towards encouraging patrons to remove pet wastes from municipally owned locations.
 - Continue to provide pet owners with bag dispensers (Mutt-Mitts) at frequented Town locations. Ensure that trash receptacles are placed and maintained near to these stations.
 - Consider implementing an integrated pesticide management (IPM) program where it currently does not exist. This program could reduce the amount of landscaping chemicals needed on park areas.
- f) Solid waste removal and handling
- Conduct a survey of residents to determine their current practices to dispose of household hazardous wastes, waste oils, and automotive fluids. This survey would determine whether public education or solid waste services should be enhanced as well as increase public awareness.
 - Consider having the DPW publish a semiannual newsletter that provides residents with information about where and how they can properly dispose of waste as well as the impacts of improper disposal. For example, the newsletter could promote services like Hazardous Waste Collection Day and list out quantities of collected materials through the Town's recycling and hazardous waste (batteries, oil, antifreeze) program. Additionally, this information, including electronic copies of the DPW newsletters, should be included on the municipal website.

- g) Hazardous materials handling and storage
 - Post prominently emergency action plans in areas where hazardous materials are used or stored in the event of spills or accidents.
 - Provide easily accessible equipment or materials to properly minimize the impacts of spills. Also provide response training and instructions on proper disposal of cleanup waste.
 - Continue to perform annual training and enhance training with practice drills to reinforce proper emergency action and to determine weaknesses in current operations or to develop new BMPs.
 - Conduct a detailed inspection annually of the DPW garage, School maintenance facility (if applicable) and Fire Stations to identify potential pollution sources and take appropriate action to address known deficiencies.
- 2. *Include employee training on incorporating pollution prevention/good housekeeping techniques into municipal operations such as landscaping, car and truck fleet maintenance, building and public works yard maintenance, new construction, land disturbances, and storm water system maintenance. Training materials available from the USEPA and CT DEP may be used to assist with this task.*
 - Develop and implement a targeted training program to build upon existing programs.

10.0 PLAN SUMMARY/IMPLEMENTATION MEASURES

The Town of Prospect currently implements many of the elements of a successful Storm Water Management Program. In order to fully comply with the National Pollution Discharge Elimination System (NPDES) storm water regulations and the Connecticut Department of Environmental Protection's (CT DEP) Phase II Storm Water Program, the Town must implement additional measures. The table found in Appendix K outlines those measures, identifies the responsible parties, measurable goals, and provides a schedule for implementation over the five year permit term. The listed measures were identified through several workshops conducted with the Town's Storm Water Committee. Technical Memorandums (TMs) were prepared for each of the six minimum control measures. At these workshops the TMs were reviewed and implementation alternatives were discussed. Where possible, the measurable goals are identified as quantifiable measures. In other instances the measurable goals are presented as discrete activities. For these, the conduct of the activity is intended to serve as the goal.

11.0 PROGRAM EVALUATION

11.1 Revisions to Storm Water Management Program

The Town must annually evaluate the compliance of its storm water management program with the conditions of the general permit. The evaluation must consider the appropriateness of the selected BMPs in efforts towards achieving the defined measurable goals. The storm water management program and associated plan may be changed in accordance with the following provisions:

- Changes adding (but not subtracting or replacing) components, controls or requirements to the Plan may be made at any time upon written notification to CT DEP,
- Changes replacing an ineffective or infeasible six minimum control measure BMP, specifically identified in the SWMPP, with an alternative BMP may be requested at any time. Unless denied, changes proposed in accordance with the criteria below shall be deemed approved and may be implemented sixty (60) days from submittal of the request. If the request is denied, CT DEP will send a written explanation of the denial. Changes replacing an ineffective or infeasible storm water control specifically identified in the SWMPP or in an approved Scope of Work document to meet the requirements of an approved TMDL, may be requested at any time, however, written approval from the Department must be received prior to implementing changes.
- Modification requests, must include the following information:
 - Analysis of why the BMP is ineffective or not feasible (e.g., cost prohibitive).
 - Expectations on the effectiveness of the replacement BMP.
 - Analysis of how the replacement BMP is expected to achieve the goals of the BMP to be replaced.

Revision requests or notifications must be in writing and signed in accordance with the signatory requirements of the permit.

CT DEP may require changes to the Plan as needed to:

- Address impacts on receiving water quality caused or contributed to by discharges from the MS4,
- To include more stringent requirements necessary to comply with new Federal statutory or regulatory requirements, or
- To include such other conditions deemed necessary to comply with the goals and requirements of the Clean Water Act.
- Include a revised scope of work and implementation schedule necessary to comply with the TMDL requirements.

11.2 Annual Report

The Town must submit an annual report that summarizes information regarding storm water management activities during the previous calendar year and planned activities for the upcoming year. The initial report is due one year from the effective date of the general permit and annually thereafter. Provided in Appendix L is a draft template for annual reporting.

The following information must be contained in the annual report:

- A self assessment review of compliance with the permit conditions.
- Assessment of the appropriateness of the selected BMPs.
- Assessment of the progress towards achieving the measurable goals.
- Assessment of the progress towards meeting the requirements for the control of storm water identified in an approved TMDL.
- Summary of results of any information that has been collected and analyzed. This includes any type of data.
- Discussion of activities to be carried out during the next reporting cycle.
- A discussion of any proposed changes in identified BMPs or measurable goals.
- Date of annual notice and copy of public notice.
- Summary of public comments received in the public comment period of the draft annual report and planned responses or changes to the program.
- Planned municipal construction projects and opportunities to incorporate water quality BMPs, low impact development as well as activities to promote infiltration and recharge.
- Newly identified physical interconnections with other small MS4s.
- Coordination of activities planned with physically interconnected MS4s.
- Summary of the extent of the MS4 system mapped, actions taken to detect and address illicit discharges including: the number of illicit discharges detected, illicit discharge violations issued, and violations that have been resolved. Number and summary of all enforcement actions referred to CT DEP.
- Summary of the number of site inspections conducted for erosion and sediment controls, inspections that have resulted in an enforcement action, and violations that have been resolved. Number and summary of all enforcement actions referred to CT DEP.
- Summary of the number of site inspections conducted for proper installation of post construction structural BMPs, inspections that have resulted in an enforcement action, and violations that have been resolved. Number and summary of all enforcement actions referred to CT DEP.
- Summary of the number of site inspections conducted for proper operation and maintenance of post construction structural BMPs, inspections that have resulted in an enforcement action, and violations that have been resolved.
- Reference any reliance on another entity for achieving any measurable goal.

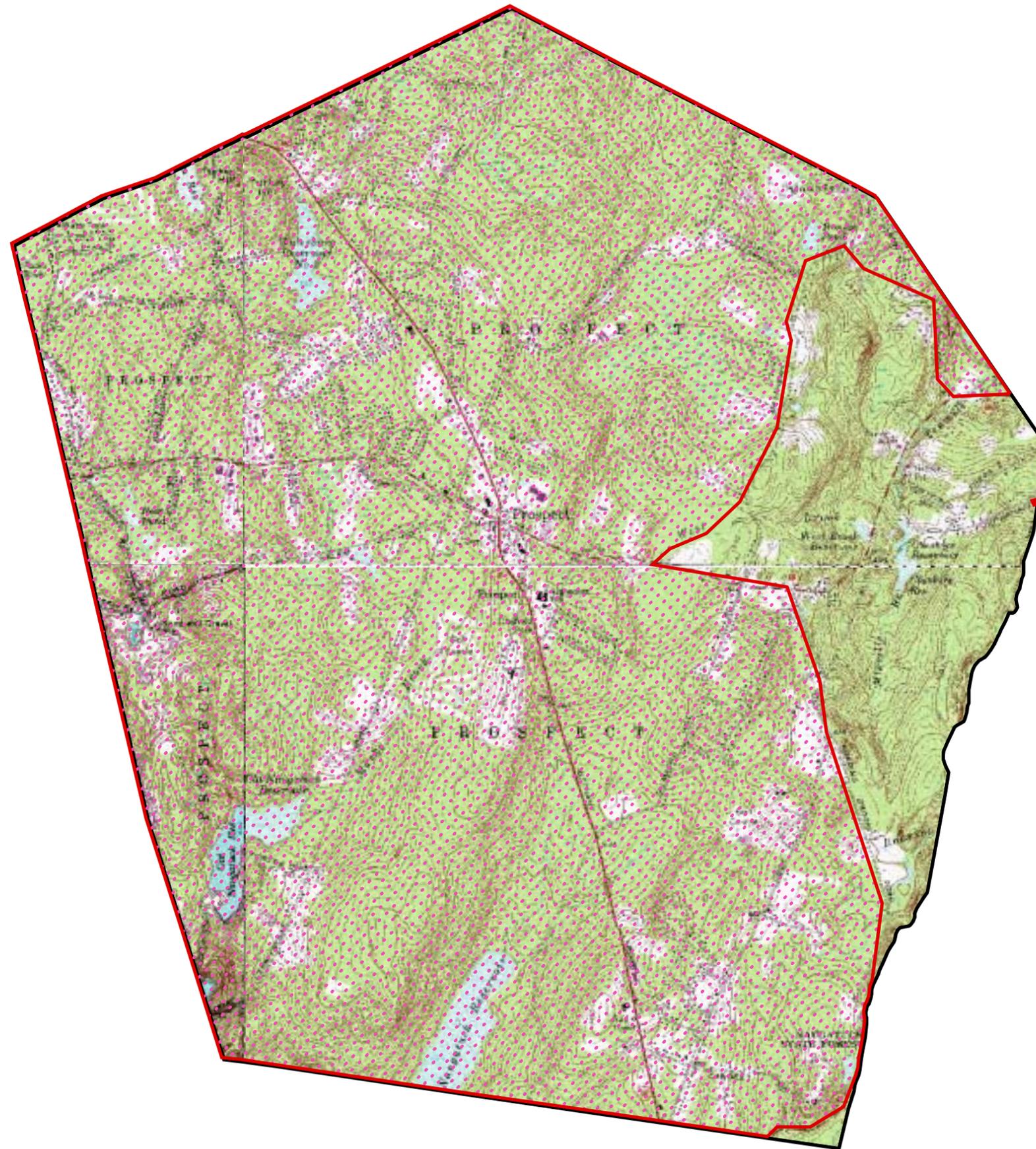
11.3 Record Keeping

All records required by the general permit must be kept for a period of three years. Records include information used in the development of the storm water management program, any monitoring, copies of reports, and all data used in the development of the notice of intent.

Records need to be submitted to CT DEP only when specifically requested by the permitting authority. The Town must make this plan and records relating to the general permit available to the public.

FIGURES

Figure 1
Town of Prospect
Urbanized Areas



 Urbanized Areas



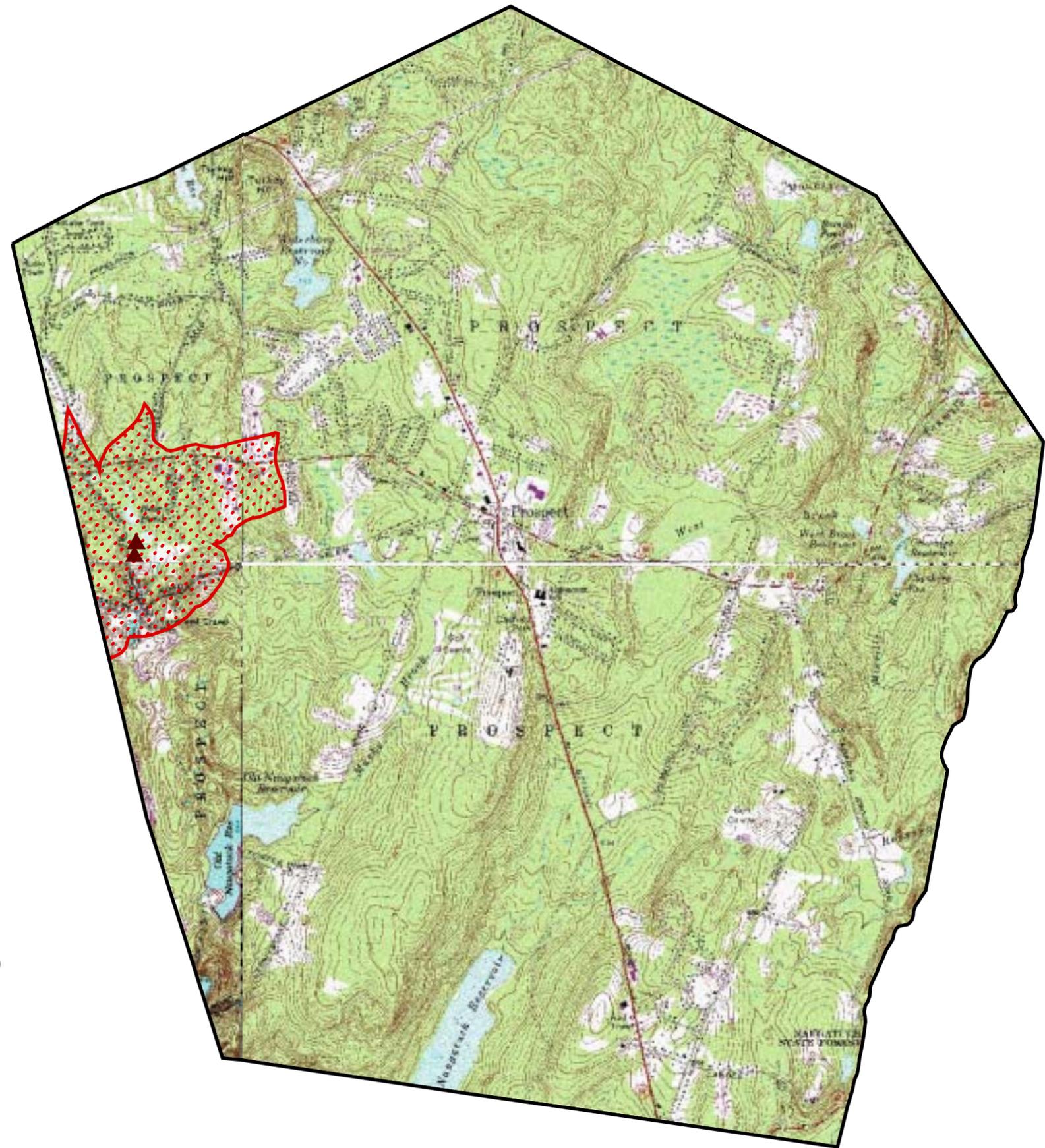
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June 2004

Figure 2
Town of Prospect
Impaired Waters



- ▲ Aquifer Protection Area Wells
- Aquifer Protection Areas
- Preliminary



Scale = 1:2,750

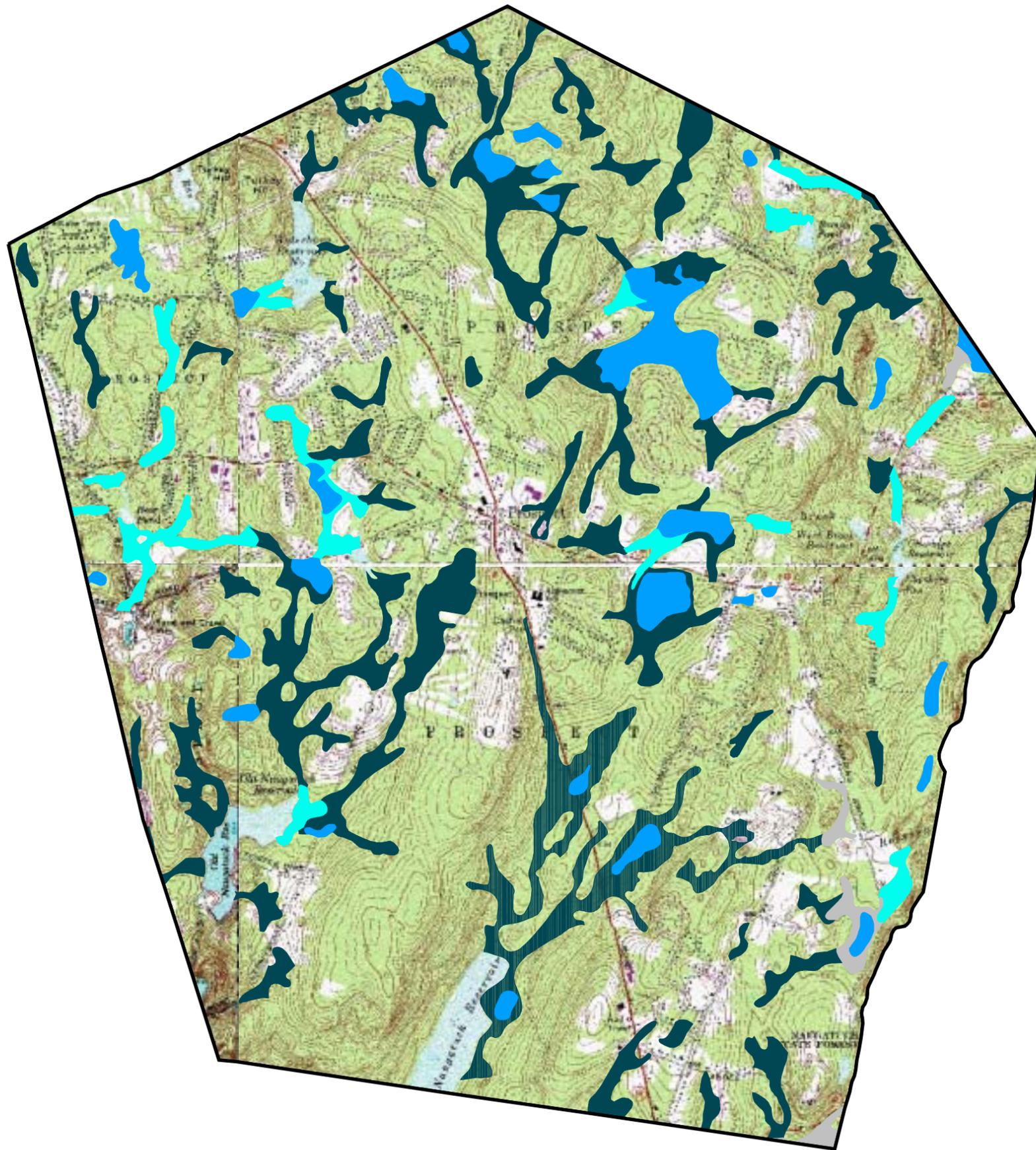
All data derived from Connecticut Department of Environmental Protection.



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June 2004

Figure 3
Town of Prospect
Wetlands



Wetlands cover 1,781 Acres of the Town consisting of:

-  Alluvial and Floodplain Soils - 144 Acres, 8.1%
-  Poorly Drained and Very Poorly Drained Soils - 1,256 Acres, 70.5%
-  Poorly Drained Soils - 73 Acres, 4.1%
-  Very Poorly Drained Soils - 308 Acres, 17.3%

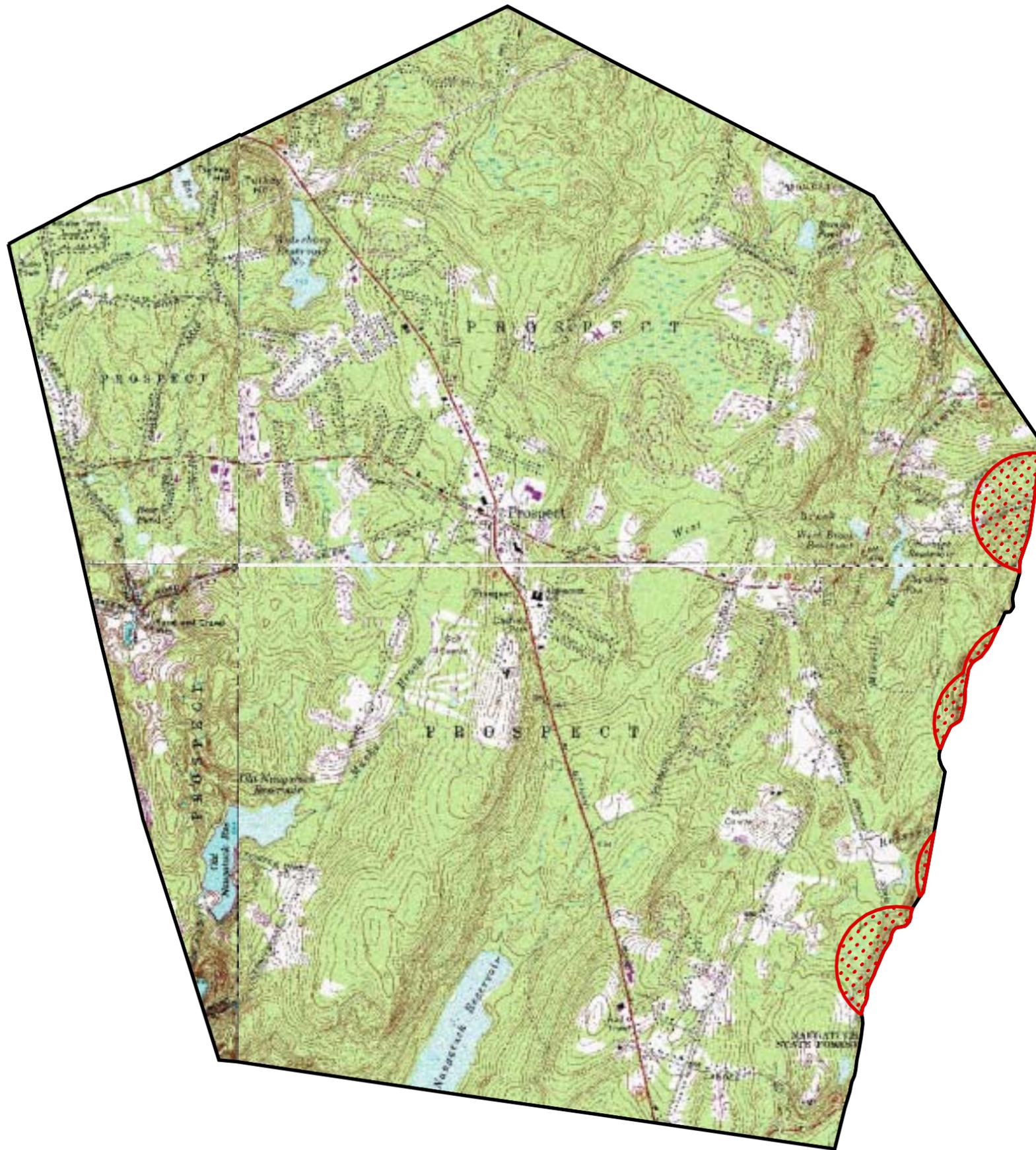


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Figure 4
Town of Prospect
Natural Resources



 Natural Resources



Scale = 1:2,750



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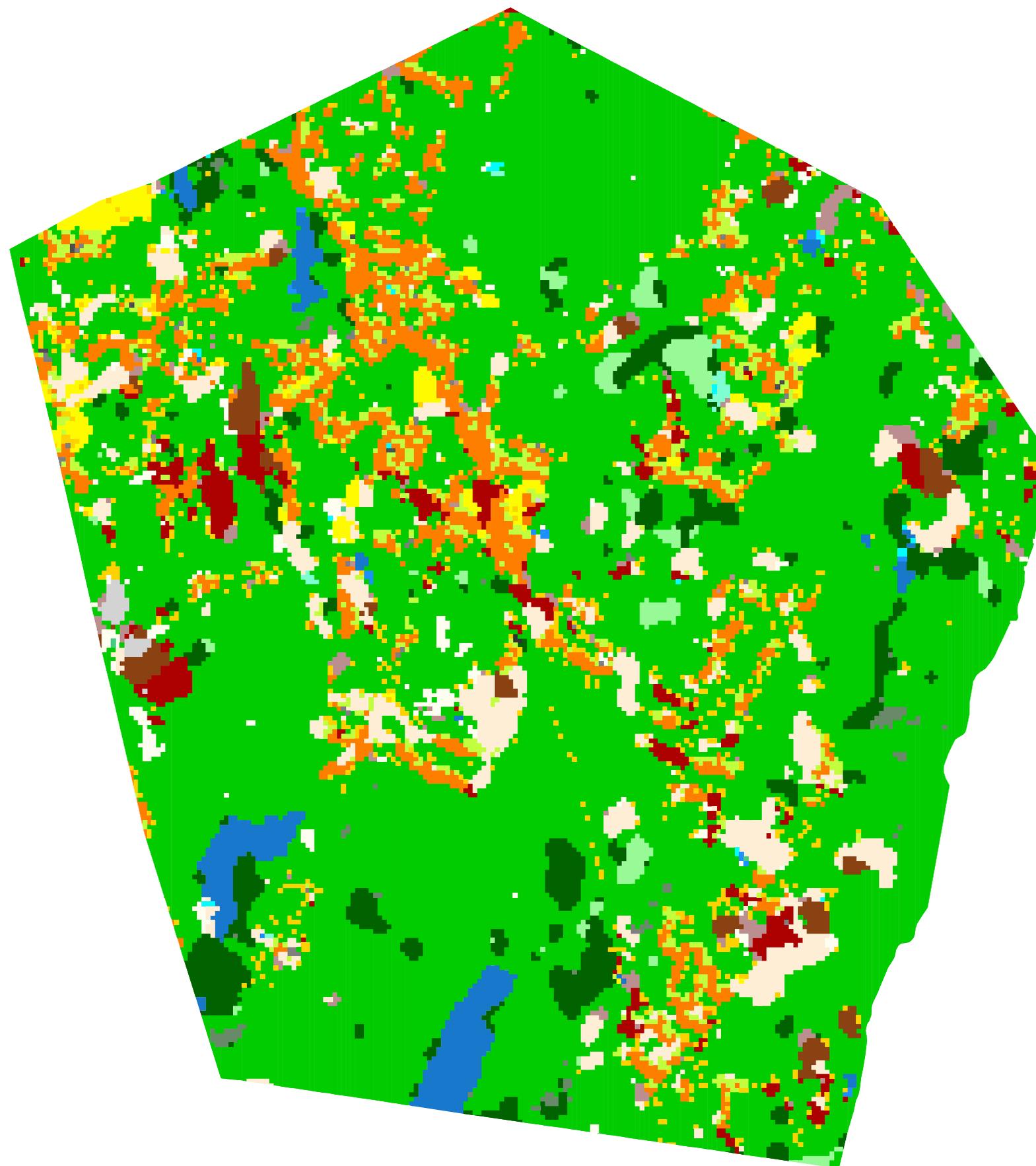
June 2004

Figure 5

Town of Prospect
Landuse

Approximately 9,047 Acres in the Town consisting of:

-  Comm + Indust + Pavement - 212 Acres, 2.3%
-  Coniferous Forest - 414 Acres, 4.6%
-  Coniferous Forested Wetland - 1 Acre, <0.1%
-  Deciduous Forest - 6,258 Acres, 69.0%
-  Deciduous Forest + Mt Laurel - 98 Acres, 1.1%
-  Deciduous Forested Wetland - 8 Acres, 0.1%
-  Deciduous Shrub Wetland - 1 Acres, <0.1%
-  Exposed Ground + Sand - 15 Acres, 0.2%
-  Exposed Soil - 104 Acres, 1.2%
-  Exposed Soil / Cropland - 81 Acres, 1.0%
-  Forest / Clear Cut - 3 Acres, <0.1%
-  Mixed Forest - 28 Acres, 0.3%
-  Non-forested Wetland - 7 Acres, 0.1%
-  Pasture + Hay & Grass - 495 Acres, 5.5%
-  Pasture + Hay / Exposed Soil - 14 Acres, 0.2%
-  Residential + Commercial - 635 Acres, 7.0%
-  Rural Residential - 237 Acres, 2.6%
-  Scrub + Shrub - 86 Acres, 1.0%
-  Shallow Water + Mud Flats - 7 Acres, 0.1%
-  Turf + Grass - 111 Acres, 1.2%
-  Turf + Tree Complex - 249 Acres, 2.7%



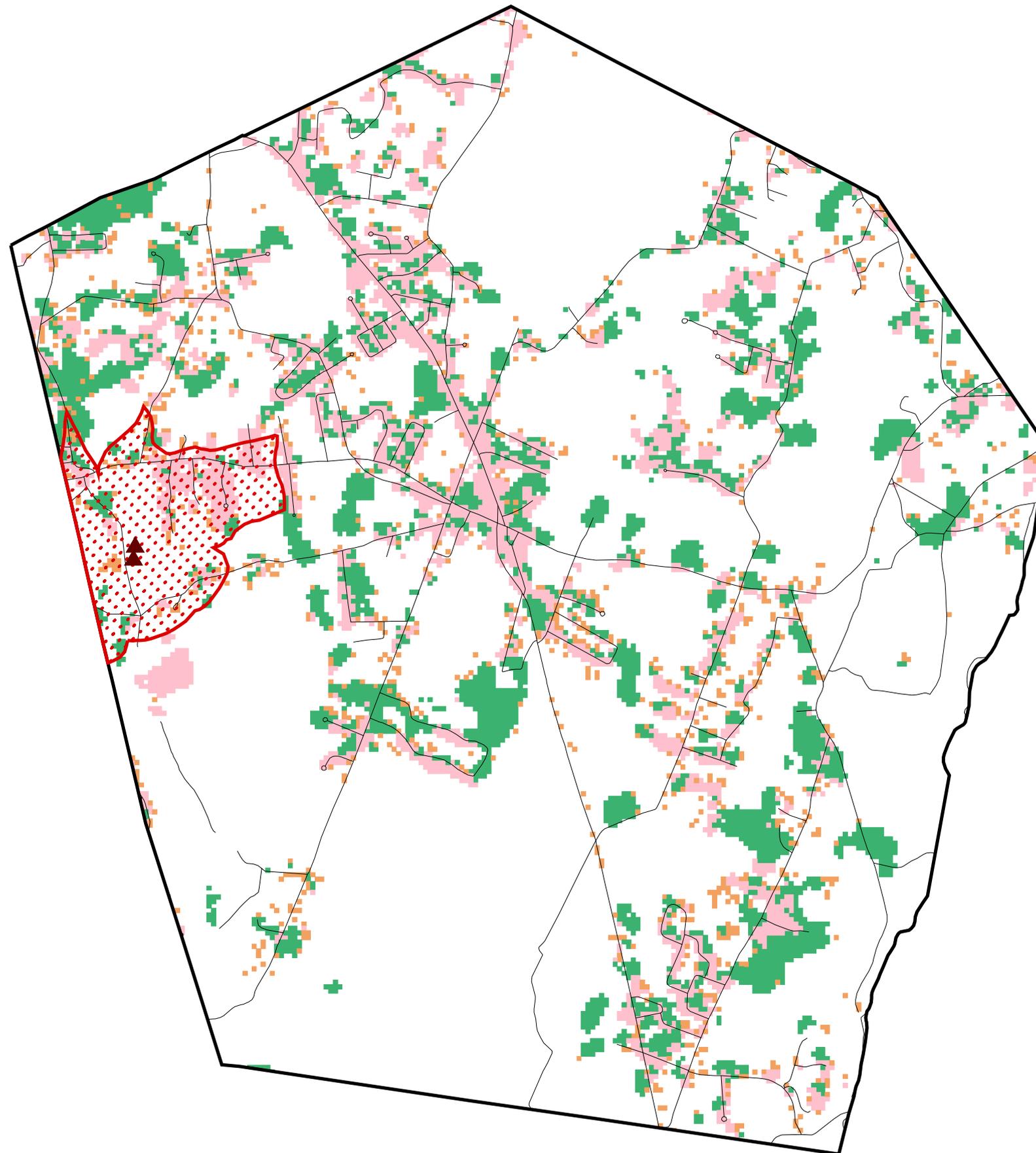
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Figure 6
Town of Prospect
Potential Target Areas



- ▲ Aquifer Protection Area Wells
- Aquifer Protection Areas
 - ▨ Preliminary
- Potential Target Areas
 - High Risk
 - Medium Risk
 - Agriculture



Scale = 1:2,750



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June 2004

APPENDIX A
**NEW HAVEN COUNTY REPORT OF CONNECTICUT'S ENDANGERED,
THREATENED AND SPECIAL CONCERN SPECIES**



*A County Report of
Connecticut's Endangered, Threatened and Special Concern Species*

New Haven County

Amphibian

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Ambystoma jeffersonianum	Jefferson Salamander	SC
Ambystoma laterale	Blue-Spotted Salamander	T
Scaphiopus holbrookii	Eastern Spadefoot	E

Bird

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Accipiter cooperii	Cooper's Hawk	T
Accipiter striatus	Sharp-Shinned Hawk	E
Ammodramus caudacutus	Sharp-Tailed Sparrow	SC
Ammodramus henslowii	Henslow's Sparrow	SC
Ammodramus maritimus	Seaside Sparrow	SC
Ammodramus savannarum	Grasshopper Sparrow	E
Ardea alba	Great Egret	T
Asio otus	Long-Eared Owl	E
Botaurus lentiginosus	American Bittern	E
Buteo lineatus	Red-Shouldered Hawk	SC
Caprimulgus vociferus	Whip-Poor-Will	SC
Catoptrophorus semipalmatus	Willet	SC
Charadrius melodus	Piping Plover	T
Chordeiles minor	Common Nighthawk	T
Circus cyaneus	Northern Harrier	E
Egretta thula	Snowy Egret	T
Eremophila alpestris	Horned Lark	T
Falco peregrinus	Peregrine Falcon	E
Falco sparverius	American Kestrel	SC
Gallinula chloropus	Common Moorhen	E
Gavia immer	Common Loon	SC
Haematopus palliatus	American Oystercatcher	SC

Haliaeetus leucocephalus	Bald Eagle	E
Ixobrychus exilis	Least Bittern	T
Laterallus jamaicensis	Black Rail	E
Nyctanassa violacea	Yellow-Crowned Night-Heron	SC
Parula americana	Northern Parula	SC
Passerculus sandwichensis	Savannah Sparrow	SC
Passerculus sandwichensis princeps	Ipswich Sparrow	SC
Podilymbus podiceps	Pied-Billed Grebe	E
Poocetes gramineus	Vesper Sparrow	E
Progne subis	Purple Martin	SC
Rallus elegans	King Rail	E
Sterna antillarum	Least Tern	T
Sterna dougallii	Roseate Tern	E
Sterna hirundo	Common Tern	SC
Sturnella magna	Eastern Meadowlark	SC
Tyto alba	Barn Owl	E

Fish

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Acipenser oxyrinchus	Atlantic Sturgeon	T

Invertebrate

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Apamea burgessi	A Noctuid Moth	SC
Apodrepanulatrix liberaria	New Jersey Tea Inchworm	SC
Baetisca laurentina	A Mayfly	SC
Cicindela formosa generosa	A Tiger Beetle	T
Cicindela hirticollis	Beach-Dune Tiger Beetle	SC
Cicindela marginata	A Tiger Beetle	SC
Cicindela purpurea	A Tiger Beetle	SC*
Cicindela tranquebarica	A Tiger Beetle	SC
Citheronia regalis	Regal Moth	SC*
Cordulegaster erronea	Tiger Spiketail	T
Eacles imperialis	The Imperial Moth	SC*
Erynnis lucilius	Columbine Duskywing	SC
Erynnis martialis	Mottled Duskywing	SC*

Erynnis persius persius	Persius Dusky Wing	E
Exyra rolandiana	Pitcher Plant Moth	SC
Goniops chrysocoma	Horse Fly	SC
Grammia phyllira	Phyllira Tiger Moth	SC*
Lepipolys perscripta	Scribbled Sallow	SC*
Leptophlebia bradleyi	A Mayfly	SC
Lycaena epixanthe	Bog Copper	SC
Nicrophorus americanus	American Burying Beetle	SC*
Papaipema duovata	Goldenrod Stem Borer	SC
Papaipema leucostigma	Columbine Borer	SC
Papaipema maritima	Maritime Sunflower Borer	SC*
Papilio cresphontes	Giant Swallowtail	SC
Pyreferra ceromatica	Anointed Sallow Moth	SC*
Rhodoecia aurantiago	Aureolaria Seed Borer	SC
Schinia spinosae	A Noctuid Moth	SC
Speyeria idalia	Regal Fritillary	SC*
Sphodros niger	Purse-Web Spider	SC*
Stonemyia isabellina	Tabanid Fly	SC
Tibicen auletes	Cicada	SC*
Toxorhynchites rutilus	Elephant Mosquito	SC
Valvata sincera	Mossy Valvata	SC
Valvata tricarinata	Threeridge Valvata	SC
Zale curema	A Noctuid Moth	SC
Zale obliqua	A Noctuid Moth	SC

Mammal

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Cryptotis parva	Least Shrew	E
Myotis sodalis	Indiana Or Social Myotis	E

Plant

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Abies balsamea	Balsam Fir	E
Acer nigrum	Black Maple	SC
Agastache nepetoides	Yellow Giant Hyssop	SC
Agastache scrophulariifolia	Purple Giant Hyssop	E

<i>Agrimonia parviflora</i>	Small-Flowered Agrimony	SC
<i>Alopecurus aequalis</i>	Orange Foxtail	T
<i>Amelanchier sanguinea</i>	Roundleaf Shadbush	E
<i>Anemone canadensis</i>	Canada Anemone	E
<i>Angelica venenosa</i>	Hairy Angelica	SC
<i>Antennaria neglecta</i> var <i>petaloidea</i>	Field Pussytoes	SC*
<i>Aplectrum hyemale</i>	Puttyroot	SC*
<i>Arenaria macrophylla</i>	Large-Leaved Sandwort	E
<i>Arethusa bulbosa</i>	Arethusa	E
<i>Aristida longespica</i>	Needlegrass	SC
<i>Aristida purpurascens</i>	Arrowfeather	SC*
<i>Aristida tuberculosa</i>	Beach Needlegrass	T
<i>Aristolochia serpentaria</i>	Virginia Snakeroot	T
<i>Asclepias purpurascens</i>	Purple Milkweed	SC*
<i>Asclepias viridiflora</i>	Green Milkweed	SC*
<i>Asplenium montanum</i>	Mountain Spleenwort	T
<i>Asplenium ruta-muraria</i>	Wallrue Spleenwort	T
<i>Aster radula</i>	Rough-Leaved Aster	E
<i>Aster x herveyi</i>	Hervey's Aster	SC
<i>Atriplex glabriuscula</i>	Orache	SC*
<i>Blephilia ciliata</i>	Downy Woodmint	SC*
<i>Blephilia hirsuta</i>	Hairy Woodmint	SC*
<i>Bouteloua curtipendula</i>	Side-Oats Grama	E
<i>Cacalia suaveolens</i>	Sweet-Scented Indian-Plantain	E
<i>Calystegia spithamea</i>	Low Bindweed	SC*
<i>Cardamine douglassii</i>	Purple Cress	SC
<i>Carex alata</i>	Broadwing Sedge	E
<i>Carex bushii</i>	Sedge	SC
<i>Carex buxbaumii</i>	Brown Bog Sedge	E
<i>Carex hirsutella</i>	Sedge	SC
<i>Carex hitchcockiana</i>	Hitchcock's Sedge	SC
<i>Carex lupuliformis</i>	False Hop Sedge	E
<i>Carex nigromarginata</i>	Black-Edge Sedge	SC*
<i>Carex oligocarpa</i>	Eastern Few-Fruit Sedge	E

<i>Carex paupercula</i>	Sedge	E
<i>Carex polymorpha</i>	Variable Sedge	E
<i>Carex squarrosa</i>	Sedge	SC
<i>Carex sterilis</i>	Dioecious Sedge	SC
<i>Carex trichocarpa</i>	Sedge	SC
<i>Carex typhina</i>	Sedge	SC*
<i>Carex viridula</i>	Little Green Sedge	E
<i>Carex willdenowii</i>	Willdenow's Sedge	SC*
<i>Cercis canadensis</i>	Eastern Redbud	SC*
<i>Chamaelirium luteum</i>	Devil's-Bit	E
<i>Cheilanthes lanosa</i>	Hairy Lipfern	E
<i>Chrysopsis falcata</i>	Sickle-Leaf Golden-Aster	E
<i>Cirsium horridulum</i>	Yellow Thistle	E
<i>Coeloglossum viride</i> var <i>virescens</i>	Long-Bracted Green Orchid	SC
<i>Corallorhiza trifida</i>	Early Coralroot	T
<i>Corydalis flavula</i>	Yellow Corydalis	T
<i>Crassula aquatica</i>	Pygmyweed	E
<i>Crotonopsis elliptica</i>	Elliptical Rushfoil	SC*
<i>Cuphea viscosissima</i>	Blue Waxweed	SC*
<i>Cypripedium arietinum</i>	Ram's-Head Lady's-Slipper	SC*
<i>Cypripedium parviflorum</i>	Yellow Lady's-Slipper	SC
<i>Desmodium glabellum</i>	Dillen Tick-Trefoil	SC*
<i>Dicentra canadensis</i>	Squirrel-Corn	T
<i>Diospyros virginiana</i>	Persimmon	SC
<i>Diplachne maritima</i>	Saltpond Grass	E
<i>Diplazium pycnocarpon</i>	Narrow-Leaved Glade Fern	E
<i>Draba reptans</i>	Whitlow-Grass	SC
<i>Dryopteris goldiana</i>	Goldie's Fern	SC
<i>Eleocharis quadrangulata</i> var <i>crassior</i>	Spike-Rush	E
<i>Elymus trachycaulus</i> ssp <i>subsecundus</i>	Slender Wheatgrass	SC
<i>Elymus wiegandii</i>	Wiegand's Wild Rice	SC
<i>Equisetum palustre</i>	Marsh Horsetail	SC*
<i>Equisetum pratense</i>	Meadow Horsetail	SC*
<i>Eriocaulon parkeri</i>	Parker's Pipewort	T

<i>Eriophorum vaginatum</i> var <i>spissum</i>	Hare's Tail	E
<i>Floerkea proserpinacoides</i>	False Mermaid-Weed	E
<i>Gaylussacia dumosa</i> var <i>bigeloviana</i>	Dwarf Huckleberry	T
<i>Gnaphalium purpureum</i>	Purple Cudweed	SC*
<i>Goodyera repens</i> var <i>ophioides</i>	Dwarf Rattlesnake Plantain	SC*
<i>Helianthemum propinquum</i>	Low Frostweed	E
<i>Heteranthera reniformis</i>	Kidneyleaf Mud-Plantain	SC*
<i>Hottonia inflata</i>	Featherfoil	SC
<i>Hybanthus concolor</i>	Green Violet	SC*
<i>Hydrocotyle umbellata</i>	Water Pennywort	E
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	SC
<i>Hypericum pyramidatum</i>	Great St. John's-Wort	T
<i>Ilex glabra</i>	Ink-Berry	T
<i>Isotria medeoloides</i>	Small Whorled Pogonia	E
<i>Krigia biflora</i>	Two-Flowered Cynthia	SC
<i>Lespedeza repens</i>	Creeping Bush-Clover	SC
<i>Liatris scariosa</i> var <i>novae-angliae</i>	Blazing-Star	SC
<i>Limosella subulata</i>	Mudwort	SC
<i>Linnaea borealis</i> var <i>americana</i>	Twinflower	SC*
<i>Linum sulcatum</i>	Yellow Flax	SC
<i>Liparis liliifolia</i>	Lily-Leaved Twayblade	E
<i>Ludwigia sphaerocarpa</i>	Globe-Fruited False-Loosestrife	E
<i>Lycopodium selago</i>	Fir Clubmoss	SC*
<i>Lycopus amplexens</i>	Clasping-Leaved Water-Horehound	SC
<i>Lygodium palmatum</i>	Climbing Fern	SC
<i>Malaxis unifolia</i>	Green Adder's-Mouth	E
<i>Megalodonta beckii</i>	Water-Marigold	T
<i>Milium effusum</i>	Tall Millet-Grass	SC*
<i>Morus rubra</i>	Red Mulberry	E
<i>Muhlenbergia capillaris</i>	Long-Awn Hairgrass	E
<i>Najas guadalupensis</i>	Naiad	SC
<i>Nuphar microphylla</i>	Small Yellow Pond Lily	SC
<i>Onosmodium virginianum</i>	Gravel-Weed	E
<i>Ophioglossum pusillum</i>	Adder's Tongue	T

<i>Opuntia humifusa</i>	Eastern Prickly-Pear	SC
<i>Orontium aquaticum</i>	Golden Club	SC
<i>Oxalis violacea</i>	Violet Wood-Sorrel	SC
<i>Panax quinquefolius</i>	American Ginseng	SC
<i>Panicum amarum</i>	Panic Grass	T
<i>Panicum verrucosum</i>	Warty Panicgrass	SC*
<i>Paronychia fastigiata</i>	Hairy Forked Chickweed	SC*
<i>Pedicularis lanceolata</i>	Swamp Lousewort	SC
<i>Phaseolus polystachios</i> var <i>aquiloni</i>	Wild Kidney Bean	SC
<i>Plantago virginica</i>	Hoary Plantain	SC
<i>Platanthera blephariglottis</i>	White-Fringe Orchid	E
<i>Platanthera ciliaris</i>	Yellow-Fringe Orchid	T
<i>Platanthera hookeri</i>	Hooker Orchid	SC*
<i>Podostemum ceratophyllum</i>	Threadfoot	SC
<i>Polygala cruciata</i>	Field Milkwort	SC
<i>Polygala nuttallii</i>	Nuttall's Milkwort	E
<i>Polymnia canadensis</i>	Small-Flowered Leafcup	E
<i>Populus heterophylla</i>	Swamp Cottonwood	E
<i>Potamogeton friesii</i>	Fries' Pondweed	SC*
<i>Potamogeton vaseyi</i>	Vasey's Pondweed	SC*
<i>Potentilla arguta</i>	Tall Cinquefoil	SC
<i>Pycnanthemum clinopodioides</i>	Basil Mountain-Mint	E
<i>Pycnanthemum torrei</i>	Torrey's Mountain Mint	E
<i>Pyrola secunda</i>	One-Sided Pyrola	SC*
<i>Ranunculus ambigens</i>	Water-Plantain Spearwort	E
<i>Ranunculus pensylvanicus</i>	Bristly Buttercup	SC*
<i>Ranunculus sceleratus</i>	Cursed Crowfoot	SC
<i>Rhus aromatica</i>	Fragrant Sumac	SC*
<i>Ribes rotundifolium</i>	Wild Currant	SC*
<i>Rubus cuneifolius</i>	Sand Bramble	SC
<i>Sabatia stellaris</i>	Marsh Pink	E
<i>Sagittaria cuneata</i>	Waputo	SC*
<i>Sagittaria subulata</i>	Arrowleaf	SC
<i>Salix pedicellaris</i>	Bog Willow	E

Saururus cernuus	Lizard's Tail	E
Scheuchzeria palustris	Pod Grass	E
Schizachne purpurascens	Purple Oat	SC
Scirpus cylindricus	Salt-Marsh Bulrush	SC
Scirpus paludosus var atlanticus	Bayonet Grass	SC
Scirpus torreyi	Torrey's Bulrush	T
Scleria triglomerata	Nutrush	E
Scutellaria leonardii	Small Skullcap	E
Senecio pauperculus	Ragwort	E
Senna hebecarpa	Wild Senna	SC
Silene stellata	Starry Champion	SC
Smilacina trifolia	Three-Leaved False Solomon's-Seal	E
Solidago rigida	Stiff Goldenrod	E
Sporobolus asper	Dropseed	SC
Sporobolus clandestinus	Rough Dropseed	SC*
Sporobolus cryptandrus	Sand Dropseed	E
Sporobolus heterolepis	Northern Dropseed	E
Sporobolus neglectus	Small Dropseed	SC*
Stellaria borealis	Northern Stitchwort	SC
Taenidia integerrima	Yellow Pimpernel	E
Triphora trianthophora	Nodding Pogonia	SC*
Trollius laxus	Spreading Globeflower	E
Verbena simplex	Narrow-Leaved Vervain	SC*
Viburnum nudum	Possum Haw	SC*
Xyris smalliana	Small's Yellow-Eyed-Grass	E
Zizia aptera	Golden Alexanders	E

Reptile

<i>Scientific Name</i>	<i>Common Name</i>	<i>Protection</i>
Caretta caretta	Loggerhead	T
Chelonia mydas	Green Turtle	T
Clemmys insculpta	Wood Turtle	SC
Clemmys muhlenbergii	Bog Turtle	E
Crotalus horridus	Timber Rattlesnake	E
Dermodochelys coriacea	Leatherback	E

Eumeces fasciatus	Five-Lined Skink	T
Heterodon platirhinos	Eastern Hognose Snake	SC
Lepidochelys kempii	Kemp's Or Atlantic Ridley	E
Terrapene carolina	Eastern Box Turtle	SC
Thamnophis sauritus	Eastern Ribbon Snake	SC

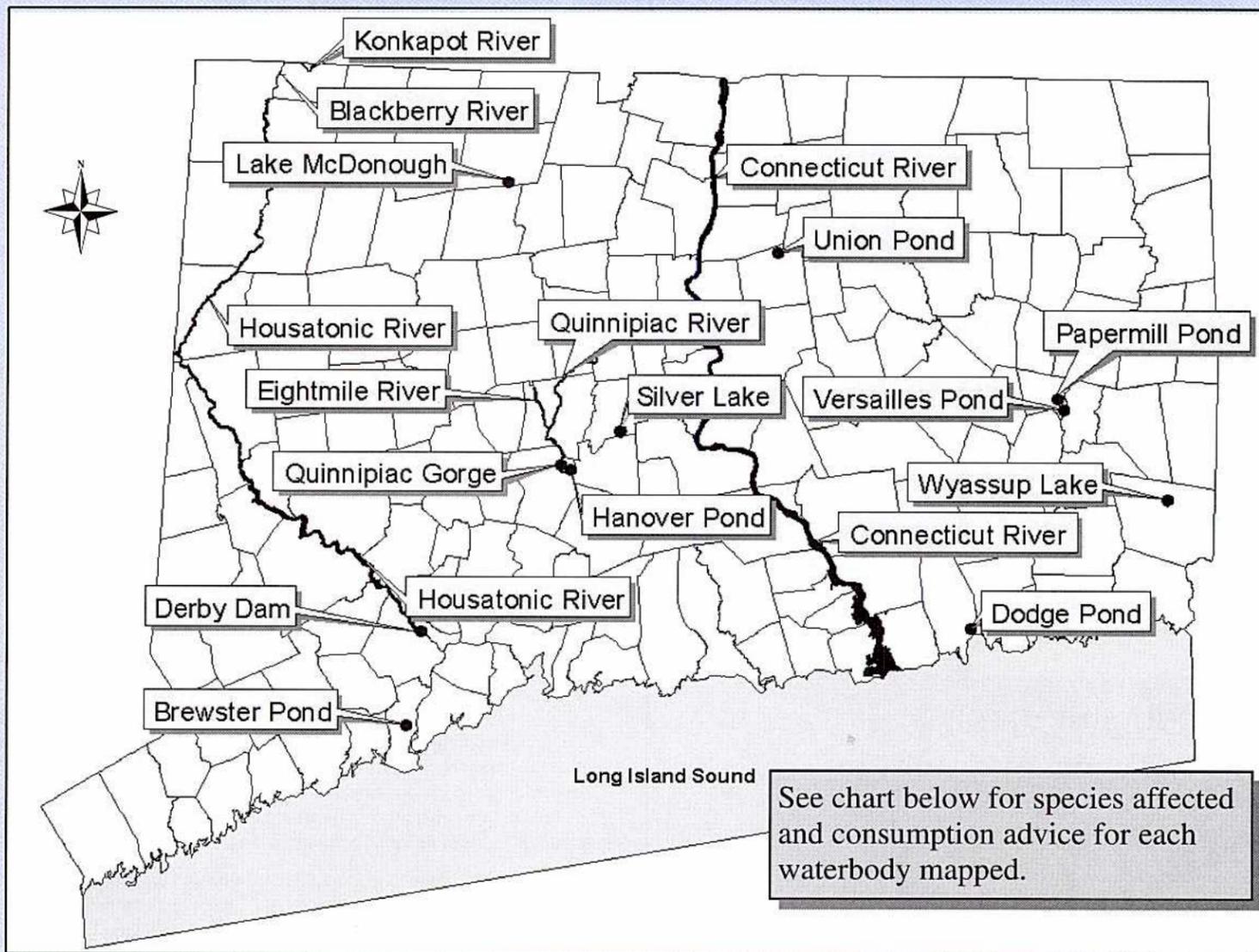
E = Endangered, T = Threatened, SC = Special Concern, * Believed Extirpated

*State of Connecticut
 Department of Environmental Protection
 Environmental and Geographic Information Center
 79 Elm St., Hartford, CT 06106*

APPENDIX B
PUBLIC EDUCATION AND OUTREACH

Connecticut Safe Fish Consumption

Waterbodies of Specific Concern in Connecticut's 2004 Fish Consumption Advisory
(All other freshwater bodies fall under the general statewide advisory)



(This fact sheet is funded in part by funds from the Comprehensive Environmental Response, Compensation, and Liability Act trust fund through a cooperative agreement with the Agency for Toxic Substances and Disease Registry, Public Health Service, U. S. Department of Health and Human Services.)

2004 Advisory for Eating Fish From Connecticut Waterbodies

- REMEMBER**
- Follow this advisory to make sure the fish you eat are safe for your family.
 - While this advisory focuses on locally caught fish, you should also be selective about store bought fish. See advice on page 3.
 - Most trout are not part of the advisory and are safe to eat.
 - Long Island Sound:** Most fish are safe to eat except for listed restrictions on Striped Bass and Bluefish.
 - The **High Risk** group consists of pregnant women, women planning pregnancy within a year and children under age 6.
 - The **High Risk Group** should eat no more than one fish meal per month of most freshwater fish. More restrictions apply to fish from certain waterbodies.
 - The **Low Risk Group** should limit eating most freshwater fish to once a week.
 - Your exposure to PCBs in fish can be further reduced by trimming away fat and cooking fish on a rack so that fat drips away.

Advisory Type	Waterbody	Fish Species	High Risk Group ^a Advice	Low Risk Group Advice	Contaminant
Statewide Freshwater Fish	All fresh waterbodies (See more restrictive advice for specific waterbodies listed below.)	-Trout	No Limits on Consumption ^c	No Limits on Consumption	--
		-All other fish	One meal per month	One meal per week	Mercury
More Restrictive Advice For Specific Freshwater Fish	Dodge Pond Lake McDonough Silver Lake, Wyassup Lake	-Largemouth Bass, Smallmouth Bass, Pickerel	Do not eat	One meal per month	Mercury
	Housatonic River above Derby Dam (except as listed below for lakes on Housatonic River)	-Trout, Catfish, Eels, Carp	Do not eat	Do not eat	PCBs
		-Bass, White Perch, Bullheads	Do not eat	One meal per 2 months	PCBs
		Panfish (yellow perch, sunfish, etc)	One meal per month	One meal per week	PCBs
	Lakes on Housatonic River: (Lillinonah, Zoar, Housatonic)	-Bass, White Perch, Bullheads	One meal per month	One meal per month	PCBs
		-Other Species	See advice for river	See advice for river	PCBs
	Quinnipiac River above Quinnipiac Gorge	-All Species	Do not eat	Do not eat	PCBs
	Q Gorge/Hanover Pond (Meriden)	-All Species	One meal per month	One meal per month	PCBs
	Eight Mile River (Southington)	-All Species	Do not eat	Do not eat	PCBs
	Connecticut River	-Carp	One meal per month	One meal per month	PCBs
		-Catfish	One meal per month	One meal per month	PCBs
	Versailles, Papermill Ponds & connecting section of Little River (Sprague)	-All Species	Do not eat	Do not eat	Mercury, PCBs
	Blackberry River Downstream of "Blast Furnace" (North Canaan)	-Smallmouth Bass	One meal per month	One meal per month	PCBs
Konkapot River (North Canaan)	-White Suckers	Do not eat	One meal per month	Mercury	
Brewster Pond (Stratford)	-Catfish & Bullheads	Do not eat	Do not eat	Chlordane	
Union Pond (Manchester)	-Carp, Catfish, Bass	Do not eat	Do not eat	Chlordane	
Specific Salt-water Fish	Long Island Sound and connected rivers	-Striped Bass	Do not eat	One meal per 2 months	PCBs
		-Bluefish over 25"	Do not eat	One meal per 2 months	PCBs
		-Bluefish 13- 25 " ^b	One meal per month	One meal per month	PCBs
		-Lobster tomalley ^c	Do not eat	One meal per 2 months	PCBs

WHERE CAN I GET MORE INFORMATION?

Health Questions?
Call CTDPH at 860-509-7742.

Questions about fishing in Connecticut?
Call CTDEP at 860-424-3474.

^a **High Risk Group** includes pregnant women, women planning to become pregnant within one year, and children under 6. Low risk group includes everyone not in the High Risk Group.

^b Snappers, which are bluefish under 13", are not on the advisory because they are not contaminated.

^c Refers to the hepatopancreas or tomalley of lobsters; lobster meat is not contaminated.

^d For panfish (yellow perch, sunfish, Pumpkinseed, etc) refer to Statewide Freshwater Fish section above regarding mercury.

^e It is prudent for the High Risk Group to eat no more than one large trout (over 15") from lakes and ponds per month. See more restrictive trout advice above for sections of the Housatonic and Quinnipiac Rivers.



Stormwater Pollution Found in Your Area!

This is not a citation.

This is to inform you that our staff found the following pollutants in the storm sewer system in your area. This storm sewer system leads directly to

-
- Motor oil
 - Oil filters
 - Antifreeze/transmission fluid
 - Paint
 - Solvent/degreaser
 - Cooking grease
 - Detergent
 - Home improvement waste (concrete, mortar)
 - Pet waste
 - Yard waste (leaves, grass, mulch)
 - Excessive dirt and gravel
 - Trash
 - Construction debris
 - Pesticides and fertilizers
 - Other
-



For more information or to report an illegal discharge of pollutants, please call:





Stormwater runoff is precipitation from rain or snowmelt that flows over the ground. As it flows, it can pick up debris, chemicals, dirt, and other pollutants and deposit them into a storm sewer system or waterbody.

Anything that enters a storm sewer system is discharged *untreated* into the waterbodies we use for swimming, fishing, and providing drinking water.

Remember: Only Rain Down the Drain

To keep the stormwater leaving your home or workplace clean, follow these simple guidelines:

- ◆ Use pesticides and fertilizers sparingly.
- ◆ Repair auto leaks.
- ◆ Dispose of household hazardous waste, used auto fluids (antifreeze, oil, etc.), and batteries at designated collection or recycling locations.
- ◆ Clean up after your pet.
- ◆ Use a commercial car wash or wash your car on a lawn or other unpaved surface.
- ◆ Sweep up yard debris rather than hosing down areas. Compost or recycle yard waste when possible.
- ◆ Clean paint brushes in a sink, not outdoors. Properly dispose of excess paints through a household hazardous waste collection program.
- ◆ Sweep up and properly dispose of construction debris like concrete and mortar.



Keep Our Streams

Clean!



*Storm Drains
lead to fresh water!*

■ Street Litter, Plastics, and Leaves

Be mindful of litter, NEVER throw litter down into storm drains. Keep catch basins free of debris and leaves.

■ Fertilizers

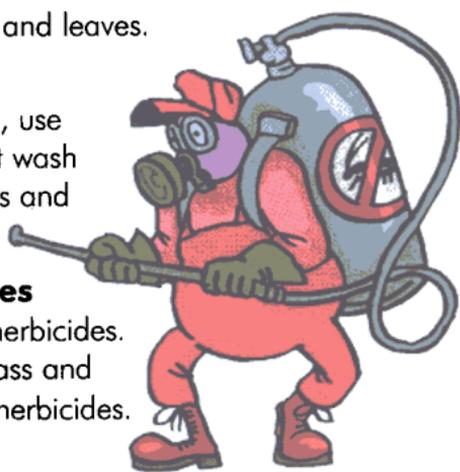
Avoid use of fertilizers. If needed, use organic fertilizers. Sweep, do not wash any fertilizers or soil off driveways and walkways.

■ Pesticides and Herbicides

Minimize use of pesticides and herbicides. Use natural alternatives. Trim grass and remove weeds by hand without herbicides.

■ Pet Waste

Dispose of pet waste by flushing it down the toilet, burying it, or discarding it into a plastic bag and place in your trash.



■ Yard Waste

Do not allow soil, leaves or grass clippings to accumulate on your driveway, sidewalk or in the street. Compost yard waste and use on your soil.

■ Motor Oil

Never pour used motor oil down the drain. Take it to a local service station to be recycled.

■ Anti-Freeze

Take used Anti-Freeze to a service station for recycling.

Never mix Anti-Freeze with any other substance.



■ Paint

Donate old paint to local groups. Dispose of oil and lead based paints at the designated household hazardous waste collection center, Bondi's Island Landfill. Appointments are available by calling 787-7840.

■ Household Hazardous Waste

Do not pour hazardous waste down any drain or discard with regular trash.

Contact your Springfield Solid Waste Office (787-7840) to learn how to properly dispose of hazardous waste. Use natural or less toxic alternatives.



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Sponsored by City of Springfield
Parks Dept.
Planning Dept.
Public Works Dept.
Water/Sewer Commission



HOME RECIPE FOR WEEDS

Mix equal parts of lemon juice and white vinegar, if using 1 qt. equal parts, add 2 tablespoons of baby shampoo and a little less than 2 tbsp. of vegetable oil. It will kill the weed and perhaps some of the grass. However, the mix is good for the organisms in the soil and you may replant your grass seeds in a few hours. For the diehard pesticide user, on your driveway, you may add 4 oz. of rubbing alcohol to the mix and later add salt into the cracks. That should fix them!

INSECT CONTROL

For grubs, chinch bugs and sod webworms, apply beneficial nematodes. Milky Spore Powder (a species-specific bacteria) can be applied in a grid pattern on the lawn for an effective and long-lasting grub control. Both of these biological controls are completely safe for people, pets and beneficial insects.

ORGANIC PRODUCTS

Fertilizers:

Natural Choice	Basic Concept
BioPak	Plant Health Care
Feedback	Growth Products

Corn Gluten Meal is organically safe to use for inhibiting weed growth.

Pest Control:

Milky Spore (grubs, etc.)
Borax (ants, termites and cockroaches)
Pyrethium (white flies)
Marigolds keep the aphids away
Ladybugs, praying mantis, bees, spiders, bats, toads, birds, insectivorous snakes and beneficial soil organisms help control pests.

SOME GARDENING TIPS

- No need to aerate your soil.
- Put lime down, only if necessary.
- Native plants are more bug resistant and need less water.
- Mulching saves energy, water and weeding time.
Hint: Mulch can be 1-2 inches of grass clippings, pine needles, buckwheat or cocoa hulls, chopped leaves, straw and even newspaper.
- When mulching trees, go to a depth of 2-4 inches. Do not touch the bark.

PESTICIDE WARNINGS

Federal Licensing of Pesticides does not Guarantee safety. Federal registration of a Pesticide, doesn't guarantee that it has been fully tested to determine toxic effects on immune, nervous and endocrine systems of fetuses, infants and children.

Hint: In view of case-control studies and case reports, childhood cancers linked to pesticides include: leukemia, brain cancer, Wilm's tumor, soft-tissue sarcoma, Ewing's sarcoma, non-Hodgkin's lymphoma, and cancers of the colorectum and testes.
(*Environ Health Perspectives* 106 (Suppl.3): 893-908)

Non-Hodgkin's Type Lymphoma (the second fastest-growing cancer in the U.S.) has repeatedly been associated with use of the weed killer, 2,4-D in studies in U.S., Canada and Sweden. *

Pesticides pollute wells, drinking water and make their way into Long Island Sound.

PLEASE

REMEMBER



“WHAT YOU PUT ON
THE GROUND GOES
INTO THE SOUND”

www.green-ct.org

Additional reference material:

Common-Sense Pest Control
Straight Ahead Organic
Redesigning the American Lawn
www.organiclandcare.net

*Rachel's Environmental Health
Weekly #250



Thank you for exploring the benefits of a Freedom Lawn. Please let us know if this convinces you to go the Freedom way. For more information call: 203-878-0910 or visit www.ci.milford.ct.us

FREEDOM LAWN



LET NATURE DO THE JOB

FIND OUT HOW!

LET'S COUNT THE WAYS

1. FREEDOM TO PLAY MORE
2. FREEDOM FROM ADDED COSTS
3. FREEDOM FROM MICRO MANAGING
4. FREEDOM FROM WATERING
5. FREEDOM FROM EXTRA MOWING
6. FREEDOM FROM PESTS, IS FREEDOM FROM USING DANGEROUS PESTICIDES
7. FREEDOM FROM CHEMICAL FERTILIZERS ... LETS NATURE DO THE JOB!

The Milford Board of Aldermen passed a Resolution in 2002 requesting that the Milford Citizens participate in a voluntary non-use of pesticides and chemical fertilizers on their lawns, for the protection of our environment, health and safety.

WHY ABANDON MY OLD WAYS?

You don't have to, we only ask that you consider and ponder our rationale for the organic way. So the question we pose is - "What actually happens when we use high nitrogen (chemical) fertilizers and pesticides on our yards?"

First, after pumping nitrogen into your soil, everything grows rapidly. Next it will need a great deal of water. Then because of this rapid growth, the grass and plants become very vulnerable to disease and pests. When you notice more pests, you will call the exterminator for the pesticide Rx. After spraying, you will need more fertilizer. It becomes a never-ending cycle. Your plants have become addicted.

The step that is not visible to you after the pesticide application is the death of your good organisms in the soil, the ones that maintain a healthy soil. The soil where you sprayed has become a dead zone. Nature has been prevented from doing its job. You don't have to stay in this cycle. Stop now, and consider these alternatives — patience and the organic way.

If you want an Organic Rx to cure this "junk" yard, begin with a couple of applications (1/4-inch each) of good quality composted material. Life will return to your soil. (203 888-5146)



MOWING

Keep grass 3-4" high. Leave clippings on lawn. Keep blades sharp, best to use a mulching mower, and to rotate mowing patterns. Avoid tree trunks. Blades can cut the bark and eventually kill the tree. Grass clippings left on the lawn can provide one-third to one-half of the nutrient needs of grass. They decompose quickly, thanks to earthworms and soil microorganisms and do not contribute to thatch accumulation. Thatch is a collection of dead roots caused by over-fertilization and soil compaction.

DO NOT BAG GRASS CLIPPINGS! THE CITY WILL NOT PICK UP.

Leave on the grass or compost
Keep storm drains free of debris.



SEEDING

- Seed early fall or spring with mixtures of fescues and ryes
- Some endophytic-enhanced grasses are naturally toxic to pests
- Clover provides free nitrogen.

Hint: To plant a "freedom lawn," add the following:

- Yarrow (akilia), Star of Bethlehem, crocus, English daisy, wild violas, Ajuga reptans and purple flower.
- Having this variety helps keep the lawn freer from pests and free from watering.

WANT A HEALTHY SOIL AND BEAUTIFUL LAWN?

First, get a simple soil test done at the Connecticut Agricultural Experimental Station in New Haven (no cost to you). Call 974-8521. www.caes.state.ct.us/Departments/soilwater.htm

The best fertilizer costs nothing; just run your lawn mower over the leaves, to help grind them, as they come down in the fall. This brings nutrients and organic matter into the soil, thus helping build up the lawn, and making it healthy and softer under foot. You may add

clean compost too, and if you are married to using fertilizers, make use of organic ones that are low in nitrogen. This saves the Sound from hypoxia (a loss of oxygen) that causes the fish to die. Lawns, after years of mowing, walking, playing and whatever, become very hard. So when it rains, the water just runs off as if it were asphalt. If pesticides have been used, you can be sure it runs right off into the storm drains and into Long Island Sound.

By keeping grass clippings and ground leaves on the lawn, it will add nutrients as well as aid in the water/absorption and moisture/retention.

WATERING

If and when you do need to water, make sure the water seeps deep into the ground. This is to encourage roots to grow deep so as to demand less water. Early morning is the recommended time for watering. Lawns peak and look best in early spring and fall, and go dormant in middle of summer. It is recommended not to waste water on grass during this time; you too can take a vacation. A well-established lawn should not need water.

WEED CONTROL

When beginning a Freedom Lawn, you may be frustrated with the weeds. At this time, it is safe to apply a corn gluten product (organic pre-emergent) early in fall and spring. If there are just a few stubborn weeds that you want to remove, especially in your driveway or sidewalk, the following recipe can be made at home. Actually you just may want to grow dandelions, they are coming back into the marketplace touting all their nutritional values.

Collection Days

Residents of Berlin, Bristol, Burlington, Meriden, New Britain, Plainville, Plymouth Prospect, Southington and Wolcott may attend any of the following collections:

All collections: 9:00am-2:00pm

2004

April 17 Burlington

Highway Garage/Recycling Center
Town Hall - 66 Belden Rd. (off Route 4)

May 1 Plainville

Roadways Dept. Garage
Granger Lane (off Route 177)

September 18 Southington

Southington Highway Garage
Mulberry St. (Near Aqua Turf)

September 25 Wolcott

Public Works Garage
Todd Rd.

October 2 Bristol

Public Works Department
Vincent P. Kelly Rd. (Off Route 229)

October 23 New Britain/Berlin

New Britain Stadium/Willow Brook park
South Main St. Entrance (Route 71)

Plymouth

For more information, call 860-585-0419
or visit www.brrfoc.org/news_events.htm

Resident I.D. is required.

Why Household Hazardous Waste Collection Days?

Bringing your hazardous household products to a collection day is a great way to:

- Reduce the chances of accidental poisoning
- Prevent damage to sewage systems
- Help protect surface and ground water
- Reduce the risk of harmful fumes or fires



Moving??

If you are moving before a collection day try to get a neighbor, friend or family member to bring your hazardous products to a collection day for you.

How to dispose of Latex Paints

- Add kitty litter or speedi-dry or waste paint hardener. When completely dry dispose of paint with regular garbage leaving the cover off the paint can.

For more information call your town's recycling contact or Tunxis Recycling at: 860-585-0419 or 860-225-9811

or visit www.brrfoc.org



Tunxis Recycling

43 Enterprise Drive
Bristol, CT 06010
www.brrfoc.org

Printed on recycled paper.



Household Hazardous Product Disposal Information



Tunxis Recycling

www.brrfoc.org

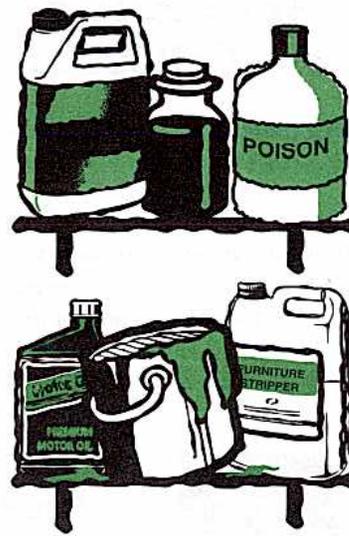
860-585-0419 or 860-225-9811

Helping to Make Homes Healthier in Berlin, Bristol, Burlington, Meriden, Morris, New Britain, Plainville, Plymouth, Prospect, Southington, Warren, Washington and Wolcott.

Do You Have Hazardous Waste Hiding in Your Home?

Get Rid of It!

Household hazardous products can pose serious risks to your family's health and the health of our environment. Luckily, getting rid of them safely can be easy. Just bring unused portions of the hazardous products in the checklist below to one of the Household Hazardous Waste Collection Days listed in this brochure. Be sure to keep products in their original containers and don't mix them. And always keep materials in a safe place away from children, pets and heat.



Household Hazardous Products Checklist

These items should be brought to Hazardous Waste Collection Days. Be careful! Make sure products are sealed. Pack them in a sturdy crate or cardboard box. Leave in your car only as long as necessary, and never smoke while handling.

In the Kitchen and Bathroom:

- Non-empty aerosol cans
- Household batteries
- Furniture, floor & metal polishes
- Laundry products like bleach & spot removers
- Oven, drain & household cleaners
- Bug sprays
- Disinfectants & mildew removers

In the Garage and Garden:

- Oil-based paint, varnishes, shellac, stains, thinners & paint strippers
- Pool and photographic chemicals
- Lawn care chemicals such as pesticides & fertilizers
- Auto fluids such as motor oil, & antifreeze
- Car waxes and cleaners

Miscellaneous:

- Mercury (including thermometers and thermostats), waste fuel, moth balls, cosmetics, hobby supplies

DO NOT bring:

- Latex paint
- Empty aerosol cans
- Ammunition & other explosives
- Smoke detectors & radioactive materials
- Propane tanks
- Medicines
- Commercial or industrial waste
- Tires
- Appliances such as air conditioners, television sets, and computers
- Fire extinguishers

Electronics:

- electronics are not collected at TROC Household Hazardous Waste collections. Watch for local notice of an upcoming "electronics only" collection day, or visit our web site at www.brrfoc.org.

NO WASTE FROM BUSINESSES
5 Gallon per person limit.

When Using Household Hazardous Products...

Check the label.

If the product you are using is toxic, corrosive, reactive, explosive or flammable it can be hazardous to you and our environment.

- NEVER throw leftover chemicals down the drain, in stormdrains, on the ground or in the trash.
- Give leftover or extra product to someone who can use it or bring it to a HHW collection day.
- Recycle used motor oil at your town's designated collection site.
- Recycle lead-acid car batteries by bringing them to a scrap metal dealer or battery retailer.
- Buy only what you need - use all of what you buy.
- Use non-toxic or less toxic substitutes for hazardous products.

Residents of Washington and Warren may attend the following collection day.

September 2004* in New Milford
Water Pollution Control Facility

Residents of Morris may attend the following collection day:

October 2004*
Torrington Water Pollution Control Facility

* Look for local notice in Fall 2004

See back panel for more collection days in your area



Protecting Water Quality from **URBAN RUNOFF**

Clean Water Is Everybody's Business

In urban and suburban areas, much of the land surface is covered by buildings and pavement, which do not allow rain and snowmelt to soak into the ground. Instead, most developed areas rely on storm drains to carry large amounts of runoff from roofs and paved areas to nearby waterways. The stormwater runoff carries pollutants such as oil, dirt, chemicals, and lawn fertilizers directly to streams and rivers, where they seriously harm water quality. To protect surface water quality and groundwater resources, development should be designed and built to minimize increases in runoff.

How Urbanized Areas Affect Water Quality Increased Runoff

The porous and varied terrain of natural landscapes like forests, wetlands, and grasslands traps rainwater and snowmelt and allows them to filter slowly into the ground. In contrast, impervious (nonporous) surfaces like roads, parking lots, and rooftops prevent rain and snowmelt from infiltrating, or soaking, into the ground. Most of the rainfall

The most recent National Water Quality Inventory reports that runoff from urbanized areas is the leading source of water quality impairments to surveyed estuaries and the third-largest source of impairments to surveyed lakes.

Did you know that because of impervious surfaces like pavement and rooftops, a typical city block generates more than 5 times more runoff than a woodland area of the same size?

and snowmelt remains above the surface, where it runs off rapidly in unnaturally large amounts.

Storm sewer systems concentrate runoff into smooth, straight conduits. This runoff gathers speed and erosional power as it travels underground. When this runoff leaves the storm drains and empties into a stream, its excessive volume and power blast out streambanks, damaging streamside vegetation and wiping out aquatic habitat. These increased storm flows carry sediment loads from construction sites and other denuded surfaces and eroded streambanks. They often carry higher water temperatures from streets, roof tops, and parking lots, which are harmful to the health and reproduction of aquatic life.

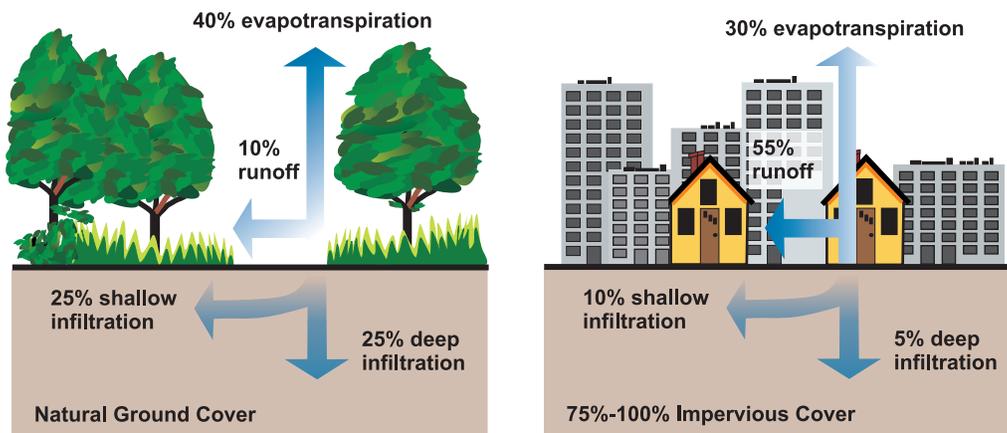
The loss of infiltration from urbanization may also cause profound groundwater changes. Although urbanization leads to great increases in flooding during and immediately after wet weather, in many instances it results in lower stream flows during dry weather. Many native fish and other aquatic life cannot survive when these conditions prevail.

Increased Pollutant Loads

Urbanization increases the variety and amount of pollutants carried into streams, rivers, and lakes. The pollutants include:

- Sediment
- Oil, grease, and toxic chemicals from motor vehicles
- Pesticides and nutrients from lawns and gardens
- Viruses, bacteria, and nutrients from pet waste and failing septic systems
- Road salts
- Heavy metals from roof shingles, motor vehicles, and other sources
- Thermal pollution from dark impervious surfaces such as streets and rooftops

These pollutants can harm fish and wildlife populations, kill native vegetation, foul drinking water supplies, and make recreational areas unsafe and unpleasant.



Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation.

Managing Urban Runoff

What Homeowners Can Do

To decrease polluted runoff from paved surfaces, households can develop alternatives to areas traditionally covered by impervious surfaces. Porous pavement materials are available for driveways and sidewalks, and native vegetation and mulch can replace high maintenance grass lawns. Homeowners can use fertilizers sparingly and sweep driveways, sidewalks, and roads instead of using a hose. Instead of disposing of yard waste, they can use the materials to start a compost pile. And homeowners can learn to use Integrated Pest Management (IPM) to reduce dependence on harmful pesticides.

In addition, households can prevent polluted runoff by picking up after pets and using, storing, and disposing of chemicals properly. Drivers should check their cars for leaks and recycle their motor oil and antifreeze when these fluids are changed. Drivers can also avoid impacts from car wash runoff (e.g., detergents, grime, etc.) by using car wash facilities that do not generate runoff. Households served by septic systems should have them professionally inspected

and pumped every 3 to 5 years. They should also practice water conservation measures to extend the life of their septic systems.

Controlling Impacts from New Development

Developers and city planners should attempt to control the volume of runoff from new development by using low impact development, structural controls, and pollution prevention strategies. Low impact development includes measures that conserve natural areas (particularly sensitive hydrologic areas like riparian buffers and infiltrable soils); reduce development impacts; and reduce site runoff rates by maximizing surface roughness, infiltration opportunities, and flow paths.

Controlling Impacts from Existing Development

Controlling runoff from existing urban areas is often more costly than controlling runoff from new developments. Economic efficiencies are often realized through approaches that target “hot spots” of runoff pollution or have multiple benefits, such as high-efficiency street sweeping (which addresses aesthetics, road safety,

and water quality). Urban planners and others responsible for managing urban and suburban areas can first identify and implement pollution prevention strategies and examine source control opportunities. They should seek out priority pollutant reduction opportunities, then protect natural areas that help control runoff, and finally begin ecological restoration and retrofit activities to clean up degraded water bodies. Local governments are encouraged to take lead roles in public education efforts through public signage, storm drain marking, pollution prevention outreach campaigns, and partnerships with citizen groups and businesses. Citizens can help prioritize the clean-up strategies, volunteer to become involved in restoration efforts, and mark storm drains with approved “don’t dump” messages.



Related Publications

Turn Your Home into a Stormwater Pollution Solution!

www.epa.gov/nps

This web site links to an EPA homeowner’s guide to healthy habits for clean water that provides tips for better vehicle and garage care, lawn and garden techniques, home improvement, pet care, and more.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas

www.epa.gov/owow/nps/urbanmm

This technical guidance and reference document is useful to local, state, and tribal managers in implementing management programs for polluted runoff. Contains information on the best available, economically achievable means of reducing pollution of surface waters and groundwater from urban areas.

Onsite Wastewater Treatment System Resources

www.epa.gov/owm/onsite

This web site contains the latest brochures and other resources from EPA for managing onsite wastewater treatment systems (OWTS) such as conventional septic systems and alternative decentralized systems. These resources provide basic information to help individual homeowners, as well as detailed, up-to-date technical guidance of interest to local and state health departments.

Low Impact Development Center

www.lowimpactdevelopment.org

This center provides information on protecting the environment and water resources through integrated site design techniques that are intended to replicate preexisting hydrologic site conditions.

Stormwater Manager’s Resource Center (SMRC)

www.stormwatercenter.net

Created and maintained by the Center for Watershed Protection, this resource center is designed specifically for stormwater practitioners, local government officials, and others that need technical assistance on stormwater management issues.

Strategies: Community Responses to Runoff Pollution

www.nrdc.org/water/pollution/storm/stoinx.asp

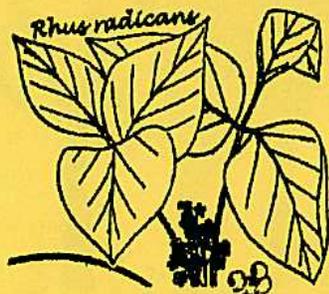
The Natural Resources Defense Council developed this interactive web document to explore some of the most effective strategies that communities are using around the nation to control urban runoff pollution. The document is also available in print form and as an interactive CD-ROM.

For More Information

U.S. Environmental Protection Agency
Nonpoint Source Control Branch (4503T)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

www.epa.gov/nps

Station #1 - White Pine- if you were the owner of this land and you wanted to plant some trees that grow fast and would provide you with a good revenue in a short time you would think about planting White or Red Pine. White Pine was very abundant in colonial times. Some of these trees were very beautiful and tall but they were slowly cut and used to make ship masts and furniture. Today we would like to see these trees in our forest again. These trees here, were planted by hand in rows. It is easier to plant trees in straight lines and it will be cheaper to cut them when it is time for harvest.



Station #2 - Poison Ivy - Its scientific name is *Rhus radicans*. Poison ivy thrives in this area. Please watch out for it. Poison Ivy has alternate compound leaves, each with three leaflets, 6 to 14 inches long. The leaflets are shiny to dull in color, turning scarlet and orange in autumn. All parts of the plant contain an irritant that most humans are allergic to.

Station #3 -Stonewalls are signs of formerly cleared land, as in the instance of the Hotchkiss Farm Field. They now serve as convenient wildlife travel lanes, as well as hiding places for a variety of small mammals, reptiles, and amphibians. Stonewalls are often used by animals for "sunning" because the stones retain heat, providing warmth long after sunset.

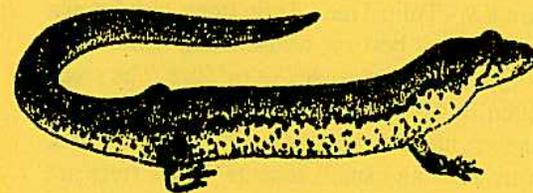
Station #4 - Blackberries - Blackberries and their kin are a tangle in more than one. The number of species in the world has been estimated to be more than 200 species. They thrive in open spaces, with plenty of sun and water. These plants rank tops as food for wildlife, even the dried berries are eaten all year around. Birds are particularly fond of this fruit. More than 97 species of birds eat them. Mammals such as bears, rabbits, raccoons, skunks, squirrels and men are among those that love to eat them. Go ahead pick one, but.. Be careful with the prickles.

Station # 5 - Erratics - As you probably already know, 20,000 years ago this northern region of North America was covered by a huge glacier. During many years, temperatures were well below freezing, and an ice sheet came from the north to cover this land. As ice traveled it picked up all kinds of stones and carried them for miles. These stones were within the ice. As the earth warmed up again, the ice melted and the rocks fell. Some of these rocks were very large. This big rock is one. It is known as erratic.

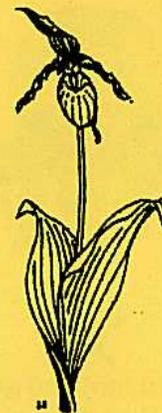


Station # 6 - Northern Hardwoods- A forest is like a living thing. Always changing. When the forest is young, trees that are light loving will do well and start to grow all over the place. Evergreens are good for that. Some times when trees are crowded and tall sunlight has a difficult time going through the canopy, only those trees that are shade loving will grow. We have here a number of very large beech trees. Beech trees are considered a "Climax tree". Together with sugar maples and yellow birches, they form what we

refer to as a Northern Hardwoods Forest tree stand.



Station #7 - "Field today, forest tomorrow." If it is understood that "tomorrow" means 100-150 years from now, this phrase describes in a nutshell the meaning of ecological succession. Like 70% of Connecticut, Hotchkiss Park was owned by the Hotchkiss family for several generations of early American history. As vegetation matures and changes due to competition and site quality, the animal life, also changes because they depends on particular kinds of vegetation for shelter and food, of course.



Station #8 - Wet Places - As we walk through the forest, we find this small wetland. This small wetland is due to runoff from the land and also because the soils are conducive to retaining moisture. The soils found here are called wetland soils. Wetlands in Connecticut are determined by the types of soils and by the types of plants found in them. There are many reasons why wetlands are

important. Wetlands are full of life. Reptiles and amphibians thrive on them. Insects, which are an important part of the food chain, are plentiful in these areas, so watch out for those mosquitoes!

Station # 9 - Tulip Tree - Tulip trees, also known as poplar, grow best on well-drained soils. They are of moderate importance to wildlife. The seeds are eaten by birds such as blackbirds, cardinals, chickadees, and also by mammals such as beavers, squirrels, deer and small rodents. These trees are important components of Northern Hardwood tree stands.

Station #10 - The tree in front of you is an important step in the life cycle of plants. Although it is no longer living, the decay process occurring on the log will add valuable organic nutrients to the existing soil. The tree also serves as a home for a multitude of insects, such as ants, and fungi, such as the turkey tail mushrooms growing on it.



This self guided trail and guide was possible thanks to the help and contributions of the following people and organizations.

*Jeff DiMaria, Eagle Scout
The Prospect Conservation Commission
The Boy Scouts of Troop 19, Waterbury, CT
Mr. Timothy Srenaski
Mr. Michael Houle
The Prospect Public Works Department*

**Town of Prospect
36 Center Street.
Prospect, CT. 06712-1699**

HOTCHKISS PARK SELF GUIDED NATURE TRAIL GUIDE



TOWN OF PROSPECT CONSERVATION COMMISSION



As stormwater flows over driveways, lawns, and sidewalks, it picks up debris, chemicals, dirt, and other pollutants. Stormwater can flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water. Polluted runoff is the nation's greatest threat to clean water.



By practicing healthy household habits, homeowners can keep common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of stormwater. Adopt these healthy household habits and help protect lakes, streams, rivers, wetlands, and coastal waters. Remember to share the habits with your neighbors!

Healthy Household Habits for Clean Water

Vehicle and Garage

- Use a commercial car wash or wash your car on a lawn or other unpaved surface to **minimize** the amount of dirty, soapy water flowing into the storm drain and eventually into your local waterbody.



- Check your car, boat, motorcycle, and other machinery and equipment for leaks and spills. Make repairs as soon as possible. Clean up **spilled fluids** with an absorbent material like kitty litter or sand, and don't rinse the spills into a nearby storm drain. Remember to properly dispose of the absorbent material.
- **Recycle** used oil and other automotive fluids at participating service stations. Don't dump these chemicals down the storm drain or dispose of them in your trash.

Lawn and Garden

- Use pesticides and fertilizers **sparingly**. When use is necessary, use these chemicals in the recommended amounts. Avoid application if the forecast calls for rain; otherwise, chemicals will be washed into your local stream.
- Select **native** plants and grasses that are drought- and pest-resistant. Native plants require less water, fertilizer, and pesticides.
- **Sweep up** yard debris, rather than hosing down areas. Compost or recycle yard waste when possible.
- Don't overwater your lawn. Water during the **cool** times of the day, and don't let water run off into the storm drain.
- Cover piles of dirt and mulch being used in landscaping projects to prevent these pollutants from blowing or washing off your yard and into local waterbodies. **Vegetate** bare spots in your yard to prevent soil erosion.

Home Repair and Improvement

- Before beginning an outdoor project, locate the nearest storm drains and **protect** them from debris and other materials.
- **Sweep up** and properly dispose of construction debris such as concrete and mortar.
- Use hazardous substances like paints, solvents, and cleaners in the **smallest amounts possible**, and follow the directions on the label. Clean up spills **immediately**, and dispose of the waste safely. Store substances properly to avoid leaks and spills.
- Purchase and use **nontoxic, biodegradable, recycled, and recyclable** products whenever possible.
- **Clean** paint brushes in a sink, not outdoors. Filter and reuse paint thinner when using oil-based paints. Properly dispose of excess paints through a household hazardous waste collection program, or donate unused paint to local organizations.
- **Reduce** the amount of paved area and increase the amount of vegetated area in your yard. Use native plants in your landscaping to reduce the need for watering during dry periods. Consider directing downspouts away from paved surfaces onto lawns and other measures to increase infiltration and reduce polluted runoff.





Make your home
The
SOLUTION
TO STORMWATER
POLLUTION!

A homeowner's guide to healthy habits for clean water



Remember: Only rain down the drain!

For more information, visit
www.epa.gov/npdes/stormwater
or
www.epa.gov/nps



Internet Address (URL) • [HTTP://www.epa.gov](http://www.epa.gov)
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Storm drains connect to waterbodies!

- Flush responsibly. Flushing household chemicals like paint, pesticides, oil, and antifreeze can destroy the biological treatment taking place in the system. Other items, such as diapers, paper towels, and cat litter, can clog the septic system and potentially damage components.
- Care for the septic system drainfield by **not** driving or parking vehicles on it. Plant only grass over and near the drainfield to avoid damage from roots.
- Have your septic system **inspected** by a professional at least every 3 years, and have the septic tank **pumped** as necessary (usually every 3 to 5 years).
- Properly store pool and spa chemicals to **prevent** leaks and spills, preferably in a covered area to avoid exposure to stormwater.
- Whenever possible, drain your pool or spa into the **sanitary** sewer system.
- **Drain** your swimming pool only when a test kit does not detect chlorine levels.

Swimming Pool and Spa

- When walking your pet, remember to **pick up** the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Pet Care

Take the Stormwater Runoff Challenge

Across:

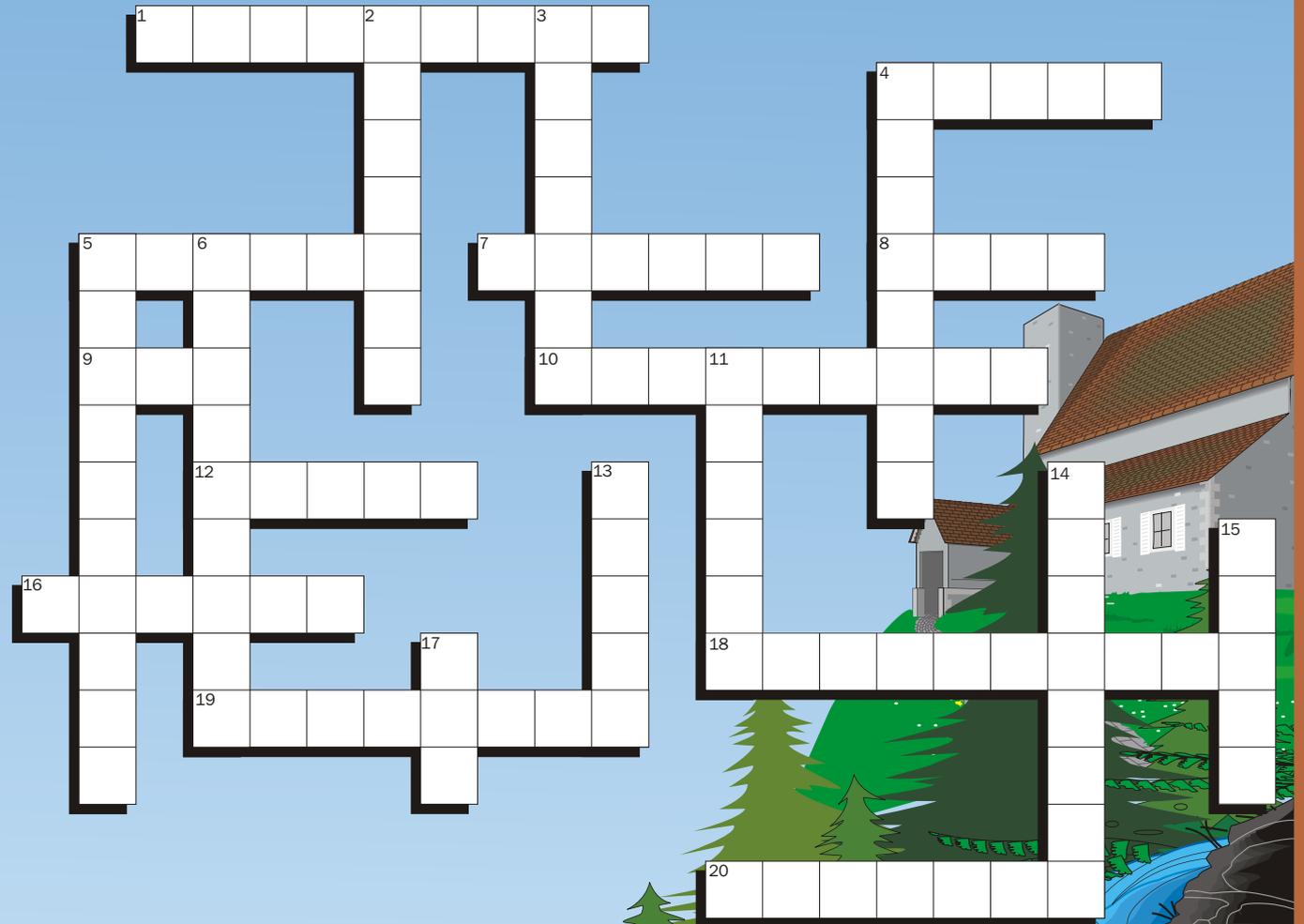
- 1) The area of land that drains into an estuary, lake, stream, or groundwater is known as a _____.
- 4) The _____ of speeding boats can erode shorelines.
- 5) Maintaining your _____ tank will help to prevent bacteria and nutrients from leaking into groundwater and surface waters.
- 7) Wetland plants act like a natural water _____, removing harmful pollutants from stormwater runoff.
- 8) Leave your grass clippings on your _____ to reduce the need for commercial fertilizers.
- 9) A single quart of motor _____, if disposed of improperly, can pollute 2 million gallons of water.
- 10) Fertilizers and animal wastes contain _____ that "feed" algae and other aquatic plants harmful to water quality.
- 12) Polluted runoff from both rural and _____ sources has a significant impact on water quality.
- 16) Storm _____ don't always connect to sewage treatment plants, so runoff can flow directly to rivers, lakes, and coastal waters.
- 18) Follow directions carefully when applying _____ on your lawn—more isn't always better.
- 19) Polluted runoff (also called _____ source pollution) comes from so many places that it's hard to "pinpoint" a source.
- 20) Yard and vegetable food waste are suitable additions to a _____ pile.

Down:

- 2) Don't dump used motor oil into storm drains. _____ it!
- 3) _____ of soil from barren land can cloud nearby streams.
- 4) _____ prevent flooding, improve water quality, and provide habitat for waterfowl, fish, and wildlife.
- 5) Marking "Do Not Dump, Drains to Bay" on a _____ is one way to educate people about polluted runoff.
- 6) Excess sediment, nutrients, toxics, and pathogens are all types of runoff _____.
- 11) Polluted _____ is the nation's #1 water quality problem.
- 13) The cattail is one wetland _____ that helps purify polluted runoff.
- 14) Too much _____ in water can harm aquatic life.
- 15) Proper crop and animal management on _____ helps to control water pollution.
- 17) _____ impact development helps control stormwater pollution through conservation approaches and techniques.

Choices:

- | | | |
|------------|-----------|-------------|
| compost | nonpoint | sediment |
| drains | nutrients | septic |
| erosion | oil | storm drain |
| farms | plant | urban |
| fertilizer | pollution | wakes |
| filter | recycle | watershed |
| lawn | runoff | wetlands |
| Low | | |

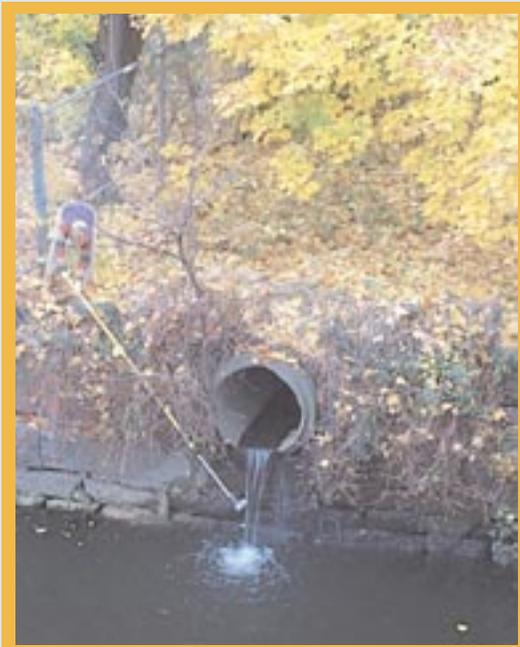


For more information, please visit EPA's
Polluted Runoff web site at www.epa.gov/nps

APPENDIX C
MODEL ILLICIT DISCHARGE AND CONNECTION
STORMWATER ORDINANCE (NEIWPC)

ILLICIT DISCHARGE DETECTION AND ELIMINATION MANUAL

A Handbook for Municipalities



NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION

January 2003

APPENDIX A

Model Illicit Discharge and Connection Stormwater Ordinance¹

ORDINANCE NO. _____

SECTION 1. PURPOSE/INTENT.

The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of (_____) through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this ordinance are:

- 1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user
- (2) To prohibit Illicit Connections and Discharges to the municipal separate storm sewer system
- (3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance

SECTION 2. DEFINITIONS.

For the purposes of this ordinance, the following shall mean:

Authorized Enforcement Agency: employees or designees of the director of the municipal agency designated to enforce this ordinance.

Best Management Practices (BMPs): schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Clean Water Act. The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

Construction Activity. Activities subject to NPDES Construction Permits. Currently these include construction projects resulting in land disturbance of 5 acres or more. Beginning in March 2003, NPDES Storm Water Phase II permits will be required for construction projects resulting in land disturbance of 1 acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Hazardous Materials. Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal Discharge. Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section X of this ordinance.

Illicit Connections. An illicit connection is defined as either of the following:

¹ USEPA. 2002. *Model Ordinances to Protect Local Resources: Illicit Discharges*. <http://www.epa.gov/owow/nps/ordinance/discharges.htm>

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or,

Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Industrial Activity. Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit. means a permit issued by EPA (or by a State under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-Storm Water Discharge. Any discharge to the storm drain system that is not composed entirely of storm water.

Person. means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant. Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Premises. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm Drainage System. Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Storm Water. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Stormwater Pollution Prevention Plan. A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to Stormwater, Stormwater Conveyance Systems, and/or Receiving Waters to the Maximum Extent Practicable.

Wastewater means any water or other liquid, other than uncontaminated storm water, discharged from a facility.

SECTION 3. APPLICABILITY.

This ordinance shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

SECTION 4. RESPONSIBILITY FOR ADMINISTRATION.

The _____ [authorized enforcement agency] shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the Director of the authorized enforcement agency to persons or entities acting in the beneficial interest of or in the employ of the agency.

SECTION 5. SEVERABILITY.

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Ordinance or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Ordinance.

SECTION 6. ULTIMATE RESPONSIBILITY.

The standards set forth herein and promulgated pursuant to this ordinance are minimum standards; therefore this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

SECTION 7. DISCHARGE PROHIBITIONS.Prohibition of Illegal Discharges.

No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.

The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

- (1) The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if dechlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing Pollutants.
- (2) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.
- (3) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.
- (4) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

Prohibition of Illicit Connections.

- (1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
- (2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
- (3) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

SECTION 8. SUSPENSION OF MS4 ACCESS.Suspension due to Illicit Discharges in Emergency Situations

The _____ [authorized enforcement agency] may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the United States, or to minimize danger to persons.

Suspension due to the Detection of Illicit Discharge

Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such

termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for a reconsideration and hearing.

A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

SECTION 9. INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES.

Any person subject to an industrial or construction activity NPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the _____ [authorized enforcement agency] prior to the allowing of discharges to the MS4.

SECTION 10. MONITORING OF DISCHARGES.

1. Applicability.

This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

2. Access to Facilities.

- (1) The _____ [authorized enforcement agency] shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.
- (3) Facility operators shall allow the _____ [authorized enforcement agency] ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.
- (3) The _____ [authorized enforcement agency] shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility's storm water discharge.
- (4) The _____ [authorized enforcement agency] has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.
- (5) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the [authorized enforcement agency] and shall not be replaced. The costs of clearing such access shall be borne by the operator.
- (6) Unreasonable delays in allowing the _____ [authorized enforcement agency] access to a permitted facility is a violation of a storm water discharge permit and of this ordinance. A person who is the operator of a facility with a NPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this ordinance.

- (7) If the _____ [authorized enforcement agency] has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

SECTION 11. REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES.

[Authorized enforcement agency] will adopt requirements identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. These BMPs shall be part of a stormwater pollution prevention plan (SWPP) as necessary for compliance with requirements of the NPDES permit.

SECTION 12. WATERCOURSE PROTECTION.

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

SECTION 13. NOTIFICATION OF SPILLS.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or water of the U.S. said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the _____ [authorized enforcement agency] within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

SECTION 14. ENFORCEMENT.

1. Notice of Violation.

Whenever the _____ [authorized enforcement agency] finds that a

person has violated a prohibition or failed to meet a requirement of this Ordinance, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

- (a) The performance of monitoring, analyses, and reporting;
- (b) The elimination of illicit connections or discharges;
- (c) That violating discharges, practices, or operations shall cease and desist;
- (d) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and
- (e) Payment of a fine to cover administrative and remediation costs; and
- (f) The implementation of source control or treatment BMPs.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

SECTION 15. APPEAL OF NOTICE OF VIOLATION.

Any person receiving a Notice of Violation may appeal the determination of the authorized enforcement agency. The notice of appeal must be received within __ days from the date of the Notice of Violation. Hearing on the appeal before the appropriate authority or his/her designee shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the municipal authority or their designee shall be final.

SECTION 16. ENFORCEMENT MEASURES AFTER APPEAL.

If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or , in the event of an appeal, within __ days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

SECTION 17. COST OF ABATEMENT OF THE VIOLATION.

Within __ days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within __ days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the city by reason of such violation. The liability shall be paid in not more than 12 equal payments. Interest at the rate of __ percent per annum shall be assessed on the balance beginning on the __st day following discovery of the violation.

SECTION 18. INJUNCTIVE RELIEF.

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Ordinance. If a person has violated or continues to violate the provisions of this ordinance, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

SECTION 19. COMPENSATORY ACTION.

In lieu of enforcement proceedings, penalties, and remedies authorized by this Ordinance, the authorized enforcement agency may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.

SECTION 20. VIOLATIONS DEEMED A PUBLIC NUISANCE.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Ordinance is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

SECTION 21. CRIMINAL PROSECUTION.

Any person that has violated or continues to violate this ordinance shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of _____ dollars per violation per day and/or imprisonment for a period of time not to exceed ____ days.

The authorized enforcement agency may recover all attorney's fees court costs and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

SECTION 22. REMEDIES NOT EXCLUSIVE.

The remedies listed in this ordinance are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

SECTION 23. ADOPTION OF ORDINANCE.

This ordinance shall be in full force and effect __ days after its final passage and adoption. All prior ordinances and parts of ordinances in conflict with this ordinance are hereby repealed.

PASSED AND ADOPTED this ____ day of _____, 19__, by the following vote:

APPENDIX D
CONTRACTOR SELF-INSPECTION FORM

Contractor Self-Inspection Form

C4.1 Construction Site Inspection Checklist

Inspected By: _____
Project: _____
Contractor: _____
Date: _____

Check "Yes" or "No" or "N/A" if not applicable.

YES	NO	N/A	
	_____		1. Has there been an absence of rain since the last inspection?
	_____		2. Are all sediment barriers (e.g., sandbags, straw bales, and silt fences) in place in accordance with the Plan and are they functioning properly?
_____	_____		3. If present, are all exposed slopes protected from erosion through the implementation of acceptable soil stabilization practices?
	_____	_____	4. If present, are all sediment traps/basins installed and functioning properly (if applicable)?
_____	_____	_____	5. Are all material handling and storage areas reasonably clean and free of spills, leaks, or other deleterious materials?
	_____	_____	6. Are all equipment storage and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious materials?
	_____	_____	7. Are all materials and equipment properly covered?
	_____	_____	8. Are all external discharge points (i.e., outfalls) reasonably free of any noticeable pollutant discharges?
	_____	_____	9. Are all internal discharge points (i.e., storm drain inlets) provided with inlet protection?

Check "Yes" or "No" or "N/A" if not applicable.

YES NO N/A

10. Are all external discharge points reasonably free of any significant erosion or sediment transport?
11. Are all BMPs identified on the Plan installed in the proper location and according to the specifications for the plan?
12. Are all structural control practices in good repair and maintained in functional order?

Are all on-site traffic routes, parking, and storage of equipment and supplies restricted to areas designated in the Plan for those uses?
14. Are all locations of temporary soil stockpiles or construction materials in approved areas?
15. Are all seeded or landscaped areas properly maintained?
16. Are sediment treatment controls in place at discharge points from the site?
17. Are slopes free of significant erosion?
18. Are all points of ingress and egress from the site provided with stabilized construction entrances?
19. Is sediment, debris, or mud being cleaned from public roads at intersections with site access roads?
20. Does the Plan reflect current site conditions?

If you answered "no" to any of the above questions (except Number 1), describe any corrective action(s) that must be taken to remedy the problem and when the corrective action is to be completed:

APPENDIX E
TOWN OF WATERFORD, CONNECTICUT
JORDAN BROOK WATERSHED MANAGEMENT PLAN

The Jordan Brook Watershed Management Plan: Protecting Wetlands and Water Quality from Future Development

Abstract

This paper presents a comprehensive watershed management plan for the Jordan Brook watershed, a 21.2 square-kilometer (8.2 square-mile) coastal watershed located in a developing area of southeastern Connecticut on Long Island Sound. The plan provides a consistent framework for evaluating and controlling impacts to wetlands and watercourses from development in the watershed. The watershed management plan includes a baseline assessment of wetland resources throughout the watershed to identify particularly high value wetlands and wetlands which require special levels of protection. The recommended plan consists of five major components including stormwater quality controls, upland protection zones for wetlands and watercourses, groundwater recharge and peak flow requirements, open space protection, and water quality monitoring. A multi-tiered framework is recommended for determining the level of stormwater quality controls required for development projects in order to protect downstream receiving waters and wetlands. The recommended watershed management plan provides a framework which could be applied in other municipalities, especially those affected by EPA's recently promulgated Stormwater Phase II regulations.

Introduction

Research has demonstrated that urbanization is a major cause of degradation to wetlands and surface water quality and typically results in:

- Increased volume of stormwater runoff,
- Increased pollutant loadings from stormwater runoff,
- Reduced infiltration and groundwater recharge,
- Lower dry weather stream flows,
- Degraded stream habitat, and
- Reduced wetland moisture levels.

In most states, protection of wetlands and watercourses is regulated at the local level by municipalities. However, many communities do not have a consistent framework for evaluating wetland and watercourse impacts from development projects.

This paper presents a watershed management plan that provides a consistent framework for evaluating and controlling impacts to wetlands and watercourses from development. The plan was developed to protect wetland resources in the Jordan Brook watershed, a coastal watershed located in southeastern Connecticut on Long Island Sound. While the southern

portion of the watershed has been developed, large areas of the northern watershed remain undeveloped and are experiencing significant development pressure.

The Jordan Brook watershed management plan includes an evaluation of existing watershed resources, including wetlands, stream water quality, land use, and hydrologic conditions. A baseline assessment of wetland resources throughout the watershed was conducted to identify particularly high value wetlands and determine which wetlands require special levels of protection. A geographic information system (GIS)-based pollutant loading model was developed to evaluate subwatershed pollutant loadings, and a hydrological model was developed for the watershed to address stormwater quantity management issues.

The recommended watershed management plan consists of five major components:

- Stormwater quality controls,
- Upland protection zones for wetlands and watercourses,
- Groundwater recharge and stormwater peak flow requirements,
- Open space protection within the watershed, and
- Water quality monitoring.

The following sections describe existing conditions in the Jordan Brook watershed, an evaluation of the watershed wetlands, and the major components of the recommended watershed management plan.

Watershed Conditions

The Jordan Brook watershed is a 21.2 square-kilometer (8.2 square-mile) watershed located in southeastern Connecticut. A majority of the watershed (94 percent) is located in the Town of Waterford, with a small portion of the watershed (6 percent) located in the City of New London. This watershed is oriented in a north-south direction, extending approximately 8.8 kilometers (5.5 miles) from its headwaters south to Jordan Cove which discharges to Long Island Sound.

The upper reaches of the Jordan Brook watershed are largely undeveloped. Jordan Brook crosses several highways, including Interstate-95, Interstate-395, and State Route 85 through the central portion of the watershed. Development and corresponding imperviousness increase as the brook flows south. Jordan Brook reaches its confluence with Nevins Brook approximately 400 feet upstream of Jordan Cove. Nevins Brook drains the southeastern portion of the watershed. Several smaller tributaries oriented in an east-west direction feed the central and southern portions of Jordan Brook. Figure 1 shows the location of the Jordan Brook watershed.

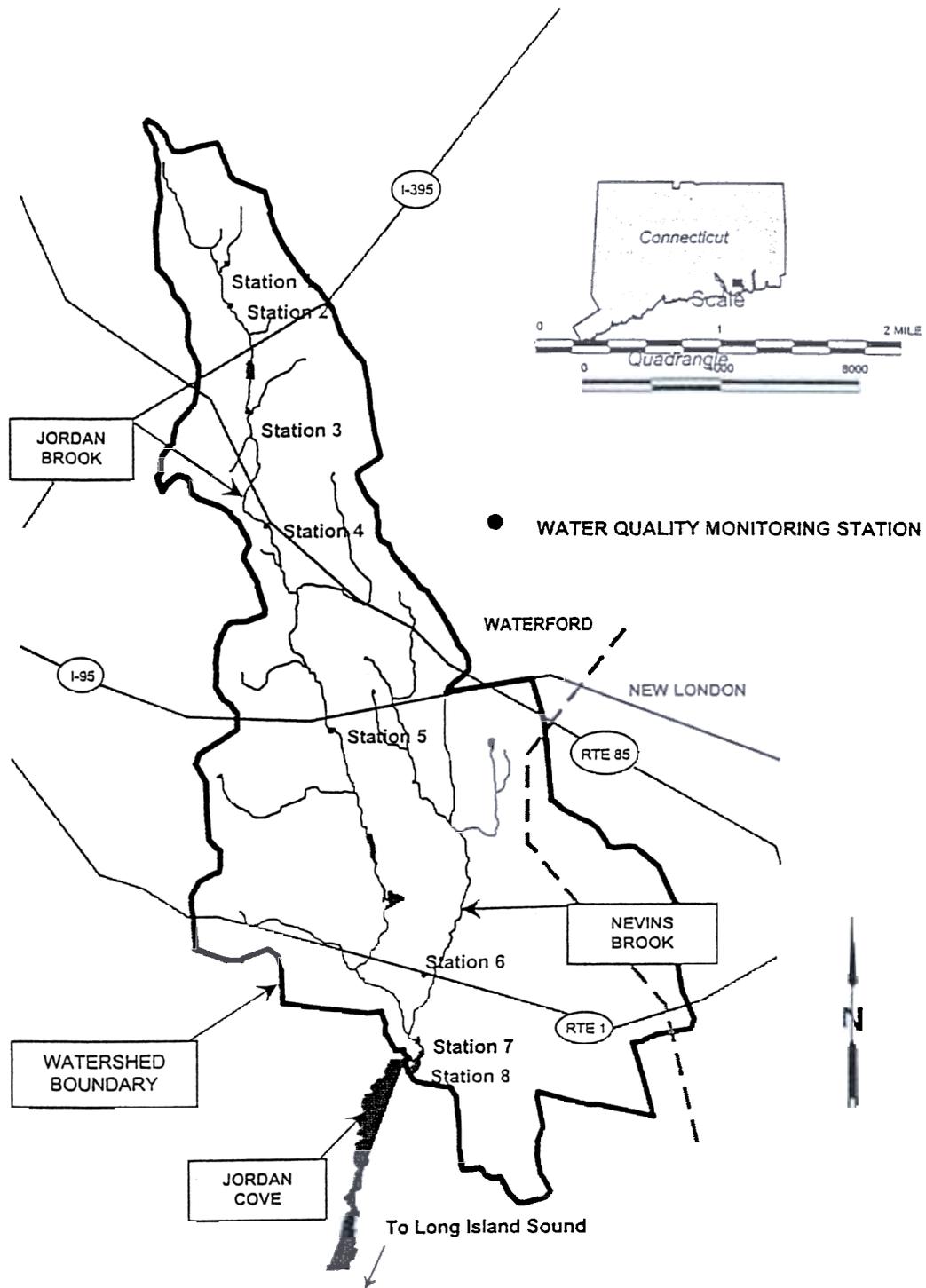


Figure 1. Location map of the Jordan Brook watershed.

Land Use

Watershed land use affects the quantity and quality of stormwater generated in the watershed. Factors such as impervious area, drainage system, development characteristics, traffic volume, air emissions, and exposure of other pollutant sources are dependent on land

use. Approximately 76 percent of the watershed consists of a combination of undeveloped, single family residential, and public facility land uses. Approximately 17 percent of the watershed consists of commercial, industrial and multi-family land uses. Highways and roads comprise approximately 7 percent of the watershed area.

Water Quality

Surface water quality in the watershed generally meets “fishable and drinkable” (Class A) standards established for the State of Connecticut. While surface water quality still meets standards, in-stream concentrations of pollutants increase downstream as development and impervious surfaces increase. Overall watershed imperviousness is approximately 12 percent, while highly developed areas in the southern portion of the watershed are up to 30 percent impervious. These levels of imperviousness are generally within the widely-cited range of impervious coverage values (10 to 30 percent) at which impacts to downgradient water resources are observed (Booth and Reinfelt 1993; Shaver and Maxted 1996; Schueler 1993; Arnold and Gibbons 1996). Additionally, modeling of future pollutant loads indicates that stormwater pollutant loadings could increase by more than 100 percent for zinc and between 30 and 50 percent for phosphorous, copper, and lead under a future full build-out scenario.

Groundwater

The Jordan Brook watershed is underlain by areas of stratified drift that could serve as groundwater aquifers. Potential groundwater aquifers are generally concentrated along Jordan Brook, Nevins Brook, and their associated tributaries. A widespread area of thick stratified drift deposits is located in the southern portion of the watershed. The Town of Waterford has identified this area as a potential public water supply source. However, this area is also susceptible to groundwater contamination from point and non-point sources of pollution due to the high degree of development in the area.

Wetlands Evaluation

A field survey and evaluation of wetlands and watercourses in the watershed was performed in April 1998. The purpose of this survey was to develop a description and biological evaluation of significant surface water and wetland ecosystems within the Jordan Brook watershed in order to identify particularly high value wetlands and wetlands which require special levels of protection.

Wetlands within the Jordan Brook watershed were evaluated using an adaptation of the method developed by the Connecticut Department of Environmental Protection (CTDEP) (Ammann, et al., 1991). This method was designed for use by municipalities as a planning tool and consists of a scientifically defensible numerical scoring system that can

be used to compare the relative value of all wetlands within the same watershed. Wetland value rankings (Low, Average, High or Very High), which reflect the comparative value of wetlands within the watershed, were assigned to each wetland based upon the numerical scores.

The evaluation also identified wetlands within the watershed that would benefit greatly by improvements in the quality of stormwater flowing into them. These wetlands are either

- Located in undeveloped areas and would be significantly impacted by degraded stormwater from road runoff or construction related sedimentation,
- Degraded surface waters which flow through developed areas and would be significantly enhanced by water quality improvements, or
- Wetlands deemed especially sensitive and meriting all possible measures of protection or preservation.

Recommended Plan

A recommended watershed management plan was developed to control wetland and watercourse impacts that may be caused by new development or altered land use activities in the Jordan Brook watershed. The goal of this plan is to maintain or improve existing ecological conditions in watershed wetlands and watercourses while not unreasonably restricting future development. In general, this plan controls several types of potential impacts associated with development. These potential impacts include:

- Degradation of surface water quality and wetland habitat
- Reduction of groundwater base flows
- Increase in stream flood flows

The following are the major elements of the recommended watershed plan.

Stormwater Quality Controls

A stormwater quality control selection methodology was recommended for future development projects to protect watershed wetlands and water quality. This recommended methodology utilizes a tiered approach to define the appropriate level of stormwater controls that would be necessary to protect downstream resources based on the type and size of development and its potential impacts. Three tiers of stormwater controls were recommended, which are triggered based on development characteristics such as level of imperviousness, size of the development, land use, and also based on receiving water/wetland resources.

Base Level Controls

Base level controls are intended to provide baseline protection against degradation of downstream resources across the entire watershed. Base level controls provide gross contaminant and sediment reduction and serve to dissipate the potential erosive energy of stormwater runoff. A base level of stormwater quality controls would be required for all new developments. Redevelopments that result in land use changes or modifications to the storm drainage system would also be required to implement these controls as an opportunity to improve watershed water quality. Base level controls would not be required for single-family houses or residential subdivisions with four or fewer lots that have no new roads, provided that any discharge from the subdivision would not affect a wetland or watercourse that is sensitive to water quality. Development that is part of a phased development project would not be exempt from base level controls.

Base level controls would be required for diffuse runoff and point discharges and would consist of, at a minimum, one or a combination of stormwater Best Management Practices (BMPs) such as vegetated buffer strips, oil/particle separators, level spreaders, sediment basins (with floatables trap), infiltration basins, and vegetated drainage swales. These measures provide a minimum level of stormwater treatment by promoting infiltration and filtration of stormwater pollutants by vegetation or by removal of gross solids and floatables.

Secondary and Tertiary Controls

In addition to the base level controls required for all future development, more stringent stormwater quality controls would be required for developments that have the potential to generate higher pollutant loadings. Similarly, stormwater discharges to wetlands or watercourses identified as being sensitive to water quality would also require an additional level of protection to limit pollutant impacts to these resources. Under this stormwater quality control selection methodology, two levels of additional controls may be required for stormwater discharges that meet these criteria.

Secondary controls would require implementation of stormwater BMPs that remove at least 80 percent of the total suspended solids (TSS) load. The 80 percent TSS removal requirement applies to post-development conditions after a site is stabilized. Examples of BMPs which have been shown to achieve 80 percent TSS removal on average include:

- Extended detention pond (equipped with sediment forebay)
- Wet pond (equipped with sediment forebay)
- Constructed wetland
- Sand or organic filter

Devices using swirl/vortex technology

Other proprietary technologies demonstrated to provide 80 percent TSS removal

Floatables such as oil and grease could be removed using a base level control such as an oil/water separator in combination or in addition to the above measures.

Tertiary controls has the goal of no net increase in future pollutant loadings as compared to existing conditions, considering maximum attainable reductions in stormwater pollutant loadings. This level of controls would require at least 80 percent removal of TSS, removal of floatables, and demonstration of no net increase in loadings of other pollutants suspected of being present in the stormwater (e.g., nutrients, metals, coliform bacteria) through the use of a stormwater pollutant loading model. Required stormwater controls would likely consist of one or a series of state-of-the-art stormwater BMPs. This level of control would be required only for those developments with the greatest potential for significant pollutant loadings or potential impacts to wetlands or watercourses which are sensitive to water quality.

Selection Criteria

Selection of the appropriate level of stormwater quality controls for a particular development would be based on consideration of the following criteria:

Receiving water resource - Wetlands or watercourses which are sensitive to water quality would be protected by providing the maximum attainable level of stormwater controls. Tertiary stormwater quality controls would be required for all developments which discharge to such wetlands or watercourses as a point source, either directly or via a storm drainage system, or as uniform, diffuse flow. Stormwater discharges to all other wetlands or watercourses would require base level or secondary controls, depending on the other selection criteria.

Land use of proposed development - Tertiary controls would be required for developments with industrial, high-intensity commercial, or other land uses with the potential for significant pollutant loadings (e.g., gas stations, vehicle service facilities, salt storage areas, marinas).

Level of imperviousness - Developments with less than 10 percent impervious area would require base level controls. Developments with more than 10 percent impervious area would require secondary stormwater quality controls.

Size of development - Developments with greater than five acres of disturbed area would require secondary stormwater quality controls, which is consistent with the CTDEP's existing stormwater general permit that requires projects that result in more

than five acres of disturbance to install controls with a goal of at least 80 percent TSS reduction.

Stormwater quality control selection thresholds for each of these criteria are summarized in Table 1. The most stringent of the applicable control levels would dictate the required level of controls for a particular development project.

Table 1. Stormwater quality control level selection methodology.

Selection Criteria	Stormwater Quality Control Level		
	Base Level Controls	Secondary Controls	Tertiary Controls
Receiving Water Resource	All other wetlands/watercourses	All other wetlands/watercourses	Discharge to wetland/watercourse sensitive to water quality
Land Use	All other land uses	All other land uses	Facilities with potential for extremely high pollutant loadings
Percent Impervious	0 to 10 percent	Greater than 10 percent	—
Size of Development	0 to 5 acres	Greater than 5 acres	—

Upland Protection Zones

One of the most effective ways to protect wetlands of special significance is to designate an Upland Protection Zone of undisturbed vegetation along the wetland boundary. Natural vegetation stabilizes transitional soils between uplands and wetlands, thereby preventing erosion and sedimentation. The ability to anchor soils on steep slopes is especially important. The vegetation slows the passage of stormwater, allowing infiltration into the soil, thereby removing nutrients and other pollution. Edge habitats in uplands bordering wetlands are also heavily utilized by wildlife, especially birds. An Upland Protection Zone 50 feet in width is recommended for all wetlands, and a 100-foot width is recommended adjacent to perennial streams. These widths are believed adequate to prevent soil erosion on sloping land, provide upland nesting sites for birds, and provide an unbroken travel corridor for mammals, reptiles and amphibians.

No structures, other than bridge supports, culvert abutments, stormwater control devices, or utility lines would be allowed in the Upland Protection Zone. Site-specific

factors which should be considered in adjusting the width of an upland protection zone include the significance of the wetland resource, land slope, soil type, and flood plain limits.

Groundwater Recharge and Peak Stormwater Flows

The watershed management plan recommends that new developments maintain pre-development groundwater base flows. One means of potentially accomplishing this recommendation would be for new developments to infiltrate "clean" roof runoff from non-metallic roofs. Alternatively, new developments could be allowed to infiltrate less water by demonstrating through an engineering evaluation of actual site conditions that less water can be infiltrated and still maintain groundwater base flows.

Increased development could result in increased impervious surfaces and, without adequately sized stormwater controls, will increase peak stormwater flows and increase the volume and rate at which runoff will drain from the site. In order to control this potential impact from new development, the plan recommends that developers include detention/retention devices such that pre-development peak discharge rates from the site are maintained. Some developments that have little potential to significantly impact off-site peak discharge rates could be exempted from this requirement. The developments that could be exempted are small projects that would generate a net increase of peak stormwater flows of less than 1 cubic foot per second and where this level of control may be overly burdensome and include:

- Single family residences,
- Subdivisions with four lots or less with no new public/private roads,
- A project with a net increase of less than 5,000 square feet of impervious surfaces.

The plan requires that new development projects demonstrate no net increase in pre-development peak flows from the site for proposed conditions and compare total proposed peak discharge from the site to existing peak flows at downstream points-of-concern (culverts, wetlands, floodprone areas, etc.). If the total proposed peak discharge from the site exceeds 10 percent of the existing peak flow at a downstream point-of-concern, the project must demonstrate no net increase in pre-development peak flows at each point-of-concern between the site and the downstream most point-of-concern.

Open Space Protection

While encroachment of new development into wetland areas can be prevented through existing regulations, upland areas can be developed, within limitations, unless that land is controlled/or owned by an entity (public or private) that prevents its development. The intent and benefit of maintaining adjacent upland areas is for maintenance of wetland

hydrology and ecological setting. The watershed management plan recommends that the Town of Waterford continue to acquire upland open space that would improve the value of wetlands in the watershed.

Water Quality Monitoring

The plan recommends continued surface water quality monitoring in the watershed to evaluate trends in water quality and the overall success of the watershed management program. Biannual wet and dry weather sampling of Jordan Brook is recommended to monitor conventional water quality parameters. Water quality monitoring of stormwater BMPs is also recommended to confirm that new developments have appropriate controls. Initial and long-term post-construction monitoring of BMPs is recommended.

Conclusions

The watershed management plan described in this paper provides a framework which could be applied to watershed management in other municipalities, especially those affected by EPA's recently promulgated Stormwater Phase II regulations which will require expanded stormwater controls for small- to mid-size municipalities. Field evaluation of wetlands and water resources in the watershed is a critical component of this framework, which prioritizes the required level of stormwater quality controls based on a number of site-specific factors, including the relative value of the receiving water resource. The success of this watershed management plan will be measured through ongoing water quality and stormwater BMP monitoring, as well as future wetlands evaluations.

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APPENDIX F
DRAFT MODEL STORMWATER
CONTROL ORDINANCE (RIDEM)

Draft

Model Stormwater Control Ordinance

Section 1

1.1 Purpose

Unmitigated stormwater from areas altered by development may pose public health and safety threats. Potential contaminants in stormwater runoff may include suspended solids, nitrogen, phosphorus, hydrocarbons, heavy metals, pathogenic organisms (bacteria and viruses), and road salts. Stormwater runoff may impact any water resource—surface water, groundwater and wetlands—and is often cited as the most significant contributor of nonpoint source water pollution.

Best management practices for stormwater management help to prevent adverse impact. However, practices must be designed, installed and maintained properly to ensure their effective function. Practices that do not function properly may degrade water quality as well as present nuisance and safety hazards.

This ordinance establishes the administrative mechanisms necessary for *[name of municipality]* to ensure proper stormwater management. The ordinance is written to work in conjunction with current state regulations.

1.2 Applicability

This ordinance shall apply to all development occurring within *[name of municipality]*. No person shall engage in land development activities without receiving approval from *[name of governing body]*, unless specifically exempted by Section 1.3 of this ordinance.

1.3 Exemptions

The following activities do not require written approval pursuant to this ordinance:

- (A) Agricultural land management activities carried out in accordance with a conservation management plan that has been approved by the Natural Resources Conservation Service.
- (B) Additions or modifications to existing single-family residential structures.

- (C) Grading, as a maintenance measure or for landscaping, on contiguous areas of developed land, parcels and lots, which in aggregate do not exceed five thousand (5,000) square feet.

1.4 Variance

The _____ (municipal board or official) reviewing an application under this ordinance may:

- (A) Vary requirements of this ordinance when strict implementation of the requirements of this ordinance create an unnecessary hardship or are not feasible.
- (B) Allow use of an innovative management practice where strict adherence to existing criteria would be costly or of negligible environmental benefit.

1.5 Compatibility with Other Enforceable Policies

This ordinance shall not obviate or supercede any other federal, state or local regulations or statutes. The provisions of this ordinance shall be held to be minimum requirements for the promotion of public health, safety and general welfare. If a provision of this ordinance imposes a standard different from any related regulation or statute, the provision that imposes the more protective standard shall be observed.

1.6 Severability

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this ordinance.

Section 2--Definitions

The following definitions apply to this ordinance.

AGRICULTURAL DEVELOPMENT: means land uses normally associated with the production of food, fiber and livestock for sale. For purposes of this ordinance, such uses shall not include the development of land for the processing or sale of food and the manufacturing of agriculturally related products.

BEST MANAGEMENT PRACTICE (BMP): means a method for pollution

management, which is deemed to provide the best available treatment or control of a pollution source such as stormwater.

DETENTION BASIN: means an embankment and associated space for impoundment of water or, alternatively, the space for impoundment partially or entirely created by excavation rather than by embankment, in either case designed to temporarily retain stormwater runoff.

FLOOD HAZARD AREAS: means the floodway and flood fringe areas determined or delineated by the Department of Environmental Management.

FLOOD PLAIN: means the flood hazard areas of streams delineated the Department of Environmental Management and areas inundated by the 100-year flood in areas not delineated by the Department of Environmental Management.

FLOODWAY: means the channel of a natural stream and portions of the flood hazard areas adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any natural stream.

INFILTRATION BASIN: means a detention facility, which is not an injection well, that is designed to gradually filter and pass retained water to the subsurface.

NONPOINT SOURCE POLLUTION: means pollution from any source that is not discernible, confined and discrete. Potential sources of nonpoint pollution include, but are not limited to, stormwater runoff, agriculture, silviculture, mining, construction, septic systems and urban development.

RECHARGE: means the replenishment of underground water reserves.

STORMWATER RUNOFF: means flow on the surface of the ground, resulting from precipitation.

WET BASIN: means a detention basin designed to retain some water on a permanent basis.

WETLANDS: means an area, as defined by the Rhode Island General Laws and as determined by the Department of Environmental Management or the Coastal Resources Management Council, which is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support--and under normal circumstances does support--a prevalence of vegetation typically adapted for life in

saturated soil conditions, commonly known as hydrophytic vegetation.

Section 3—Submissions and Approvals

In accordance with Section 1.2 of this ordinance, all persons must obtain approval from (*name of municipal review board*) prior to engaging in any land development activities, unless exempted by Section 1.3 of this ordinance. To obtain approval applicants must demonstrate compliance with all policy, standards and requirements of this ordinance to the satisfaction of the (*name of municipal review board*). Applicants may demonstrate compliance via submission of materials and documentation in accordance with this section.

3.1 Stormwater Management Plan

All applicants shall provide a stormwater management plan as part of the submission for approval. Stormwater management plans shall incorporate the following.

- (A) A discussion of protection of environmental resource functions and values in accordance with Section of this ordinance.
- (B) A discussion of best management practices employed, in accordance with this ordinance, both during construction and post construction.
- (C) A discussion of best management practice maintenance to be used, in accordance with this ordinance, both during construction and post construction.

3.2 Site Plan

All applicants shall provide a site plan as part of the submission for approval. Site plans shall incorporate the following.

- (A) A map of existing site conditions in accordance with Section of this ordinance.
- (B) Maps of the site showing all phases of construction of the proposed project in accordance with Section of this ordinance.
- (C) Site planning calculations in accordance with Section of this ordinance.
- (D) A narrative description of the proposed project in accordance with

Section of this ordinance.

3.3 Maintenance Agreement

All applicants shall provide a maintenance agreement as part of the submission for approval in accordance with Section of this ordinance.

3.4 Performance Surety

All applicants shall provide performance surety as part of the submission for approval. The performance surety shall incorporate the following.

- (A) A letter of credit in accordance with Section of this ordinance.
- (B) Evidence of posting in accordance with Section of this ordinance.

3.5 Processing of Submittals

Procedures for processing of submittals shall be as follows.

- (A) Submittals for approval shall be provided to *[name of municipal governing board]* for review, processing and approval. *[Number of copies to be provided by applicant]* copies of the submittal shall be provided.
- (B) All applicants shall provide an application fee as part of the submittal. Application fees shall be charged in accordance with Section 10 of this ordinance.
- (C) A review of the submittal shall be conducted by *[name of municipal governing board]* within *[number of days required for review]* days from the date of receipt. Written comments shall be provided to the applicant regarding the completeness of the submittal and requesting further information as necessary.
- (D) If *[name of municipal governing board]* determines the submittal to be in compliance with the requirements of this ordinance, a permit may be issued. If the *[name of municipal governing board]* determines the submittal does not fully conform to the requirements of this ordinance a written denial shall be issued with an explanation for the denial.
- (E) Any applicant who believes that a submission for approval has been denied without sufficient cause and that the submittal fully conforms with this ordinance may petition *[name of municipal*

governing board] in writing. If the applicant is again denied, the denial may be appealed to [*name of municipal appeals board*], whose decision shall be final.

Section 4--Protection of functions and values

4.1 Wildlife And Wildlife Habitat Values

Stormwater management plans shall address protection of areas that provide wildlife habitat benefits.

4.2 Recreation and Cultural Values

Stormwater management plans shall address protection of areas that provide recreational, cultural or aesthetic values.

4.3 Flood Protection

Stormwater management plans shall demonstrate that a proposed project provides for protection of life and property from flooding and flood flows. Water quantities must be controlled in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended, or a municipally approved regional stormwater management plan for the watershed in which the development site is located. Stormwater management plans shall demonstrate incorporation of the following standards into the proposed project:

- (A) Control and maintenance of postdevelopment peak discharge rates from the 2-year and 25-year storm events and predevelopment levels.
- (B) Downstream analysis of the 100-year storm event and control of the peak discharge rate for the 100-year storm to mitigate significant downstream impacts.
- (C) Discharge from any stormwater facility must be conveyed through properly constructed watercourses to provide for nonerosive flows during all storm events. The proposed stormwater conveyance system consisting of open channels, pipes, and other conveyance devices shall at a minimum accommodate the runoff from a 10-year storm event. The stormwater conveyance system must provide for nonerosive flows to receiving waters.

4.4 Surface Water And Groundwater

Stormwater management plans shall demonstrate that during develop

and postdevelopment, all receiving waters will be recharged in a manner closely resembling predevelopment conditions and that the developed site will retain hydrological conditions that closely resemble of those prior to disturbance.

Section 5—Technical Standards

All applicants are required to develop and submit a stormwater management plan. All stormwater management plans must address stormwater management on a site-by-site basis and all requirements of this ordinance. All stormwater management practices shall be consistent with the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. The following general standards and policies are also requirements of the state. However, a state permit, assent, or other approval does not necessarily assure similar municipal approval. In situations where the state determines that a project is below regulatory threshold or outside state jurisdiction, *[name of municipality]* will continue to require that the following policies and standards be upheld.

All development shall incorporate appropriate and practical stormwater management. Stormwater management shall be described by applicants in a stormwater management plan and submitted in accordance with Section # of this ordinance. Stormwater management plans shall be prepared in accordance with Appendix A of this ordinance and demonstrate the following to maximum extent practicable.

5.1 Soil Erosion And Sediment Control

Stormwater management plans shall demonstrate soil erosion and sediment control in accordance with the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. Soil erosion and sediment control must incorporate the following:

- (A) Fit development to the terrain.
- (B) Divide the site into drainage areas to determine how runoff will travel over the site.
- (C) Cluster buildings together to the extent allowable by municipal ordinances and regulations.
- (D) Minimize impervious areas.
- (E) Minimize disturbance of the natural drainage system.

- (F) Keep land disturbance to a minimum.
- (G) Stabilize disturbed areas.
- (H) Keep runoff velocities low.
- (I) Minimize the grades of slopes.
- (J) Protect disturbed areas from stormwater runoff.
- (K) Install perimeter sediment control practices.
- (L) Prepare a thorough maintenance and inspection plan.
- (M) Assign responsibility for a maintenance program.
- (N) Coordinate with other development in the watershed.

5.2 Performance Standards

- (A) Stormwater management plans shall incorporate best management practices for water quality control, which in combination are demonstrated to reduce the average annual total suspended solids in postdevelopment runoff by eighty percent (80%). Development in drinking water supply watersheds may be held to higher standards. To meet standards the following must be incorporated:
- (B) The water quality design volume shall be defined as one inch (1”) of runoff over all impervious surfaces or 0.4 inches of runoff over pervious areas. For purposes of computing runoff, all lands in the site shall be assumed, prior to development, to be in good hydrologic condition (if the lands are pastures, lawns or parks), with good cover (if the lands are woods), or with conservation treatment (if the land is cultivated), regardless of conditions existing at the times of computation. For lands to be considered cultivated, it shall have been used for such purposes uninterruptedly for a period of at least 10 years prior to the time of computation. If such uninterrupted use has not occurred or cannot be satisfactorily demonstrated, woods or brush shall be assumed to be the predeveloped land condition. All significant surface storage including open waters, ponding factors and hedgerows shall be accounted for in computing predevelopment runoff.
- (C) Wet ponds must have a permanent pool volume equal to the water quality volume as described in item A.

- (D) Extended detention dry ponds must detain the water quality volume over a 36-hour period (brim drawdown time).
- (E) Infiltration methods must be designed to retain and exfiltrate the water quality volume over a maximum 72-hour period.
- (F) All runoff up to the water quality design storm shall be controlled by one or more of the stormwater management best management practices as described in the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended.
- (G) Alternative land use, site design, source controls and structural controls may be used when they can be shown to provide equal or greater water quality protection, have acceptable maintenance requirements, and will be monitored to demonstrate their effectiveness on site.

5.3 Disallowed Stormwater Best Management Practices

- (A) The following stormwater best management practices shall not be allowed in *[name of municipality]*, regardless of any other federal, state, regional or local policy or regulation. (list of disallowed best management practices)
- (B) The placement of detention basins and other stormwater structures within a floodplain shall be avoided. If there is no alternative, the applicant must show what effects, if any, the tailwaters created by the floodplain will have on the outflow and effective storage capacity of the detention facility.

5.4 Safety

Safety measures are to be incorporated in the design of all stormwater and infiltration control projects. These may include but are not limited to fencing, warning signs/stadia rod indicating depth at the deepest point, outlet structures designed to limit public access, and aquatic benches in basins containing permanent or standing water levels.

5.5 Facilitation of Maintenance

Stormwater management facilities must be designed to operate with minimal maintenance. Facilities that require maintenance shall be designed to minimize the need for regular maintenance, facilitate required maintenance, and ensure accessibility of components that require maintenance. At a minimum, all stormwater management plans must incorporate best

management practices with appropriate maintenance design in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended; or the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. In addition, the following maintenance design standards and policies must be incorporated into management practice design and stormwater management plans.

- (A) Strong, durable and noncorroding materials, components, and fasteners shall be incorporated in facility design and demonstrated in stormwater management plans. These include, but are not limited to, the following:
 - 1. Lightweight noncorroding metals such as aluminum for trash racks, orifice plates, anti-seep collars, and access hatches.
 - 2. Hardy, disease resistant grasses for bottoms and side slopes (as prescribed by Soil Erosion and Sediment Control Standards administered by the local Soil Conservation District).
 - 3. Reinforced concrete for outlet structures and inlet headwalls; PVC piping for culverts, and riprap and gabions for channel and outlet linings.
- (B) Stormwater management facility outlets shall be designed to function normally without manual, electric or mechanical controls.

5.6 Nuisance Control

All stormwater management plans and best management practices shall incorporate nuisance control as appropriate. The following are the required policies and minimum standards:

- (A) To control weeds, disease and pests, a regularly scheduled program of mowing and trimming of bottoms, side-slopes and embankments shall be specified and conducted.
- (B) Stormwater management facilities shall be designed to minimize propagation of insects, particularly mosquitoes.

5.7 Landscaping

Stormwater management facilities shall be designed in a harmonious and attractive manner that visually compliments the natural environment of the development site as well as the postdeveloped condition.

- (A) Use of landscaping as a method of reducing runoff and preventing pollutant inputs.
- (B) Application of a minimal disturbance and minimal maintenance policy for landscaping. Where practical, clearing or site grading should only occur on land required for the structure and its associated utilities, drives, walks, and active recreational facilities. Following construction, unbuilt disturbed areas shall be revegetated with low- and no-maintenance, indigenous species.
- (C) Where land disturbance is necessary and existing vegetation is removed, alternative landscaping, which encourages ground coverings, shade trees and shrubbery should be used. Landscaping should incorporate native vegetation to the maximum extent practicable. Use of lawns should be avoided where conditions indicate potential problems with turf establishment and maintenance.
- (D) Appropriate fertilizer selection and application for vegetation reestablishment and landscaping.

Section 6—Maintenance Requirements for Best Management Practices

6.1 Routine Maintenance and Repair Procedures

- (A) Preventative maintenance procedures are required to maintain the intended operation and safe condition of the stormwater management facility by greatly reducing the occurrence of problems and malfunctions. To be effective, preventative maintenance shall be performed on a regular basis and include such routine procedures as training of staff, periodic inspections, grass cutting (at least twice a year) and fertilizing, upkeep of moving parts, elimination of mosquito breeding habitats, and pond maintenance. Disposal of sediment and debris must occur on a regular basis (unless otherwise specified within an approved plan), at suitable disposal sites or recycling sites and comply with applicable local, state and federal regulations.
- (B) Corrective maintenance procedures are required to correct a problem or malfunction at a stormwater management facility and to restore the facility's intended operation and safe condition. Based upon the severity of the problem, corrective maintenance must be performed on an as-needed or emergency basis and

include such procedures as structural repairs, removal of debris, sediment and trash removal which threaten discharge capacity, erosion repair, snow and ice removal, fence repair, mosquito extermination, and restoration of vegetated and nonvegetated linings.

- (C) In the event that the stormwater management facility becomes a danger to public safety or public health, or in need of maintenance, the City/Town of _____ shall so notify the responsible person in writing by certified mail. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipality. If the responsible person fails or refuses to perform such maintenance and repair, the municipality may immediately proceed to do so and shall bill the cost thereof to the responsible person.

6.2 General Maintenance Standards for Stormwater Best Management Practices.

Maintenance design and maintenance procedures for all stormwater best management practices shall be in accordance *Rhode Island Stormwater Design and Installation Standards Manual*, as amended; or the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. Stormwater management plans shall demonstrate appropriate maintenance design and procedures for each proposed best management practice. The following policies and standards for maintenance must be incorporated into stormwater management plans, as applicable.

- (A) A maintenance schedule for each type of BMP must be included in the application package and on the final site plans. These schedules shall list the frequency and type of maintenance operations necessary along with the legally responsible party's name, address, and telephone number. If the stormwater drainage system is to be deeded to the local municipality the applicant must obtain a letter from the municipality acknowledging maintenance responsibility and intent of ownership.
- (B) An area must be set aside within the development site for the purpose of sediment disposal (where applicable). The disposal area shall be large enough to handle the volume of two clean-out cycles. The site may also serve as open space and recreation areas.
- (C) Proper erosion and sediment control practices must be implemented during all phases of construction and until the site is satisfactorily stabilized. These plans must be printed on the final

site plans submitted for approval. All control practices shall be in accordance with the most recent edition of the *Rhode Island Soil Erosion and Sediment Control Handbook*.

- (D) Grasses selected for specific site conditions must be planted around and within basins immediately following construction to stabilize the slopes and prevent erosion. Trees and shrubs shall not be planted on any impounding embankments, to prevent potential subsurface disturbance and possible failure of the structure.
- (E) Side-slopes, embankments, and the upper stage of basins shall be mowed at least once per growing season, to prevent unwanted woody growth. Mowing may be more frequent in residential areas if a more groomed appearance is desired, however if a stormwater facility is managed for wildlife habitat mowing shall be conducted after mid-August to prevent mortality to ground nesting birds and animals.
- (F) All trash and litter and other debris shall be removed from any stormwater facility including inlet and outlet structures. Maintenance of this type improves the physical appearance of the facility and prevents blockage of inlet/outlet structures, thereby averting failure of the structure. This must be accomplished at least twice per year, preferably spring and fall.
- (G) Sediments shall be removed from any basin immediately following site stabilization and thereafter in accordance with the specific maintenance plan. Accumulated sediments may have to be removed more frequently if the sediment storage capacity of the forebay or sediment storage area is within the last 10 percent of its available capacity. Sediment removal within a basin shall restore the original capacity and design depth.
- (H) If blockage of a basin outlet structure occurs, it may be necessary to dewater the pond for access to the blockage. The dewatering flow must be adequately filtered prior to discharge into a receiving waterbody to remove suspended solids.
- (I) Pools of stagnant water in detention basins indicate failure due to erosion and scouring of the basin bottom, particularly near an inlet device. Such a deficiency must be corrected immediately to prevent a nuisance habitat for insects, especially mosquitoes.
- (J) All outlet structures and outflow channels must be inspected annually. Furthermore, extended detention devices should be

inspected at least twice per year. Inspections should be accomplished several times during the first six months of operation, especially after rainfall events to check for clogging or, conversely, too rapid of a release.

- (K) The grassed areas of any basin must be inspected at least twice per year to check for erosion problems. Problem areas must be reseeded immediately to stabilize exposed soils, thereby preventing erosion and potential clogging of outflow devices.
- (L) Inspections of all catch basins on-site shall occur on an annual basis to check for debris removal (sediment and hydrocarbons) and structural integrity or damage. Such deficiency must be corrected immediately.
- (M) Repairs or replacement of inlet/outlet structures, riprap channels, fences, or other elements of the facility shall be done within 30 days of deficiency reports. If an emergency situation is imminent then repair/replacement must be done immediately to avert failure or danger to nearby residents.

Section 7—Site Plan

7.1 Map of Existing Site Conditions

The existing conditions site map is useful for reviewing the physical features present at the proposed development site prior to any alteration from land disturbance or construction. This map of predevelopment conditions should at minimum include the information listed below. Additionally, this map should have a scale no smaller than 1 inch = 100 feet with contour intervals no greater than 5 feet. Larger map scales providing greater detail will be acceptable. Individual sheets must not exceed 24 inches by 36 inches.

- (A) North arrow with scale.
- (B) Existing topography of the site.
- (C) Subwatersheds must be clearly delineated and numbered for reference. Within each subwatershed the following information must be clearly noted: Area in acres, runoff curve number, soil types, hydrologic class, and hydrologic condition.
- (D) The stormwater discharge location for each subwatershed must be identified and labeled with peak discharge rates and volumes for the required design storms.

- (E) Location of steep slopes, bedrock outcrops, or other significant site constraints.
- (F) The applicant's property lines and boundaries of proposed development with bearings and distances.
- (G) Abutting property owners and their respective boundaries must be clearly shown along with nearby utility pole numbers and adjacent streets and intersections to facilitate identification of the proposed development.
- (H) All perennial and intermittent streams, wetland boundaries, surface water bodies, and areas subject to storm flows or flooding must be indicated. In addition, all coastal features (as identified in the Coastal Resource Management Plan, CRMP), should be delineated where applicable.
- (I) The 100-year flood plain boundary with 100-year flood elevations and floodway must be clearly identified consistent with the most recent Federal Emergency Management Agency maps. This may include identifying any applicable flood velocity zones.
- (J) The location of existing on-site stormwater structures.
- (K) The location and types of easements.
- (L) The seasonal high groundwater table in the location of proposed stormwater structures (e.g., detention basins, infiltration trenches, vegetated swales, etc.) as established in accordance with the procedures described in Section 6 of the RI Stormwater Design and Installation Standards Manual.
- (M) Location of any required investigative soil pits or test wells.
- (N) The delineation of major soil types in the vicinity of the proposed development as identified by the RI Soil Survey or qualified professional.
- (O) Location of private and public water supply wells within 100 feet.
- (P) Location of existing ISDSs abutting to and within the development site.
- (Q) Vegetative cover type including outline of woodland cover.

- (R) Existing open space.
- (S) Any landmarks, stone walls, fences, etc.

7.2 Maps of Site Showing Phases of the Proposed Project

The final site map must have all information necessary to evaluate the proposed project after the final construction phase is completed. This map must be at the same scale as the existing conditions site plan map(s) and include the following information.

- (A) North arrow with scale.
- (B) Subwatersheds must be clearly delineated and numbered for reference. Within each subwatershed the following information must be clearly noted: Area in acres, runoff curve number, soil types, hydrologic class, and hydrologic condition.
- (C) Location of proposed structures and individual lots. These lots must be numbered for reference.
- (D) Delineation of Individual Sewage Disposal Systems, public and private water supply wells, utility lines, and sub-drains.
- (E) Location of all existing and proposed roads, driveways, parking lots, and other impervious surfaces. The total area of all impervious surfaces within each subwatershed must be clearly marked and labeled within the subwatershed boundary.
- (F) All new stormwater structures (BMPs), collection and conveyance systems, and remaining portions of existing systems including points of discharge shall be clearly identified.
- (G) The peak discharge rate and volume of stormwater flow shall be labeled where stormwater enters and exits all BMPs. Additionally, the final discharge points labeled with peak discharge rates and volumes of stormwater flow must be shown for all subwatersheds.
- (H) All water channels or areas subject to storm flows into wetlands, shoreline and coastal features, and tidal waters must be clearly identified whether on-site or in abutting off-site locations.
- (I) Design details of all specified stormwater structures (e.g., basins,

trenches, etc.) including inlet and outlet structures.

- (J) Limits of vegetation clearing and overall site disturbance including delineation of lawns, open space, etc.
- (K) The final elevation grade of the proposed development.
- (L) Easements are required for installation and access of all stormwater management devices. These must be clearly identified on final plans.
- (M) Complete soil erosion and sediment control plans to be implemented in all construction phases along with final site stabilization plans.
- (N) Maintenance schedules for all stormwater structures as specified in Section 12 of the RI Stormwater Design and Installation Standards Manual.

7.3 Site Plan Calculations

In addition to the information required for site plans the following information must also be included with the application, where applicable.

- (A) The area of each subbasin as identified on final site plans.
- (B) The area of impervious surfaces (including all roads, driveways, rooftops, sidewalks, etc.) for each subbasin as identified in 13.5(1) section of the RI Stormwater Design and Installation Standards Manual.
- (C) Weighted curve numbers, (CN) as determined by the SCS TR-55 method, for the pervious surfaces within each subbasin as identified in 13.5(1) section of the RI Stormwater Design and Installation Standards Manual.
- (D) Invert elevations for all applicable BMPs. In addition, the elevations for permanent and/or flood pool stages, including peak discharge rates for each stage, within all basins are required.
- (E) The total volume capacity for all flood control and water quality BMPs (e.g. infiltration basin, detention basins, wet ponds, etc.). Volumes must be segregated into permanent and flood pool stage

volumes where applicable. Furthermore, the volumes of all sediment storage (basins, forebays, etc.) areas must also be shown.

- (F) Predevelopment and postdevelopment peak discharge rates and runoff volumes for the 2-year, 25-year, and 100-year frequency storm events for each subwatershed. The water quality volume must also be calculated for each subwatershed. All relevant variables such as curve numbers and time of concentration, along with the supporting computations and worksheets must be included.

7.4 Narrative Description

As part of the Site Plan, a narrative description should be prepared by the applicant to provide the following information: a brief description of the proposed project; potential water quality and/or hydrologic impacts of the proposed project on surface and/or groundwater resources, existing infrastructure, and/or adjacent properties; and proposed measures or practices to mitigate potential impacts. All affected wetlands, surface water and groundwater resources, and any significant site constraints affecting the selection of stormwater management practices must be identified.

The following outline is provided as guidance for preparing a narrative description for the Site Plan. Depending on the size and scope of the proposed project, the amount of information required by the permitting agency may vary, therefore it is advised to consult the appropriate permitting agency for specific requirements.

- (A) Site description – general topography, soil types, current vegetative composition and relative abundance, identification of major resources (e.g., wetlands, groundwater, surface waters, etc.) name of receiving water(s).
- (B) Site input data – watershed characteristics, area of all impervious surfaces, total area of site, annual mean rainfall, runoff coefficients, curve numbers for various land uses, peak discharge rates.
- (C) Pollutant loading forecast – predevelopment and postdevelopment pollutant mass loadings to demonstrate the removal rates of individual or combined BMPs.
- (D) Land use planning and source control plan.

- (E) Best Management Practices – identify the type of BMP and justification for selection, including any deviation from the RI Stormwater Design and Installation Standards Manual and the potential effect on pollutant removal efficiency.
- (F) Technical feasibility – of BMPs including sizing, location, hydraulic and environmental impacts. Alternatives, which were considered but determined not to be feasible, should also be discussed.

Section 8—Maintenance Agreements

Maintenance agreements shall provide written, contractual documentation, which demonstrates compliance with this section and legal arrangements for the upkeep of stormwater facilities to assure their functionality and safety in accordance with this ordinance.

Maintenance agreements, which describe all maintenance schedules and requirements, must be developed for each stormwater management facility unless the facility is dedicated to and accepted by *[name of municipality]*.

8.1 Recognition of Municipal Inspection Requirements

Maintenance agreements shall include a reasonable and regular schedule for the *[name of municipality]*, or designee, to conduct on-site inspection of the functionality and safety of stormwater management facilities. Inspection schedules shall be based on the complexity and frequency of maintenance needs and shall be subject to the approval of *[name of municipality]*.

Maintenance agreements shall recognize the authority of *[name of municipality]*, or designee, to conduct on-site inspections of stormwater management facilities should evidence exist that the facility is not being operated in accordance with the maintenance agreement or this ordinance; or should evidence exist that the facility poses an eminent threat to public health, welfare or safety.

8.2 Record Keeping for Maintenance Activities

Maintenance agreements shall include provisions for maintenance record keeping. All activities conducted in accordance with a maintenance agreement

must be recorded in a work order and inspection log. Timely updates of the log shall be the responsibility of the stormwater management facility owner or other responsible party pursuant to Section 8.3 of this ordinance. Review of the maintenance and inspection log shall be completed by *[name of municipality]*, or designee, to determine the effectiveness of operation, maintenance and safety activities. Reviews shall occur as part of each on-site inspection. Additional reviews may be made as deemed appropriate by *[name of municipality]* or designee.

8.3 Responsibility for Maintenance to Assure Functionality and Safety

Appropriate maintenance to assure functionality and safety of stormwater management facilities shall be the responsibility the owner or may be assumed by another party via a written contractual arrangement in accordance with Section 8.4 of this ordinance.

8.4 Alterations to Maintenance Agreements

Any alterations in maintenance responsibility or alterations to maintenance agreements must be reviewed and approved by (name of municipal review board). If portions of the land serviced by a stormwater management facility are to be sold, written contractual arrangements shall be made to pass all responsibility of the maintenance agreement to the purchaser and shall be subject to review and approval of (name of municipal review board). All alterations to maintenance agreements shall be recorded in accordance with Section 8.5 of this ordinance.

8.5 Recordation of Maintenance Agreements

All maintenance agreements and alterations to maintenance agreements shall be recorded in the land evidence records of *[name of municipality]*. Copies of all maintenance agreements and alterations to maintenance agreements shall be included in stormwater management plans. Recordation of maintenance agreements in accordance with this ordinance shall be the responsibility of the owner.

Section 9— Policy and Requirements for Performance Surety

A performance bond shall be posted to insure that all stormwater management facilities can be repaired in the event of malfunction. To demonstrate the posting and integrity of the performance bond, a letter of

credit shall be provided as part of the stormwater management plan. The letter of credit and posting of the performance bond shall be the responsibility of the property owner.

9.1 Value of the Performance Surety

The value of the performance bond shall be at least equal to the cost of implementing the stormwater management plan, fully.

9.2 Review and Approval of the Performance Surety

The acceptance of the performance bond and letter of credit for the purposes of this ordinance shall be subject to approval of the form, content, amount and manner of execution by the (name of the municipal review board).

9.3 Posting of the Surety with the Subdivision Bond

The amount of a performance bond for the stormwater management plan may be included with the performance bond of a subdivision provided that the performance bond receives full review and approval by (name of municipal review board) in accordance with Section 9.2 of this ordinance. Such a posting shall still require a letter of credit.

9.4 Release of the Performance Surety

The performance bond shall only be released after an on-site inspection of all the stormwater management practices in operating condition as describe in the stormwater management plan, and submission of as-built drawings certified by a registered professional engineer as being in compliance with the stormwater management plan.

9.5 Revocation of the Performance Surety

[Name of municipality] may revoke the performance bond in accordance with Section 10 of this ordinance.

Section 10--Application Fees

[Name of governing body] shall be empowered to collect fees from permit applicants, which are commensurate with the cost of administering this ordinance.

Section 11—Enforcement

[Name of municipality] shall have the authority and discretion to invoke penalties, whenever a stormwater management facility is not implemented and operated in accordance with its approval and this ordinance. Any penalty invoked shall be in accordance with this section.

11.1 Revocation or Suspension of Approval

The approval of stormwater management plans, stormwater management facility construction and stormwater management facility operation, as subject to this ordinance, may be revoked or suspended, and all work on the project halted for an indefinite time period by (name of municipal review board) or a designee, after written notification is transmitted by the building official to the developer for one or more of the following reasons:

- (A) Failure to comply with any condition of an approved plan, or specifications pertaining thereof.
- (B) Violation of any requirement of this ordinance.

11.2 Notification of Violation

Whenever there is a failure to comply with the provisions of this ordinance, the [name of municipality] shall have the right to notify the applicant/owner that he or she has (5) days from the receipt of the notice to temporarily correct the violations and (30) days from receipt of notice to permanently correct the violations.

Should the applicant/owner fail to take the corrective actions, the city/town of _____ shall then have the right to take whatever actions it deems necessary to correct the violations and to assert a lien on the subject property in an amount equal to the costs of remedial actions. The lien shall be enforced in the manner provided or authorized by law for the enforcement of common law liens on personal property. The lien shall be recorded in the land evidence records of the city/town of _____, and shall incur legal interest from the date of recording. The imposition of any penalty shall not exempt the offender from compliance with the provisions of this ordinance, including revocation of the performance bond or assessment of a lien on the property.

11.3 Hearing

Any owner or responsible party, receiving a written notice of violation, shall be given an opportunity, within a reasonable time frame, for a hearing before the (name of municipal review board) to state their case. If evidence indicates that a violation has not occurred, the (name of municipal review board) shall revoke the notice of violation.

Section 12—Implementation

This ordinance shall take effect upon final passage and approval by the town/city council as appropriate.

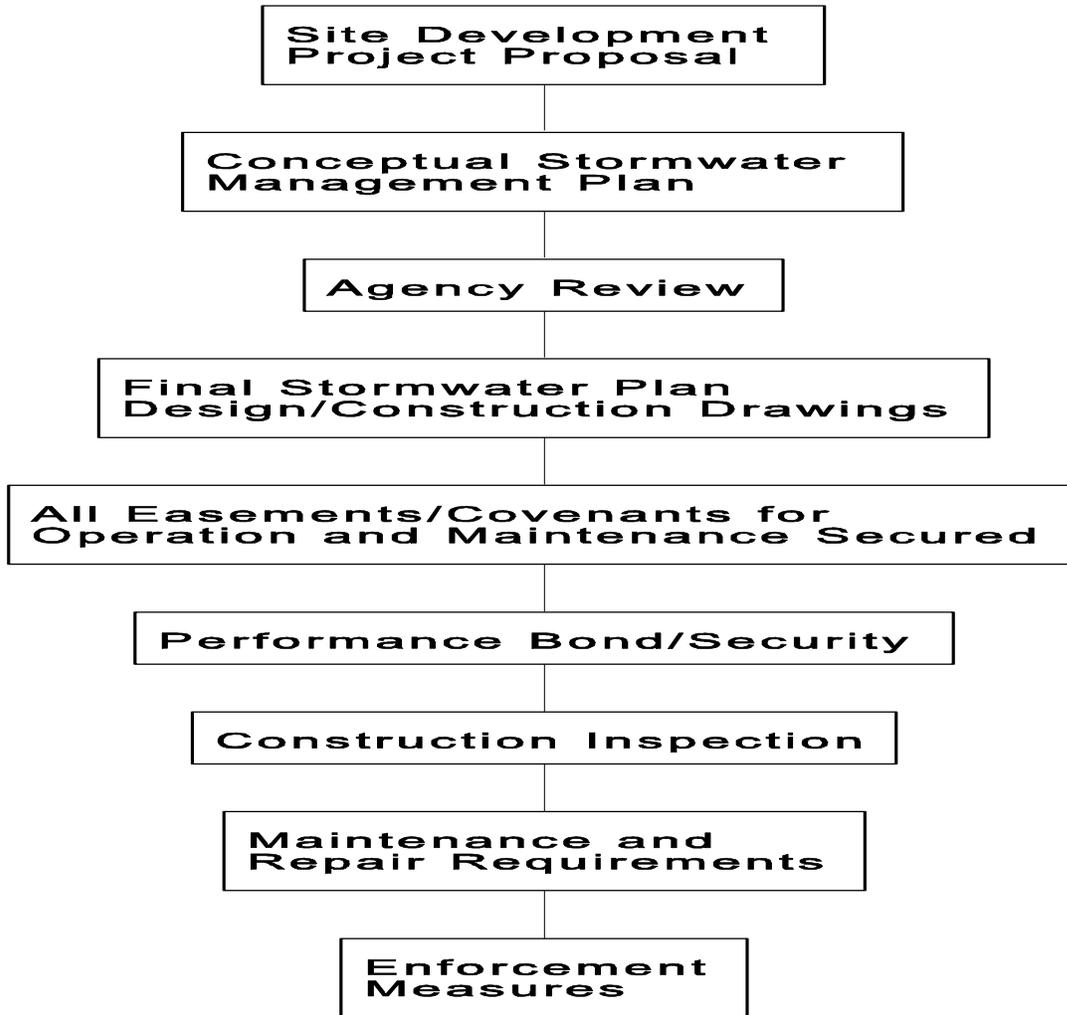
APPENDIX G
MODEL POST-CONSTRUCTION STORM WATER
RUNOFF CONTROL ORDINANCE

Model Post-Construction Stormwater Runoff Control Ordinance

This model ordinance is intended to be a tool for communities who are currently or may soon be responsible for meeting the stormwater management requirements of the National Pollutant Discharge Elimination System (NPDES) regulations. The goal of providing this model ordinance is to assist communities in creating their own stormwater management ordinance. In designing a model stormwater ordinance for a national audience, we purposely avoided creating too complex an ordinance, and instead tried to include suggestions for standard language and concepts that we believe a good stormwater management ordinance should contain. This ordinance should not be construed as an exhaustive listing of all the language needed for a local ordinance, but represents a good base that communities can build upon and customize to be consistent with the staff resources available in their locality. We recommend that you use this document in conjunction with other sources, such as existing ordinances created by other stormwater management programs in your geographic region that have objectives similar to your program's.

Feel free to download and alter any and all portions of this document to meet your needs. Throughout the ordinance, there are sections in which you must insert the name of the agency that you have given regulatory power over stormwater management issues in order to customize it. These sections are denoted by **bold** text placed in brackets. By using this ordinance and customizing these sections, you can create a viable local ordinance with minimal editing.

Italicized text with this symbol ➤ should be interpreted as comments, instructions, or information to assist the ordinance writer. This text *should not appear* in your final ordinance.



Model Ordinance for the Control of Post Construction Stormwater Runoff

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Section 1. General Provisions

1.1. Findings of Fact

It is hereby determined that:

Land development projects and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition;

This stormwater runoff contributes to increased quantities of water-borne pollutants, and; Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.

Therefore, the **(jurisdictional stormwater authority)** establishes this set of water quality and quantity policies applicable to all surface waters to provide reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development projects and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health and safety.

1.2. Purpose

The purpose of this ordinance is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction. This ordinance seeks to meet that purpose through the following objectives:

- (1). minimize increases in stormwater runoff from any development in order to reduce

flooding, siltation, increases in stream temperature, and streambank erosion and maintain the integrity of stream channels;

- (2). minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality
- (3). minimize the total annual volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic regime to the maximum extent practicable.
- (4). reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety.

☞ *The above list is a general set of objectives to reduce the impact of stormwater on receiving waters. The local stormwater authority may wish to set some more specific objectives, based on priority water quality and habitat problems (e.g., to reduce phosphorus loads being delivered to recreational lakes, to sustain a class X trout fishery)*

1.3. Applicability

This ordinance shall be applicable to all subdivision or site plan applications, unless eligible for an exemption or granted a waiver by the **(jurisdictional stormwater authority)** under the specifications of Section 4 of this ordinance. The ordinance also applies to land development activities that are smaller than the minimum applicability criteria if such activities are part of a larger common plan of development that meets the following applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must also be reviewed by local environmental protection officials to ensure that established water quality standards will be maintained during and after development of the site and that post construction runoff levels are consistent with any local and regional watershed plans.

☞ *The size of the site development to which post-construction stormwater management runoff control applies varies but many communities opt for a size limit of 5000 square feet or more. For sites less than 5000 square feet, local officials may wish to grant an exemption as long as the amount of impervious cover created does not exceed 1000 square feet.*

To prevent the adverse impacts of stormwater runoff, the **(jurisdictional stormwater authority)** has developed a set of performance standards that must be met at new development sites. These standards apply to any construction activity disturbing ____ or more square feet of land. The following activities may be exempt from these stormwater performance criteria:

1. Any logging and agricultural activity which is consistent with an approved soil conservation plan or a timber management plan prepared or approved by the **(appropriate agency)**, as applicable.
2. Additions or modifications to existing single family structures
3. Developments that do not disturb more than ____ square feet of land, provided they are not part of a larger common development plan;
4. Repairs to any stormwater treatment practice deemed necessary by

(jurisdictional stormwater authority).

When a site development plan is submitted that qualifies as a redevelopment project as defined in Section 2 of this ordinance, decisions on permitting and on-site stormwater requirements shall be governed by special stormwater sizing criteria found in the current stormwater design manual.

This criteria is dependent on the amount of impervious area created by the redevelopment and its impact on water quality. Final authorization of all redevelopment projects will be determined after a review by **(jurisdictional stormwater authority)**.

☞ *There are a number of decisions to be made by local communities when addressing the issue of redevelopment and stormwater treatment. The first is defining exactly what qualifies as redevelopment. The definition in Section 2 is from the current Maryland Stormwater Management regulations, and uses the square foot size of the project and its land use classification to establish the definition of a redevelopment project. The second decision involves to what level of stormwater management standards redevelopment projects will be held. Providing cost effective stormwater treatment at redevelopment sites is often a difficult task, and these projects may be given reduced criteria to meet to allow for site constraints. The State of Maryland currently requires that proposed redevelopment project designs include either at least a 20 percent reduction in existing site impervious area, management of at least 20 % of the water quality volume, or some combination of both.*

1.4. Compatibility with Other Permit and Ordinance Requirements

This ordinance is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provision of law. The requirements of this ordinance should be considered minimum requirements, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

1.5. Severability

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this ordinance.

1.6. Development of a Stormwater Design Manual

The **(jurisdictional stormwater authority)** may furnish additional policy, criteria and information including specifications and standards, for the proper implementation of the requirements of this ordinance and may provide such information in the form of a Stormwater Design Manual.

This manual will include a list of acceptable stormwater treatment practices, including the specific design criteria and operation and maintenance requirements for each stormwater practice. The manual may be updated and expanded from time to time, at the discretion of the local review authority, based on improvements in engineering, science, monitoring and local maintenance experience. Stormwater treatment practices that are designed and constructed in

accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards.

☞ *Local communities will need to select the minimum water quality performance standards (e.g., 80% TSS, 40% P) they will require for stormwater treatment practices and place these in their design manual. The 80% removal goal for total suspended solids (TSS) is a management measure developed by EPA as part of the Coastal Zone Act Reauthorization Amendments of 1990. It was selected by EPA for the following factors: (1) removal of 80% is assumed to control heavy metals, phosphorus, and other pollutants; (2) a number of states including DE, FL, TX, MD, and MA require/recommend TSS removal of 80% or greater for new development; and (3) data show that certain structural controls, when properly designed and maintained, can meet this performance level. Further discussion of water quality standards for stormwater management measures can be found in the CZARA Coastal Zone 6217(g) management measures document entitled "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" (US EPA, 1993).*

☞ *There are a number of good stormwater design manuals available around the country that communities may wish to refer to in creating their own local manual. Two examples are the new Maryland Department of the Environment 2000 Maryland Stormwater Design Manual Volumes I & II available online at <http://www.mde.state.md.us/environment/wma/stormwatermanual/> and the Stormwater Management Manual for Western Washington, Volumes 1-5 available online at <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>.*

☞ *Local communities may also wish to consult a new resource available on the Internet called the **Stormwater Managers Resource Center (SMRC)**. This site is dedicated to providing information to stormwater management program managers in Phase II communities to assist in meeting the requirements of the new National Pollutant Discharge Elimination System Phase II regulations. Among the resources available at the website will be a section devoted to supplying guidance on how to build a stormwater manual, including sizing and design criteria. The SMRC website and the manual-builder resources are located at www.stormwatercenter.net.*

Section 2. Definitions

"Accelerated Erosion" means erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away by the action of water, wind, or chemical action.

"Applicant" means a property owner or agent of a property owner who has filed an application for a stormwater management permit.

"Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.

"Channel" means a natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

"Dedication" means the deliberate appropriation of property by its owner for general public use.

"Detention" means the temporary storage of storm runoff in a stormwater management practice with the goals of controlling peak discharge rates and providing gravity settling of pollutants.

“Detention Facility” means a detention basin or alternative structure designed for the purpose of temporary storage of stream flow or surface runoff and gradual release of stored water at controlled rates.

“Developer” means a person who undertakes land disturbance activities.

“Drainage Easement” means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

“Erosion and Sediment Control Plan” means a plan that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

“Fee in Lieu” means a payment of money in place of meeting all or part of the storm water performance standards required by this ordinance.

“Hotspot” means an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater.

“Hydrologic Soil Group (HSG)” means a Natural Resource Conservation Service classification system in which soils are categorized into four runoff potential groups. The groups range from A soils, with high permeability and little runoff production, to D soils, which have low permeability rates and produce much more runoff.

“Impervious Cover” means those surfaces that cannot effectively infiltrate rainfall (e.g., building rooftops, pavement, sidewalks, driveways, etc).

“Industrial Stormwater Permit” means an National Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

“Infiltration” means the process of percolating stormwater into the subsoil.

“Infiltration Facility” means any structure or device designed to infiltrate retained water to the subsurface. These facilities may be above grade or below grade.

“Jurisdictional Wetland” means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

“Land Disturbance Activity” means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

“Landowner” means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

“Maintenance Agreement” means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

“Nonpoint Source Pollution” means pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

“Offset Fee” means a monetary compensation paid to a local government for failure to meet pollutant load reduction targets.

“Off-Site Facility” means a stormwater management measure located outside the subject property boundary described in the permit application for land development activity.

“On-Site Facility” means a stormwater management measure located within the subject property boundary described in the permit application for land development activity.

“Recharge” means the replenishment of underground water reserves.

“Redevelopment” means any construction, alteration or improvement exceeding ___ square feet in areas where existing land use is high density commercial, industrial, institutional or multi-family residential.

“Stop Work Order” means an order issued which requires that all construction activity on a site be stopped.

“Storm Water Management” means the use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, discharge volumes, peak flow discharge rates and detrimental changes in stream temperature that affect water quality and habitat.

“Storm Water Retrofit” means a stormwater management practice designed for an existing development site that previously had either no stormwater management practice in place or a practice inadequate to meet the stormwater management requirements of the site.

“Stormwater Runoff” means flow on the surface of the ground, resulting from precipitation.

“Stormwater Treatment Practices (STPs)” means measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

“Water Quality Volume (WQ_v)” means the storage needed to capture and treat 90% of the average annual stormwater runoff volume. Numerically (WQ_v) will vary as a function of long term rainfall statistical data.

“Watercourse” means a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

Section 3. Permit Procedures and Requirements

3.1. Permit Required.

No land owner or land operator shall receive any of the building, grading or other land development permits required for land disturbance activities without first meeting the requirements of this ordinance prior to commencing the proposed activity.

☞ *The intent is to ensure that no activities that disturb the land are issued permits prior to review and approval of the stormwater management plan. Communities may elect to issue a stormwater management permit separate of any other land development permits required, or, as in this ordinance, tie the issuing of construction permits to the approval of a final stormwater management plan.*

3.2. Application Requirements

Unless specifically excluded by this ordinance, any land owner or operator desiring a permit for a land disturbance activity shall submit to the **(jurisdictional stormwater authority)** a permit application on a form provided for that purpose.

Unless otherwise excepted by this ordinance, a permit application must be accompanied by the following in order that the permit application be considered: a stormwater management concept plan; a maintenance agreement; and a non-refundable permit review fee.

The stormwater management plan shall be prepared to meet the requirements of Sec. 5 of this ordinance, the maintenance agreement shall be prepared to meet the requirements of Sec. 9 of this ordinance, and fees shall be those established by the **(jurisdictional stormwater authority)**.

3.3. Application Review Fees

The fee for review of any land development application shall be based on the amount of land to be disturbed at the site, and the fee structure shall be established by the **(jurisdictional stormwater authority)**. All of the monetary contributions shall be credited to a local budgetary category to support local plan review, inspection and program administration, and shall be made prior to the issuance of any building permit for the development.

☞ *Local communities can use these review fees to raise funds for staff and resources to further their stormwater management programs.*

3.4. Application Procedure

1. Applications for land disturbance activity permits must be filed with the **(appropriate review agency)** on any regular business day.
2. A copy of this permit application shall be forwarded to **(jurisdictional stormwater authority)** for review
3. Permit applications shall include the following: two copies of the stormwater management concept plan, two copies of the maintenance agreement, and any required review fees.
4. Within __ business days of the receipt of a complete permit application, including all documents as required by this ordinance, the **(jurisdictional stormwater authority)** shall inform the applicant whether the application, plan and maintenance agreement are approved or disapproved.

☞ *Local officials will need to decide the appropriate time frame for review of an application. This will often be determined by the staff available for permit review and for an inspection of sites undergoing construction.*

5. If the permit application, stormwater management plan or maintenance agreement are disapproved, the applicant may revise the stormwater management plan or agreement. If additional information is submitted, the **(jurisdictional stormwater authority)** shall have __ business days from the date the additional information is received to inform the applicant that the plan and maintenance agreement are either approved or disapproved.

6. If the permit application, final stormwater management plan and maintenance agreement are approved by the **(jurisdictional stormwater authority)**, all appropriate land disturbance activity permits shall be issued.

3.5. Permit Duration

Permits issued under this section shall be valid from the date of issuance through the date the **(jurisdictional stormwater authority)** notifies the permitholder that all stormwater management practices have passed the final inspection required under permit condition.

Section 4. Waivers to Stormwater Management Requirements

4.1. Waivers for Providing Stormwater Management

Every applicant shall provide for stormwater management as required by this ordinance, unless a written request is filed to waive this requirement. Requests to waive the stormwater management plan requirements shall be submitted to the **(jurisdictional stormwater authority)** for approval.

The minimum requirements for stormwater management may be waived in whole or in part upon written request of the applicant, provided that at least one of the following conditions applies:

1. It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this ordinance.
2. Alternative minimum requirements for on-site management of stormwater discharges have been established in a stormwater management plan that has been approved by the **(jurisdictional stormwater authority)** and the implementation of the plan is required by local ordinance.
3. Provisions are made to manage stormwater by an off-site facility. The off-site facility is required to be in place, to be designed and adequately sized to provide a level of stormwater control that is equal to or greater than that which would be afforded by on-site practices and there is a legally obligated entity responsible for long-term operation and maintenance of the stormwater practice.
4. The **(jurisdictional stormwater authority)** finds that meeting the minimum on-site management requirements is not feasible due to the natural or existing physical characteristics of a site.
5. Non-structural practices will be used on the site that reduce: a) the generation of stormwater from the site, b) the size and cost of stormwater storage and c) the pollutants generated at the site. These non-structural practices are explained in detail in the current design manual and the amount of credit available for using such practices shall be determined by the **(jurisdictional stormwater authority)**.

In instances where one of the conditions above applies, the **(jurisdictional stormwater authority)** may grant a waiver from strict compliance with these stormwater management provisions, as long as acceptable mitigation measures are provided. However, to be eligible for a

variance, the applicant must demonstrate to the satisfaction of the **(jurisdictional stormwater authority)** that the variance will not result in the following impacts to downstream waterways:

- Deterioration of existing culverts, bridges, dams, and other structures;
- Degradation of biological functions or habitat;
- Accelerated streambank or streambed erosion or siltation;
- Increased threat of flood damage to public health, life, property .

Furthermore, where compliance with minimum requirements for stormwater management is waived, the applicant will satisfy the minimum requirements by meeting one of the mitigation measures selected by the jurisdictional stormwater authority. Mitigation measures may include, but are not limited to, the following:

- The purchase and donation of privately owned lands, or the grant of an easement to be dedicated for preservation and/or reforestation. These lands should be located adjacent to the stream corridor in order to provide permanent buffer areas to protect water quality and aquatic habitat,
- The creation of a stormwater management facility or other drainage improvements on previously developed properties, public or private, that currently lack stormwater management facilities designed and constructed in accordance with the purposes and standards of this ordinance,
- Monetary contributions (Fee-in-Lieu) to fund stormwater management activities such as research and studies (e.g., regional wetland delineation studies, stream monitoring studies for water quality and macroinvertebrates, stream flow monitoring, threatened and endangered species studies, hydrologic studies, and monitoring of stormwater management practices.

4.2. Fee in Lieu of Stormwater Management Practices.

Where the **(jurisdictional stormwater authority)** waives all or part of the minimum stormwater management requirements, or where the waiver is based on the provision of adequate stormwater facilities provided downstream of the proposed development, the applicant shall be required to pay a fee in an amount as determined by the **(jurisdictional stormwater authority)**.

When an applicant obtains a waiver of the required stormwater management, the monetary contribution required shall be in accordance with a fee schedule (unless the developer and the stormwater authority agree on a greater alternate contribution) established by the **(jurisdictional stormwater authority)**, and based on the cubic feet of storage required for stormwater management of the development in question. All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made by the developer prior to the issuance of any building permit for the development.

4.3. Dedication of land

In lieu of a monetary contribution, an applicant may obtain a waiver of the required stormwater management by entering into an agreement with the **(jurisdictional stormwater authority)** for the granting of an easement or the dedication of land by the applicant, to be used for the

construction of an off-site stormwater management facility. The agreement shall be entered into by the applicant and the **(jurisdictional stormwater authority)** prior to the recording of plats or, if no record plat is required, prior to the issuance of the building permit.

Section 5. General Performance Criteria for Stormwater Management

Unless judged by the **(jurisdictional stormwater authority)** to be exempt or granted a waiver, the following performance criteria shall be addressed for stormwater management at all sites:

- (A). All site designs shall establish stormwater management practices to control the peak flow rates of stormwater discharge associated with specified design storms and reduce the generation of stormwater. These practices should seek to utilize pervious areas for stormwater treatment and to infiltrate stormwater runoff from driveways, sidewalks, rooftops, parking lots, and landscaped areas to the maximum extent practical to provide treatment for both water quality and quantity.

☞ *There are several sources of climatological references that can be consulted to find the rainfall depths for the appropriate design storm intervals (1, 10, 25, and 100 year). The NOAA National Climatological Data Center has a "Summary of the Day" database that can provide rainfall numbers for most major cities and airports in the country. Another possible source is the Urban Hydrology for Small Watersheds, TR-55 (Technical Release 55) published by the Engineering Division, United States Natural Resource Conservation Service (formerly known as the Soil Conservation Service) United States Department of Agriculture, June 1986.*

- (B). All stormwater runoff generated from new development shall not discharge untreated stormwater directly into a jurisdictional wetland or local water body without adequate treatment. Where such discharges are proposed, the impact of the proposal on wetland functional values shall be assessed using a method acceptable to the **(jurisdictional stormwater authority)**. In no case shall the impact on functional values be any less than allowed by the Army Corp of Engineers (ACE) or the **(Appropriate State Agency)** responsible for natural resources.
- (C). Annual groundwater recharge rates shall be maintained, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall mimic the annual recharge from pre-development site conditions.

☞ *Recharge is a relatively new stormwater criteria, and has been implemented so far in the Massachusetts coastal zone and in Maryland. The recharge criteria requires considerable effort to use existing pervious areas for stormwater treatment and infiltration, which means that it must be considered very early in the site design process when basic decisions about layout and vegetative cover are made. For additional discussion of recharge criteria, consult the manual builder on the Stormwater Managers Resource Center (SMRC) at www.stormwatercenter.net.*

- (D). For new development, structural stormwater treatment practices shall be designed to remove __% of the average annual post development total suspended solids load (TSS). It is presumed that a STP complies with this performance standard if it is:

- sized to capture the prescribed water quality volume (WQ_v).
- designed according to the specific performance criteria outlined in the local stormwater design manual,
- constructed properly, and
- maintained regularly.

☞ *For post construction stormwater runoff, the ability of stormwater management programs to meet federal guidelines under the NPDES regulations will become increasingly important. A local government seeking to manage runoff to achieve water quality standards has a number of options for reaching their goal. The options are listed below, from the most typical standard stormwater quality practice to more advanced program options. Each option has an associated level of effort for the management of stormwater, and the likelihood of realizing water quality treatment goals depends on the option a local government selects. Local governments should assess the option they wish to select in light of new Phase II regulations and the current ability of their stormwater management staff to meet more extensive local/state staff review and inspection requirements.*

Option 1. Require Stormwater Treatment Practices for Stormwater Quality

Many current stormwater programs simply require that the developer install stormwater treatment practices, but do not specify a target for specific pollutant reduction performance. These programs simply require that a standard volume of stormwater be treated (e.g., a half-inch of runoff). Many of these programs also have generous waiver and exemption provisions, so that as much as 25% of all new development can avoid criteria for water quality. Unless the target removal goals are very low, these communities cannot expect their current programs to eliminate net additional pollutants associated with future development.

(See City of Knoxville, TN Stormwater and Street Ordinance, at <http://www.ci.knoxville.tn.us/>)

Option 2. Institute More Rigorous Design Standards for Stormwater Practices.

A number of communities have improved their stormwater programs by strengthening their design standards for stormwater practices. This has involved narrowing the list of acceptable practices to those with a proven ability to remove particular pollutants, increasing the volume of runoff that is treated by each practice (e.g, treat first 1" of stormwater runoff), clamping down on waivers and exemptions (or requiring a fee-in-lieu), and requiring design features that reduce maintenance problems.

The advantage of this program option is that compliance can be presumed as long as designers follow the design rules. It does require a good stormwater manual and more extensive local/state staff review and training. It can achieve significant reduction for some pollutants, such as sediment and nutrients. The disadvantage of the program option is that current stormwater technology may not be effective enough for some pollutants (e.g., bacteria), or capable of reducing the net additional load for high levels from future development.

(For an example see Maryland Department of the Environment 2000 Maryland Stormwater Design Manual available at <http://www.mde.state.md.us/environment/wma/stormwatermanual/>. The states of New York and Vermont are in the process of adopting similar design standards for their manuals).

Option 3. Require On-Site Load Calculation

A handful of communities have adopted an approach whereby the design engineer must calculate pre- and post- development loads for a particular pollutant, and then design a system of practices to meet a load reduction target, based on STP removal rates. Phosphorus has been used in most cases, and the load

reduction target varies. This option results in more directed design geared more specifically to the pollutant of concern.

The on-site load calculation option has several disadvantages. First, designers can select to use math modeling to their advantage to reduce costs and come into compliance. Second, technical data to support the program option are limited to just a few parameters, such as phosphorus, nitrogen and sediment. Third, the removal rates for the stormwater practices seldom account for factors where pollutant load removal is compromised, and tend to be optimistic. Lastly, this program option is very intensive in terms of local review and compliance, and requires more staffing to implement.

(For an example of on-site load calculation see the publication *Phosphorus Control in Lake Watersheds: A Technical Guide to Evaluating New Development* by the Maine Department of Environmental Protection. Another example where this option has been applied is for New York City water supply areas).

Option 4. Load Calculation w/ Stormwater Offset Fee to Provide Retrofits on Existing Development

In this program option, a community requires the on-site load calculation described in Option 3, but is very conservative in the assumptions it allows on loading and removal efficiency. Consequently, designers at most sites cannot fully comply with the load reduction for the requirement at their site. To fully comply, they must pay an offset fee to the local government which is used to support design and construction of stormwater retrofits at existing development in the watershed. The fee is set at the cost of providing an equivalent amount of pollutant removal elsewhere (dollars/pound).

The advantage of this approach is that it provides a means of financing the stormwater retrofits needed to reduce pollutant loads from existing development. It does require greater local staffing to find, design and build the retrofits which offset the loads from new development. If administered properly, this program option can potentially eliminate the net additional load from new development. Several communities currently provide this option for developers, but it is not clear how much revenue has been collected so far.

(This option has been applied in Maryland Critical Areas and Virginia Chesapeake Bay resource management areas. For more information, see the website regarding the Maryland Critical Area Act at <http://www.dnr.state.md.us/criticalarea/> and the Virginia Chesapeake Bay Preservation Area Regulation at <http://www.cblad.state.va.us/regs.htm>)

- (E). To protect stream channels from degradation, a specific channel protection criteria shall be provided as prescribed in the current stormwater manual.

☞ Channel protection is a relatively new criteria, but is increasingly viewed as a critical one due to the mounting evidence that stream channels enlarge in response to watershed development. Studies have found higher bank erosion rates and increased instream sediment loads for urban streams when compared to the 5-20% estimate for the annual sediment budget attributable to bank erosion in rural streams (Walling and Woodward, 1995; Collins et al., 1997). Research also indicates that channel enlargement can begin at a relatively low level of watershed development, as indicated by the amount of impervious cover. One study estimated that channel erosion rates were three to six times higher in a moderately urbanized watershed (14% impervious cover) than in a comparable rural one, with less than 2% impervious cover (Neller, 1988).

The basic methodology to calculate channel enlargement relies on obtaining historical cross-sectional data from past surveys (often obtained from transportation agencies or public works departments that conducted surveys at the time of road construction or improvement projects) and comparing these with current cross-sectional data obtained from field surveys conducted at the time of the study. The approach also utilizes predictive (i.e., empirical) equations to estimate an ultimate channel enlargement ratio once the channel has enlarged sufficiently to be in balance with its hydrological forces.

Basic Options for Stream Channel Protection

Many different design criteria have been suggested to protect downstream channels from erosion. It should be clearly noted that none of these criteria have yet been monitored in the field to demonstrate their effectiveness, and most are based on hydrologic or hydraulic modeling of streams. The three options that appear to hold some promise are:

24 hour detention of the one year storm event. *This criteria would result in up to 24 hours of detention for runoff generated by a rainfall depth based on annual rainfall for a region. Smaller storms events would also experience some detention, but probably much less than 24 hours. The premise of this criteria is that runoff would be stored and released in such a gradual manner that critical erosive velocities would seldom be exceeded in downstream channels. The required volume needed for 1 year extended detention is significant; it is roughly equivalent to about 90 to 95% of the required volume needed for ten year peak discharge control. Consequently, the need for two year peak discharge management would be eliminated when the 1 year ED is provided, as long as the ten year peak discharge control is achieved. (For an example, see Maryland Department of the Environment 2000 Maryland Stormwater Design Manual available at <http://www.mde.state.md.us/environment/wma/stormwatermanual/>. The states of New York and Virginia also use this design criteria for stream channel protection in their stormwater design manuals).*

Distributed runoff control (DRC): *This criteria has been developed by MaCrae (1993) and involves complex field assessments and modeling to determine the hydraulic stress and erosion potential of bank materials. The criteria states that channel erosion is minimized if the alteration in the transverse distribution of erosion potential about a channel parameter is maintained constant with predevelopment values, over the range of available flows, such that the channel is just able to move the dominant particle size of the bed load. This Canadian method holds promise, but has not been tested extensively in the United States and requires significantly greater data collection and modeling than any of the other methods.*

(For a discussion of this criteria, see the Vermont Stormwater Management Handbook Technical Support Document- Appendix B, November 2000).

Bankfull capacity/duration criteria: *This criteria has been advanced by Tapley et al 1996, and states that the post-development, bankfull flow frequency, duration and depth must be controlled to predevelopment values at a designated control point(s) in the channel. The Rule of thumb for selecting control point(s) is to use a 10: 1 ratio of peak discharge from the one year storm for the developed site to the discharge from the stream for the same frequency storm (Tapley et al, 1996). In theory, this criteria should result in a high level of downstream protection. The practical problem is in defining how the criteria is to be interpreted; whether sub-bankfull events (that typically erode the toe of the streambank) should also be considered; and precisely where the "bankfull" should be measured. For example, the channel of many streams have been modified in the past by prior land uses and channelization, and may not represent the "true" channel. In other cases, the stormwater outfall discharge laterally to a stream, and it is therefore difficult to assign which flows the developer is actually responsible for controlling.*

Pros and Cons of Channel Protection Sizing Criteria.

Each of the three options has some limitations. For example, both the DRC and bankfull capacity sizing criteria options lack widely accepted or universal design methodologies. In each case, local stream cross-section and/or soil measurements are needed, and considerable contention between the designer and the reviewer can be expected on how and where the analysis should be performed. Given the many operational problems currently associated with either option, and the lack of a tested design methodology at present, the two options probably deserve further study, but are not ready for wide application.

This leaves only one remaining option-- the one-year 24 hour detention criteria. It, too, has some limitations:

- *results in unacceptably small diameter orifices for sites less than ten acres in size.*
- *requires a storage volume roughly equivalent to that needed for two year control.*
- *has not been "tested" by continuous simulation modeling to determine if acceptable detention times can be achieved for smaller storms can be achieved (1.0 to 1.5 inches).*
- *is only needed in streams that are susceptible to bank erosion.*

Based on the foregoing, it appears that the best option to provide channel protection (C_{p_v}) is 12 to 24 hour extended detention of the one-year 24 hour storm event. This C_{p_v} requirement only applies to sites greater than ten acres in size. Local governments may wish to retain the option of employing the DRC or bankfull capacity/duration criteria as an alternative, should their analytical and design requirements become more simplified and refined in the future

There are some basic exemptions to where the channel protection criteria should be applied (small drainage areas, direct discharge to tidal waters or a lake, flat terrain etc), and communities must decide how and when this criteria will be required.

- (F). Stormwater discharges to critical areas with sensitive resources (i.e., cold water fisheries, shellfish beds, swimming beaches, recharge areas, water supply reservoirs) may be subject to additional performance criteria, or may need to utilize or restrict certain stormwater management practices.
- (G). Certain industrial sites are required to prepare and implement a stormwater pollution prevention plan, and shall file a notice of intent (NOI) under the provisions of the National Pollutant Discharge Elimination System (NPDES) general permit. The stormwater pollution prevention plan requirement applies to both existing and new industrial sites.

➤ *Applicants and local communities may wish to consult the Environmental Protection Agency website at <http://www.epa.gov/owm/swm/phase2> for more information on Phase II requirements.*

- (H). Stormwater discharges from land uses or activities with higher potential pollutant loadings, known as "hotspots", may require the use of specific structural STPs and pollution prevention practices.
- (I). Prior to design, applicants are required to consult with the **(jurisdictional stormwater authority)** to determine if they are subject to additional stormwater design requirements.
- (J). The calculations for determining peak flows as found in the Stormwater Design Manual shall be used for sizing all stormwater management practices.

Section 6. Basic Stormwater Management Design Criteria

➤ Rather than place specific stormwater design criteria into an ordinance, it is often preferable to fully detail these requirements in a stormwater design manual. This allows specific design information to change over time as new information or techniques become available without requiring the formal process needed to change ordinance language. The ordinance can then require those submitting any development application to consult the current stormwater design manual for the exact design criteria for the stormwater management practices appropriate for their site.

In the Maryland Stormwater Design Manual, for example, there are a set of specified performance criteria for each stormwater management practice, based on six factors:

- Site Design Feasibility -
- Conveyance Issues -
- Pretreatment Requirements -
- Treatment/Geometry Conditions
- Environmental/Landscaping Standards
- Maintenance Needs

Each community will need to decide the specific design and sizing criteria for the stormwater management practices they allow, and select a storm event frequency (1, 2, 10, 100 year) that they believe will meet their stormwater quality and quantity control requirements.

6.1. Minimum Control Requirements

All stormwater management practices will be designed so that the specific storm frequency storage volumes (e.g., recharge, water quality, channel protection, 10 year, 100 year) as identified in the current stormwater design manual are met, unless the **(jurisdictional stormwater authority)** grants the applicant a waiver or the applicant is exempt from such requirements.

In addition, if hydrologic or topographic conditions warrant greater control than that provided by the minimum control requirements, the **(jurisdictional stormwater authority)** reserves the right to impose any and all additional requirements deemed necessary to control the volume, timing, and rate of runoff.

6.2 Site Design Feasibility

Stormwater management practices for a site shall be chosen based on the physical conditions of the site. Among the factors that should be considered:

1. Topography
2. Maximum Drainage Area
3. Depth to Water Table
4. Soils
5. Slopes
6. Terrain
7. Head

8. Location in relation to environmentally sensitive features or ultra-urban areas
Applicants shall consult the Stormwater Design Manual for guidance on the factors that determine site design feasibility when selecting a stormwater management practice.

6.3. Conveyance Issues

All stormwater management practices shall be designed to convey stormwater to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include, but not be limited to:

1. Maximizing of flowpaths from inflow points to outflow points
2. Protection of inlet and outfall structures
3. Elimination of erosive flow velocities
4. Providing of underdrain systems, where applicable

The Stormwater Design Manual shall provide detailed guidance on the requirements for conveyance for each of the approved stormwater management practices.

6.4. Pretreatment Requirements

Every stormwater treatment practice shall have an acceptable form of water quality pretreatment, in accordance with the pretreatment requirements found in the current stormwater design manual. Certain stormwater treatment practices, as specified in the Stormwater Design Manual, are prohibited even with pretreatment in the following circumstances:

- A. Stormwater is generated from highly contaminated source areas known as “hotspots”
- B. Stormwater is carried in a conveyance system that also carries contaminated, non-stormwater discharges
- C. Stormwater is being managed in a designated groundwater recharge area.
- D. Certain geologic conditions exist (e.g., karst) that prohibit the proper pretreatment of stormwater.

6.5. Treatment/Geometry Conditions

All stormwater management practices shall be designed to capture and treat stormwater runoff according to the specifications outlined in the Stormwater Design Manual. These specifications will designate the water quantity and quality treatment criteria that apply to an approved stormwater management practice.

6.6. Landscaping Plans Required

All stormwater management practices must have a landscaping plan detailing both the vegetation to be in the practice and how and who will manage and maintain this vegetation. This plan must be prepared by a registered landscape architect or soil conservation district.

6.7. Maintenance Agreements

All stormwater treatment practices shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement will include any and all maintenance easements required to access and inspect the stormwater treatment practices, and to

perform routine maintenance as necessary to ensure proper functioning of the stormwater treatment practice. In addition, a legally binding covenant specifying the parties responsible for the proper maintenance of all stormwater treatment practices shall be secured prior to issuance of any permits for land disturbance activities.

6.8. Non-Structural Stormwater Practices

The use of non-structural stormwater treatment practices is encouraged in order to minimize the reliance on structural practices. Credit in the form of reductions in the amount of stormwater that must be managed can be earned through the use of non-structural practices that reduce the generation of stormwater from the site. These non-structural practices are explained in detail in the current design manual and applicants wishing to obtain credit for use of non-structural practices must ensure that these practices are documented and remain unaltered by subsequent property owners.

Section 7. Requirements for Stormwater Management Plan Approval

7.1. Stormwater Management Plan Required for All Developments.

No application for development will be approved unless it includes a stormwater management plan detailing in concept how runoff and associated water quality impacts resulting from the development will be controlled or managed. This plan must be prepared by an individual approved by the **(jurisdictional stormwater authority)** and must indicate whether stormwater will be managed on-site or off-site and, if on-site, the general location and type of practices. The stormwater management plan(s) shall be referred for comment to all other interested agencies, and any comments must be addressed in a final stormwater management plan. This final plan must be signed by a licensed professional engineer (PE), who will verify that the design of all stormwater management practices meet the submittal requirements outlined in the Submittal Checklist found in the stormwater design manual. No building, grading, or sediment control permit shall be issued until a satisfactory final stormwater management plan, or a waiver thereof, shall have undergone a review and been approved by the **(jurisdictional stormwater authority)** after determining that the plan or waiver is consistent with the requirements of this ordinance.

☞ One way to handle the submittal requirements for both the concept plan and the final design plan is to place Submittal Checklists in the stormwater design manual and require that they are used for submission of any plan. The benefit of this is that changes in submittal requirements can be made as needed without needing to revisit and alter the original ordinance. Three model checklists can be found on the Stormwater Managers Resource Center (SMRC) website at www.stormwatercenter.net.

7.2. Stormwater Management Concept Plan Requirements

A stormwater management concept plan shall be required with all permit applications and will include sufficient information (e.g., maps, hydrologic calculations, etc) to evaluate the

environmental characteristics of the project site, the potential impacts of all proposed development of the site, both present and future, on the water resources, and the effectiveness and acceptability of the measures proposed for managing stormwater generated at the project site. The intent of this conceptual planning process is to determine the type of stormwater management measures necessary for the proposed project, and ensure adequate planning for management of stormwater runoff from future development. To accomplish this goal the following information shall be included in the concept plan:

1. A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment control facilities. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads and easements; the limits of clearing and grading; A written description of the site plan and justification of proposed changes in natural conditions may also be required.

☞ *This project description and site plan requirement includes information normally found in an Erosion and Sediment Control plan. For local governments that do not currently have ESC plan requirements or are looking to upgrade their ESC ordinance language, there is a model Erosion and Sediment Control ordinance located at the SMRC website.*

2. Sufficient engineering analysis to show that the proposed stormwater management measures are capable of controlling runoff from the site in compliance with this ordinance and the specifications of the Stormwater Design Manual.
3. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of soil conditions, forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for development.
4. A written description of the required maintenance burden for any proposed stormwater management facility.
5. The **(jurisdictional stormwater authority)** may also require a concept plan to consider the maximum development potential of a site under existing zoning, regardless of whether the applicant presently intends to develop the site to its maximum potential.

For development or redevelopment occurring on a previously developed site, an applicant shall be required to include within the stormwater concept plan measures for controlling existing stormwater runoff discharges from the site in accordance with the standards of this Ordinance to the maximum extent practicable.

7.3. Final Stormwater Management Plan Requirements

After review of the stormwater management concept plan, and modifications to that plan as deemed necessary by the **(jurisdictional stormwater authority)**, a final stormwater management plan must be submitted for approval. The final stormwater management plan, in addition to the information from the concept plan, shall include all of the information required in

the Final Stormwater Management Plan checklist found in the Stormwater Design Manual. This includes:

1. Contact Information

The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected.

2. Topographic Base Map

A 1" = 200' topographic base map of the site which extends a minimum of ___ feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; **current land use including all existing structures**; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown.

3. Calculations

Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this ordinance. Such calculations shall include (i) description of the design storm frequency, intensity and duration, (ii) time of concentration, (iii) Soil Curve Numbers or runoff coefficients, (iv) peak runoff rates and total runoff volumes for each watershed area, (v) infiltration rates, where applicable, (vi) culvert capacities, (vii) flow velocities, (viii) data on the increase in rate and volume of runoff for the design storms referenced in the Stormwater Design Manual, and (ix) documentation of sources for all computation methods and field test results.

4. Soils Information

If a stormwater management control measure depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the control measure.

5. Maintenance and Repair Plan

The design and planning of all stormwater management facilities shall include detailed maintenance and repair procedures to ensure their continued function. These plans will identify the parts or components of a stormwater management facility that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan.

6. Landscaping plan

The applicant must present a detailed plan for management of vegetation at the site after construction is finished, including who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect or by the soil conservation district.

7. Maintenance Easements

The applicant must ensure access to all stormwater treatment practices at the site for the purpose of inspection and repair by securing all the maintenance easements needed on a permanent basis. These easements will be recorded with the plan and will remain in effect even with transfer of title to the property.

8. Maintenance Agreement

The applicant must execute an easement and an inspection and maintenance agreement binding on all subsequent owners of land served by an on-site stormwater management measure in accordance with the specifications of this ordinance.

9. Erosion and Sediment Control Plans for Construction of Stormwater Management Measures

The applicant must prepare an erosion and sediment control plan for all construction activities related to implementing any on-site stormwater management practices.

10. Other Environmental Permits

The applicant shall assure that all other applicable environmental permits have been acquired for the site prior to approval of the final stormwater design plan.

7.4. Performance Bond/Security

The **(jurisdictional stormwater authority)** may, at its discretion, require the submittal of a performance security or bond prior to issuance of a permit in order to insure that the stormwater practices are installed by the permit holder as required by the approved stormwater management plan. The amount of the installation performance security shall be the total estimated construction cost of the stormwater management practices approved under the permit, plus 25%. The performance security shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan.

The installation performance security shall be released in full only upon submission of "as built plans" and written certification by a registered professional engineer that the stormwater practice has been installed in accordance with the approved plan and other applicable provisions of this ordinance. The **(jurisdictional stormwater authority)** will make a final inspection of the stormwater practice to ensure that it is in compliance with the approved plan and the provisions of this ordinance. Provisions for a partial pro-rata release of the performance security based on the completion of various development stages can be done at the discretion of the **(jurisdictional stormwater authority)**.

☞ *Some communities elect to also require a maintenance performance security. This bond typically is set at the maintenance costs estimated in the stormwater plan for the period during which the permit holder has maintenance responsibility and is released when the responsibility for practice maintenance is passed on to another party, via an approved maintenance agreement.*

Section 8. Construction Inspection

8.1. Notice of Construction Commencement

The applicant must notify the **(jurisdictional stormwater authority)** in advance before the commencement of construction. Regular inspections of the stormwater management system

construction shall be conducted by the staff of the **(jurisdictional stormwater authority)** or certified by a professional engineer or their designee who has been approved by the jurisdictional stormwater authority. All inspections shall be documented and written reports prepared that contain the following information:

1. The date and location of the inspection;
2. Whether construction is in compliance with the approved stormwater management plan
3. Variations from the approved construction specifications
4. Any violations that exist

If any violations are found, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. No added work shall proceed until any violations are corrected and all work previously completed has received approval by the **(jurisdictional stormwater authority)**.

8.2. As Built Plans

All applicants are required to submit actual "as built" plans for any stormwater management practices located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer. A final inspection by the **(jurisdictional stormwater authority)** is required before the release of any performance securities can occur.

8.3. Landscaping and Stabilization Requirements

Any area of land from which the natural vegetative cover has been either partially or wholly cleared or removed by development activities shall be revegetated within ten (10) days from the substantial completion of such clearing and construction. The following criteria shall apply to revegetation efforts:

Reseeding must be done with an annual or perennial cover crop accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until such time as the cover crop is established over ninety percent (90%) of the seeded area.

Replanting with native woody and herbaceous vegetation must be accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until the plantings are established and are capable of controlling erosion.

Any area of revegetation must exhibit survival of a minimum of seventy-five percent (75%) of the cover crop throughout the year immediately following revegetation.

Revegetation must be repeated in successive years until the minimum seventy-five percent (75%) survival for one (1) year is achieved.

In addition to the above requirements, a landscaping plan must be submitted with the final design describing the vegetative stabilization and management techniques to be used at a site after construction is completed. This plan will explain not only how the site will be stabilized after construction, but who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect or by the soil conservation district, and must be approved prior to receiving a permit.

Section 9. Maintenance and Repair of Stormwater Facilities

☞ *A model operation and maintenance ordinance for stormwater facilities is also available at the SMRC website. This ordinance goes into greater detail on the elements needed to create an effective stormwater maintenance ordinance. Requirements for inspection are also included in the model.*

9.1. Maintenance Easement

Prior to the issuance of any permit that has a stormwater management facility as one of the requirements of the permit, the applicant or owner of the site must execute a maintenance easement agreement that shall be binding on all subsequent owners of land served by the stormwater management facility. The agreement shall provide for access to the facility at reasonable times for periodic inspection by the **(jurisdictional stormwater authority)**, or their contractor or agent, and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this ordinance. The easement agreement shall be recorded by the **(jurisdictional stormwater authority)** in the land records.

9.2. Maintenance Covenants

Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance covenant that must be approved by the **(jurisdictional stormwater authority)** and recorded into the land record prior to final plan approval. As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater management facility. The covenant shall also include plans for periodic inspections to ensure proper performance of the facility between scheduled cleanouts.

The **(jurisdictional stormwater authority)**, in lieu of an maintenance covenant, may accept dedication of any existing or future stormwater management facility for maintenance, provided such facility meets all the requirements of this chapter and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

9.3. Requirements for Maintenance Covenants

All stormwater management facilities must undergo, at the minimum, an annual inspection to document maintenance and repair needs and ensure compliance with the requirements of this ordinance and accomplishment of its purposes. These needs may include; removal of silt, litter and other debris from all catch basins, inlets and drainage pipes, grass cutting and vegetation removal, and necessary replacement of landscape vegetation. Any maintenance needs found must be addressed in a timely manner, as determined by the **(jurisdictional stormwater authority)**, and the inspection and maintenance requirement may be increased as deemed necessary to ensure proper functioning of the stormwater management facility.

9.4. Inspection of Stormwater Facilities

Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other stormwater treatment practices.

9.5. Right-of-Entry for Inspection

When any new drainage control facility is installed on private property, or when any new connection is made between private property and a public drainage control system, sanitary sewer or combined sewer, the property owner shall grant to the **(jurisdictional stormwater authority)** the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this ordinance is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this ordinance.

9.6. Records of Installation and Maintenance Activities.

Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least ___ years. These records shall be made available to the (jurisdictional stormwater authority) during inspection of the facility and at other reasonable times upon request.

9.7 Failure to Maintain Practices

If a responsible party fails or refuses to meet the requirements of the maintenance covenant, the **(jurisdictional stormwater authority)**, after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition. In the event that the stormwater management facility becomes a danger to public safety or public health, the **(jurisdictional stormwater authority)** shall notify the party responsible for maintenance of the stormwater management facility in writing. Upon receipt of that notice, the responsible person shall have ___ days to effect maintenance and repair of the facility in an approved manner. After proper notice, the **(jurisdictional stormwater authority)** may assess the owner(s) of the facility for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes by the county.

Section 10. Enforcement and Penalties.

10.1. Violations

Any development activity that is commenced or is conducted contrary to this Ordinance, may be restrained by injunction or otherwise abated in a manner provided by law.

10.2. Notice of Violation.

When the **(jurisdictional stormwater authority)** determines that an activity is not being carried out in accordance with the requirements of this Ordinance, it shall issue a written notice of violation to the owner of the property. The notice of violation shall contain :

- (1) the name and address of the owner or applicant;
- (2) the address when available or a description of the building, structure or land upon which the violation is occurring;
- (3) a statement specifying the nature of the violation;
- (4) a description of the remedial measures necessary to bring the development activity into compliance with this Ordinance and a time schedule for the completion of such remedial action;
- (5) a statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;
- (6) a statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within fifteen (15) days of service of notice of violation.

10.3. Stop Work Orders

Persons receiving a notice of violation will be required to halt all construction activities. This “stop work order” will be in effect until the **(jurisdictional stormwater authority)** confirms that the development activity is in compliance and the violation has been satisfactorily addressed. Failure to address a notice of violation in a timely manner can result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this ordinance.

10.4. Civil and Criminal Penalties

In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this Ordinance shall be punished by a fine of not less than Dollars (\$xx) or by imprisonment for a period not to exceed___ (xx) days, or both such fine and imprisonment. Such person shall be guilty of a separate offense for each day during which the violation occurs or continues.

10.4. Restoration of lands

Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the **(jurisdictional stormwater authority)** may take necessary corrective action, the cost of which shall become a lien upon the property until paid.

10.5. Holds on Occupation Permits

Occupation permits will not be granted until a corrections to all stormwater practices have been made and accepted by the **(jurisdictional stormwater authority)**.

Approved by: _____ Date _____

References

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APPENDIX H
STORM WATER BEST MANAGEMENT PRACTICES (BMPs)
OPERATION & MAINTENANCE GUIDELINES

STORMWATER BEST MANAGEMENT PRACTICES (BMPs) OPERATION AND MAINTENANCE GUIDELINES

Stormwater treatment controls should be routinely inspected and maintained to ensure that the controls are in proper working condition and operating as designed. Operation and maintenance (O&M) guidelines for common stormwater Best Management Practices (BMPs) are summarized below. Detailed maintenance requirements for specific stormwater treatment BMPs can be found in the publication "Urban Runoff Quality Management" (Water Environment Federation and American Society of Civil Engineers, 1998) and the references listed therein.

General O&M requirements for stormwater treatment controls include

Inspections: Inspections should be performed at regular intervals to ensure proper operation of stormwater BMPs. Inspections should be conducted at least annually, with additional inspections following large storm events, especially storm events that exceed the design storm for the system. Inspections should include a comprehensive visual check for evidence of the following:

- Accumulation of sediment or debris at inlet and outlet structures
- Erosion, settlement, or slope failure
- Clogging or buildup of fines on infiltration surfaces
- Vegetative stress and appropriate water levels for emergent vegetation

Routine Maintenance: Routine maintenance should be performed following inspections to ensure proper BMP operation and aesthetics. Routine maintenance should include:

- Debris and litter removal
- Silt and sediment removal
- Clearing of vegetation around flow control devices
- Maintenance and mowing of healthy vegetative cover for infiltration/filtration BMPs

Nonroutine Maintenance: Nonroutine maintenance refers to corrective measures taken to repair or rehabilitate stormwater controls to proper working condition. Nonroutine maintenance is performed as needed, typically in response to problems detected during routine maintenance and inspections, and can include:

- Erosion and structural repair
- Sediment removal and disposal
- Nuisance control (odors, mosquitoes, weeds, excessive litter)

Recommended O&M practices for specific classes of stormwater BMPs are summarized below:

1) Vegetated Swales and Filter Strips

Inspect biofilters annually and after heavy rainfall.

- Damage to vegetation by foot or vehicular traffic
- Gully erosion and evidence of concentrated bypass flows around swale/strip
- Reduction in vegetation density

Keep biofilters free of lawn debris and pet waste.

Keep inlet flow spreaders even and free of debris.

Maintain dense grass cover through periodic mowing, spot reseeding, and weed control.

Do not mow grass too close to the ground or over-apply fertilizers and pesticides.

Mow vegetation to a height above the maximum flow depth.

At end of growing season, vegetation should be at least 2 inches above the design water depth.

Remove and properly dispose of grass cuttings.

Remove sediment with a flat-bottomed shovel.

Re-seed damaged areas and cover with erosion control fabric.

2) Infiltration Trenches

Inspect trenches several times in the first few months of operation, and then annually thereafter.

If possible, conduct inspections after large storms.

Check for surface water ponding or clogging.

Periodically check pretreatment inlets of underground trenches and clean out when sediment depletes more than 10% of available capacity.

Prune or trim adjacent trees to prevent leaves from clogging the trench.

Rehabilitate trench after it becomes clogged, typically after 10 to 15 years.

3) Infiltration Basins

Inspect after major storm events in the first few months after construction. Check for:

- Standing water after 48 to 72 hours following a storm
- Upland sediment erosion
- Low spots

Inspect basin annually thereafter. Check for:

- Differential settlement, cracking, erosion, or leakage through the embankment
- Condition of the riprap in the inlet and outlet channels
- Sediment accumulation in the basin

Mow the buffer, side-slopes, and basin floor at least twice a year to discourage woody growth and control weeds.

Mow dry ponds more frequently in residential areas adjacent to residences.

Remove all litter and debris during each mowing operation.

Immediately replace/revegetate eroding or barren areas.

Annual or semi-annual tilling may be required for basins located on marginally permeable soils.

Deep tilling, regrading, and leveling typically required every 5 to 10 years.

Carefully remove the top layer of accumulated sediment after the basin has thoroughly dried out, as necessary.

4) Media Filters

Inspect semiannually and after major storm events.

Remove sediment and floatables from the:

- settling basin when 4 inches of sediment accumulates
- filter when 0.1 inches accumulates or when there is standing water over the filter 40 hours after a storm

Clean the filter surfaces twice per year by raking off dried sediment

5) Extended Detention (Dry) Basins/Retention (Wet) Ponds

Mow the upper stage, side-slopes, embankment and emergency spillway at least twice a year to discourage woody growth and control weeds.

Mow ponds more frequently in residential areas adjacent to residences.

Inspect ponds annually. If possible inspections should be conducted during wet weather.

Regular inspections of the following components should be conducted:

- Check extended detention control device for clogging
- Check upper stage pilot channel for signs of erosion
- Check the pond's bed and banks for signs of erosion
- Check the condition of the emergency spillway
- Check for accumulation of sediment around the riser

Remove accumulated debris and litter from around the extended detention control device.

Regrade and replant vegetation to correct problems with pond side-slopes, emergency spillway, and embankment.

Reduce potential nuisance conditions (i.e., odors, mosquitoes, weeds, and litter).

Remove accumulated sediment from the lower stage of the pond every 5 to 10 years, on average.

6) Constructed Wetlands

Inspect quarterly in year 1, semiannually in years 2 and 3, and annually thereafter.

Conduct inspections with the as-built pondscaping plans in hand for:

- Wetland plant species distribution/survival
- Sediment accumulation
- Water elevations
- Condition of the outlet

Clean out accumulated sediments in the forebay every 3 to 5 years. Conduct cleanouts after draining the forebay.

Mow the maintenance access, bench, and embankment twice a year to prevent woody growth.

Replant or adjust plant types depending on water levels and operating conditions.
Remove potential nuisance plant species.

7) Oil/Water Separators

Inspect monthly during the wet season.
Clean several times per year.
Always clean before the start of the wet season.
Properly dispose of removed oil.

APPENDIX I
NEW DEVELOPMENT INSPECTION FORM

NEW DEVELOPMENT INSPECTION FORM

Project: _____

BMP: _____

Location: _____

INSTALLATION	MAINTENANCE			
Date Installed: _____	Inspected By:	Date Inspected	Maintenance Satisfactory?	If No, Correction Action Needed
Date Inspected: _____	1) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Inspected By: _____	2) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Installation Satisfactory?	3) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	4) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
If No, Corrective Actions Needed	5) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____

BMP: _____

Location: _____

INSTALLATION	MAINTENANCE			
Date Installed: _____	Inspected By:	Date Inspected	Maintenance Satisfactory?	If No, Correction Action Needed
Date Inspected: _____	1) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Inspected By: _____	2) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Installation Satisfactory?	3) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	4) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
If No, Corrective Actions Needed	5) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____

BMP: _____

Location: _____

INSTALLATION	MAINTENANCE			
Date Installed: _____	Inspected By:	Date Inspected	Maintenance Satisfactory?	If No, Correction Action Needed
Date Inspected: _____	1) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Inspected By: _____	2) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Installation Satisfactory?	3) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	4) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
If No, Corrective Actions Needed	5) _____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____

APPENDIX J

POLLUTION PREVENTION/GOOD HOUSEKEEPING



CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

Guideline for Municipal Management Practices for the Reuse of Road Sand Sweepings

Purpose: These guidelines have been developed to assist municipalities in managing the use of road sand sweepings. The goal is to use common sense practices to minimize risk to water resources. The recommended guidelines should aid in the prevention of the inadvertent filling of wetlands, the sedimentation of surface water resources caused by erosion at an unstable fill site, and the potential contamination of potable water supply wells.

Nature of Material: Road sand collected in the spring may contain residual salt and other materials associated with stormwater runoff from streets. It is not as clean as virgin earth materials and should be handled with a certain degree of care.

Planning Considerations: Perhaps the most critical aspect of management is the careful and thoughtful selection of the location of sites for storage and disposal. Municipalities should carefully consider certain factors in determining storage areas and disposal (utilization as fill) locations including:

- Proximity to wetlands and watercourses.
- Proximity to wells.
- Ability to have reasonable all-weather access to the site (storage locations only).

It may be that the most efficient way for a municipality to plan for management of this material is to create a comprehensive municipal plan for the management of all municipally generated construction, maintenance and demolition debris, including road sweepings. Municipal officials are further advised to develop a plan for the disposition of road sand sweepings to optimize ability to reuse the material as aggregate, and to have enough time to provide for the coordination of decisions to place fill at suitable locations. It is recommended that road sand sweepings be collected in the spring.

Temporary Storage Site: A temporary storage site needs to be located to facilitate the management and subsequent disposal of the material. Appropriate locations for temporary storage is:

- a. in an empty salt storage shed.
- b. at a municipal site where sand and salt are normally handled.
- c. elsewhere at a site that meets the fill location guidelines below.
- d. at an inactive landfill, preferably on an unfilled area.
- e. an open field where drainage will flow in an overland pattern which allows runoff to flow through grass or natural vegetation to encourage soil and debris removal.

Reuse as construction aggregate: The Department promotes reuse of road sand sweepings by blending with crushed stone or reclaimed aggregate in the production of processed gravel for use as fill material used below an impervious surface at a construction site (e.g. beneath roads, and parking lots). The Department recommends this use over others to the extent practicable.

Use as fill: Use of sweepings as fill material, although generally less desirable, may be necessary to reuse all the sand sweepings collected by a municipality. This practice should be coordinated with the municipal inland wetland enforcement officer, the town sanitation officer, and other appropriate officials

(local health department, water department or water company) to determine approximate locations of potable water supply wells and minimize risks to surface water resources. Fill should be placed only with the consent and permits required under applicable regulatory programs but in general, be located as follows:

- a. more than 100 feet from any wetland or watercourse
- b. more than 100 feet from any private potable water supply well
- c. more than 250 feet from any public potable water supply well
- d. placed above the seasonal high ground water table

Quantity guidelines: Because road sand may contain residual salt and other materials, it is desirable to limit disposal to less than 100 cubic yards at any location unless the municipality maintains permanent records of any larger fill location. This guideline does not apply when the material is incorporated in a pavement base or sub-base.

Erosion controls: Road sand sweeping fills should be covered with a minimum of 3" of top soil, and stabilized using appropriate erosion and sediment control techniques as described in "Guidelines for Soil Erosion and Sediment Control, Connecticut", by the Department of Environmental Protection and the Connecticut Council on Soil and Water Conservation.

Department Contacts:

Water Management Bureau: (860) 424-3704

Waste Management Bureau: Frank Gagliardo (860) 424-3130 (e-mail frank.gagliardo@po.state.ct.us)

Note: A list of companies that engage in aggregate recycling is located under the Business Recycling Program Fact Sheet entitled [Construction and Demolition Aggregate Recycling Facilities](#).

[Bureau of Water Management Information](#)

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CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

Best Management Practices for Disposal of Snow Accumulations from Roadways and Parking Lots

Purpose: These guidelines have been developed to clarify DEP recommendations to state and municipal officials, and others regarding the removal and disposal of snow accumulations from roadways and parking lots. For purposes of this guidance snow accumulations refers to snow banks and snowpiles that are removed by front-end loader or by loading on trucks for disposal. This guidance does not apply to normal snow plowing operations that must, inevitably, discharge some snow into wetlands and watercourses.

Problem: Current road maintenance activities include removal of snow accumulations from bridges, roads and parking areas for the purpose of providing more space for subsequent snow storms and for ease of travel and parking. Sometimes this snow is moved by truck or with a front-end loader and deposited directly into surface waters of the state including streams, wetlands and Long Island Sound. This practice is not recommended due to the presence of dirt, salt, litter and other debris, which are routinely mixed in the accumulated snow.

Under normal conditions of snowmelt, the majority of these contaminants remain on or next to the paved surface or may be captured in stormwater catch basins. These contaminants can then be swept from streets and bridges or vacuumed from catch basin sumps. However, when accumulated snow is collected and dumped into surface waters, this mixture of snow, sand and debris may smother aquatic life in the bottom of streams and rivers and degrade the aesthetics of the surface water with silt plumes and litter. Large quantities of snow (and the sand and debris) may also cause blockage of storm drainage systems, resulting in increased chance for localized flooding.

Recommended Management Practice: Snow accumulations removed from roadways, bridges, and parking lots should be placed in upland areas only, where sand and other debris will remain after snowmelt for later removal. Care must be exercised not to deposit snow in the following areas:

- freshwater or tidal wetlands or in areas immediately adjacent to such areas where sand and debris may be flushed during rainstorms;
- on top of storm drain catch basins;
- in storm drainage swales;
- on stream or river banks which slope toward the water, where sand and debris can get into the watercourse; and,
- in areas immediately adjacent (within 75 feet) of private or public drinking water well supplies (due to the possible presence of road salt).

Implementation: The Department recognizes that there is a considerable need for flexibility in implementation of this policy. There is no intent to interfere with snow plowing operations. Where trucking and snow dumping operations are undertaken the Department recommends these guidelines be followed.

Information: For further information please call the Bureau of Water Management, at (860) 424-3020.

[Bureau of Water Management Information](#)

APPENDIX K

STORM WATER MANAGEMENT PLAN AND SCHEDULE

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

This table identifies how the Plan complies with the General Permit (DEP-PED-GP021) requirements for the six minimum best management practices. While this report identifies many alternatives, the items that the Town has committed to are specified in this table.

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.h	Storm water monitoring to be conducted annually from at least two (2) outfalls for each of three (3) CT DEP chosen land use areas (i.e., industrial, commercial, residential). In total six (6) outfalls monitored per year. Town may submit an alternate sampling plan to CT DEP for approval (i.e., in-stream monitoring).	DPW, Storm Water Committee, Mayor	Monitoring completed. Results compiled. Submitted to CT DEP as part of Annual Report.	Monitoring completed by September, results compiled by November, make available to public in draft report by December 1 of each permit year (submit with Annual Report)	As discussed in Section 6.4 of the SWMPP.
6.i	Submit Annual Report to CT DEP	Mayor	Annual Report completed	January 1 of every permit year (commencing 2005)	As discussed in Section 11.2 of the SWMPP. Annual Report Template included in Appendix M .
1.	Public Education and Outreach				
6.a.1.A.i	Distribute Storm Water Awareness Package (Neighbor to Neighbor)	Storm Water Committee, DPW	Materials compiled. Information distributed. Number of packages distributed (distributed with Recycle Bins, copies at Town Hall and Library).	Start distributing media by: 12/2005	As discussed in Section 4.4 of the SWMPP. Example educational materials for potential use included in Appendix B .
6.a.1	Distribute storm water flyer.	Storm Water Committee	Material selected. Audience identified.	Material developed, audience identified by: 6/2006 Distributed by: 12/2006	As discussed in Section 4.0 of the SWMPP. Example educational materials for potential use included in Appendix B .
6.a.1 and 6.a.2	Continue school programs and meet with local school officials annually to identify past activities and upcoming curriculum.	Storm Water Committee, Board of Education	Annual meeting.	Meeting held by October each permit year to compile information for annual report	Continue educational programs as discussed in Section 4.2 of the SWMPP.
6.a.1 and 6.a.2	Make the Storm Water Management Plan available to the General Public	Storm Water Committee	Make plan available at Town Hall, Library and in schools. Consider putting the plan on the Town's web site.	Make copy of SWMPP available at Town Hall, Library, Schools, Town website by: 9/2004	
6.a.1 and 6.a.2	Develop strategies to inform public (visitors, employees, residents) on how to become involved in storm water program. Develop strategy for topics and media to be used.	Storm Water Committee	Strategies decided, information packaged for chosen media(s). Information distributed to the public.	Strategy developed by: 12/2006 and implemented in following years.	Opportunities are discussed in Section 5.2 of the SWMPP.
6.a.1 and 6.a.2	Develop strategies to use partnerships with other governmental and non-governmental entities.	Storm Water Committee	Meeting(s) held with other community groups (governmental and non-governmental). Strategy developed.	Strategy developed by: 12/2006 and implemented in following years	Potential partners discussed in Section 5.2 of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.i	Evaluate the success of this minimum measure.	Mayor, DPW, Storm Water Committee	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
2.	Public Participation				
6.a.2	SWMPP was developed by a Storm Water Committee that included DPW, School, Fire, Police, Mayor's Office, Planning and Zoning, and Inland Wetland representatives. Plan was also made available for public comment and public noticed June 10, 2004.	Storm Water Committee	SWMPP available for review	SWMPP available for review prior to submission to CT DEP	
6.a.2	Develop local Storm Water Committee to continue to develop and implement the Plan.	Mayor	Committee developed. Meetings conducted.	Developed since 5/2004 (for first annual report)	
6.a.2	Conduct annual Storm Water Plan meeting for the public.	Storm Water Committee	Conduct annual meeting.	Meeting conducted prior to January of every permit year (commencing 2005).	
6.a.2	Develop a storm drain stenciling program.	Storm Water Committee, DPW	Areas/Basins identified. Volunteers organized, basins stenciled.	Organize program by: 10/2005 Begin stenciling by: 4/2006	
6.a.2	Sponsor and support cleanup projects.	Storm Water Committee, DPW	Program developed, volunteers organized	Organize program by: 3/2006 Begin cleanups by: 8/2006	
6.a.2.A.i	Provide adequate public notice prior to submitting the annual report. Allow the public to comment and review report.	Mayor, Storm Water Committee	Annual Report made available at a specified community location. Public meeting held annually.	Draft available December 1 of each permit year. Public Meeting scheduled prior to January submission (commencing 2005).	
6.i	Consider amending the draft annual report based on significant comments during public notice.	Mayor, Storm Water Committee	Comments reviewed, report amended (if necessary)	As needed	
6.i	Evaluate the success of this minimum measure.	Mayor, Storm Water Committee, DPW	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
3	Illicit Discharge Detection and Elimination				
6.a.3.A.i	Develop and introduce an ordinance or other regulatory mechanism to effectively prohibit and enforce unauthorized non storm water discharges into the system.	Mayor, Town Attorney, Town Council	Draft language and legal review. Conduct informational meetings as necessary.	Developed by: 6/2005	As discussed in Section 6.3 and Sections 6.4 of the SWMPP. Potential model ordinances are included in Appendix C .
6.a.3.A.i	Adopt an ordinance or other regulatory mechanism to effectively prohibit and enforce unauthorized non storm water discharges into the system.	Mayor, Town Council	Submit and schedule for adoption. Regulatory mechanism in place.	Adopted by: 12/2006	As discussed in Section 6.3 and Sections 6.4 of the SWMPP. Potential model ordinances are included in Appendix C .
6.a.3.A.ii	Public education and municipal employee training programs will inform about hazards associated with illegal discharges and improper disposal of waste. Coordinate with Minimum Measure #1 and 6.	Storm Water Committee	Ensure that educational materials developed include illicit discharge awareness. Materials developed and distributed.	Materials selected by: 6/2007 Distribution commenced by: 12/2007	As discussed in Section 4.0 and Section 6.4 of the SWMPP.
6.a.3.A.iii	Develop an outfall map including locations of all outfalls with a diameter of 15" or greater in the Town.	DPW	Mapping completed, consider integration of asset management system. Include names, locations, and Surface Water Quality Classification of all receiving waters.	Developed by: 12/2007 Conduct initial outfall surveys for illicit discharges	As discussed in Section 6.2 and Section 6.4 of the SWMPP.
6.a.3.B.i	Develop an outfall map including locations of all outfalls with a diameter of 15" or greater and names of receiving waters in the urbanized areas.	DPW	Mapping completed, consider integration of asset management system. Include names, locations, and Surface Water Quality Classification of all receiving waters.	Developed by: 12/2006 Conduct initial outfall surveys for illicit discharges	As discussed in Section 6.2 and Section 6.4 of the SWMPP.
6.a.3.B.i and 6.a.3.B.ii	Watershed area that drains to sensitive waters, endangered species habitats, and the downtown area will be first priority.	DPW	Investigations identified, prioritized, conducted. Suspected illicit connections investigated. Source identified and scheduled for removal. Enforcement actions taken or referred to other entity such as police or CT DEP.	Program implemented by: 12/2006	As discussed in Section 6.4 of the SWMPP.
6.a.3.B.ii	Develop an outfall map including locations of all outfalls with a diameter of 12" or greater and names of receiving waters in the urbanized areas.	DPW	Mapping completed, consider integration of asset management system. Identify names, locations, and Surface Water Quality Classification of all receiving waters.	Developed by: 12/2008 Conduct initial outfall surveys for illicit discharges	As discussed in Section 6.2 and Section 6.4 of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.a.3.B.iii	Develop a procedure to respond to complaints associated with illicit discharges. Complaints should be directed to the DPW where these complaints will be logged. DPW will review these complaints upon receipt and determine the appropriate action to take. Develop compliance response system.	DPW	Number of complaints logged and responded to. Track for Annual Report.	Complaint procedures implemented by: 12/2006.	
6.a.3.B.iii	Procedures for tracing sources of illicit discharges are detailed in <u>Section 6.4</u> of the SWMPP.	DPW, Ches-Pro-Cot Health District	Number of illicit connections detected.	Procedures completed.	As discussed in <u>Section 6.4</u> of the SWMPP.
6.a.3.B.iv	The process for detecting and removing future illicit discharges will be defined by the mechanism that will be used to prohibit and enforce illicit discharges.	DPW	Sources identified and removed.	Adopted by: 12/2006	The regulatory mechanism will define this process which must be approved as part of its adoption.
6.i	The illicit discharge and detection program will be evaluated and assessed annually prior to the preparation of the Annual Report. This will consist of reviewing the areas evaluated, findings, whether changes in procedures and priorities need to be made. A summary of this evaluation will be included in the Annual Report.	DPW	Completion of annual review.	January of every permit year (commencing 2005).	
6.i	All actions taken to detect and address illicit discharges will be recorded in both field notes as well as on outfall mapping prepared for 6.a.3.	DPW	Submittal of findings in Annual Report.	January of every permit year (commencing 2005).	
6.i	Evaluate the success of this minimum measure.	Mayor, DPW, Storm Water Committee	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
4	Construction Site Runoff Control				
6.a.4.A.i	Develop and introduce an ordinance or other regulatory mechanism to require sediment and erosion control and control of other wastes at construction sites. <u>Section 7.3</u> and <u>Section 7.4</u> of the SWMPP identifies alternatives for the Town to accomplish this. The <u>Connecticut Guidelines for Soil Erosion and Sediment Control</u> (as amended) will serve as the minimum standard.	Mayor, Town Attorney, Town Council	Draft language and legal review. Conduct informational meetings as necessary.	Developed and introduced by: 12/2005	
6.a.4.A.i	Adopt an ordinance or other regulatory mechanism to require sediment and erosion control and control of other wastes at construction sites.	Mayor, Town Council	Submit and schedule for vote at Town Meeting. Regulatory mechanism in place.	Adopted by: 12/2006	As discussed in <u>Section 7.3</u> of the SWMPP.
6.a.4.A.i	Issue and track permits for all construction projects resulting in land disturbance of greater than 1 acre in Town to ensure compliance with erosion and sediment control ordinance. Permit issuance procedures will be defined in the ordinance. Current tracking procedures will be reviewed and amended as necessary to comply with this program.	Building Official, Planning and Zoning, Inland Wetland Agency, Land Use Inspector DPW	Review current procedures. Improved procedure developed and implemented. Number of permits issued and tracked.	Developed by: 12/2005	As discussed in <u>Section 7.2</u> and <u>Section 7.3</u> of the SWMPP.
6.a.4.A.i.d	Procedures for reviewing plans and SWPPPs for construction projects resulting in land disturbance of 1-5 acres, not reviewed by other State programs will be defined based on the ordinance developed to comply with 6.a.4.A.i.	DPW, Mayor, Planning and Zoning, Storm Water Committee Land Use Inspector	Ordinance developed. Number of plans and SWPPPs reviewed.	Develop by: 12/2005 100% reviewed by: 12/2007	As discussed in <u>Section 8.3</u> and <u>Section 8.4</u> of the SWMPP
6.a.4.A.i.e	Public comments or complaints regarding new development projects and construction runoff related impacts will be directed to Planning and Zoning where these complaints will be logged. Planning and Zoning will review these complaints upon receipt and determine the appropriate action to take. Develop procedures for receipt and consideration of information submitted by the public.	Planning and Zoning, Inland Wetland Agency Land Use Inspector	Procedure developed. Number of complaints logged and responded to.	Complaint procedures implemented by: 12/2007.	
6.a.4.A.i.f	Procedures for site inspection and enforcement of erosion and sediment control measures and other measures for control of wastes at construction sites will be defined in the ordinance developed to comply with 6.a.4.A.i.	Inland Wetland Agency, Planning and Zoning, Land Use Inspector	Review current procedures. Improved procedure developed and implemented.	Procedures implemented by: 12/2006	As discussed in <u>Section 7.3</u> and <u>Section 7.4.4</u> of the SWMPP. Sample of contractor self-inspection reports are included in <u>Appendix D</u> .

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.i	Evaluate the success of this minimum measure.	Mayor, Storm Water Committee Planning and Zoning, Inland Wetland Agency Land Use Inspector	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
5	Post-Construction Runoff Control				
6.a.5.A.i	The Town will rely on the <u>Connecticut Stormwater Quality Manual</u> (as amended) as a standard to address storm water runoff from new development and redevelopment projects. At this time, no additional modifications are proposed. The revised manual is soon to be released by CT DEP.	Planning and Zoning	Program developed. Priority areas specified (as necessary).	Program in place by: 12/2006	As discussed in <u>Section 8.0</u> . A model watershed management plan is included in <u>Appendix E</u> .
6.a.5.A.ii	The Town shall identify opportunities for smart growth such as in-fill development, direct growth to identified areas, and protect sensitive areas will be identified. Additionally, non-structural BMPs as described in the <u>Connecticut Stormwater Quality Manual</u> (as amended) will be considered. Public education will include discussion of ways to limit runoff. Consider including information in application packages or at pre-construction meetings.	DPW, Storm Water Committee, Inland Wetland Agency, Planning and Zoning, Town Council	Items developed and distributed.	Materials selected, distribution commenced by 12/2008	As discussed in <u>Section 4.0</u> and <u>Section 8.3</u> .
6.a.5.A.iii	Develop and introduce a regulatory mechanism to address post construction runoff from new development and redevelopment projects. State standards will be included by reference.	Mayor, Town Attorney, Town Council	Draft language and legal review. Conduct informational meetings as necessary.	Developed and introduced by: 12/2005	As discussed in <u>Section 8.2</u> , <u>Section 8.3</u> , and <u>Section 8.4.2</u> . Model ordinance is included in <u>Appendix G</u> .
6.a.5.A.iii	Adopt a regulatory mechanism to address post construction runoff from new development and redevelopment projects.	Mayor, Town Council	Submit and schedule for vote at Town Meeting. Regulatory mechanism in place.	Adopted by: 12/2006	As discussed in <u>Section 8.2</u> , <u>Section 8.3</u> , and <u>Section 8.4.2</u> . Model ordinance is included in <u>Appendix G</u> .
6.a.5.A.iv	Adopt a regulatory mechanism with language and enforceable mechanism requiring long term operation and maintenance of post-construction runoff controls. Regulatory mechanism shall include language to provide DPW authority to ensure proper operation and maintenance of all BMPs tributary to the Town's storm sewer system. Procedures will be developed as part of the development of new ordinances as described in 6.a.5.A.i.	Mayor, Town Council	Ordinance or regulation developed. Submit and schedule for vote at Town Meeting. Voted and adopted.	Adopted by: 12/2006	As discussed in <u>Section 8.3</u> and <u>Section 8.4.3</u> . Suggested BMP operation and maintenance guidelines are included in <u>Appendix H</u> .
6.i	Evaluate the success of this minimum measure.	Storm Water Committee Planning and Zoning, Inland Wetland Agency Land Use Inspector	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6	Pollution Prevention and Good Housekeeping in Municipal Operations				
6.a.6.A	Identify and list locations and description of all structural BMPs owned or operated by the MS4.	DPW	Number of structures identified.	Initial list: 12/2006 Update: Included in annual report	As discussed in <u>Section 9.2.2</u> of the SWMPP.
6.a.6.A	Operation and maintenance and good housekeeping practices and BMPs for municipal operations have been identified in <u>Section 9.0</u> .	DPW, Storm Water Committee	Continue to implement	Implementation by: 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.6.A.i	Develop an operation and maintenance program that includes training of municipal employees and contractors regarding prevention and reduction of pollutant runoff from municipal operations. Coordinate with 6.a.6.A.ii.	DPW, Storm Water Committee	Formalize existing programs and practices. Training completed. Educational materials distributed.	Procedures developed by: 12/2006	Operations under MS4s legal control that have the potential to introduce pollutants into the storm water system are addressed in <u>Section 9.0</u> . As discussed in <u>Section 9.6</u> of the SWMPP
6.a.6.A.ii	Incorporate storm water awareness training into existing training for maintenance staff, equipment operators, and mechanics (Health & Safety, Right to Know).	DPW, Mayor	Training completed. Educational materials distributed. Maintain consolidated list of trainings as well as in individual personal files.	Procedures developed by 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.6.A.ii	Develop procedures for implementing proper erosion and sediment and water quality controls for all construction projects undertaken by the Town.	DPW, Mayor	Procedures developed	Procedures developed by: 12/2007	
6.a.6.A.iii	Formalize current street and road sweeping program. Town will continue to sweep all streets once per year.	DPW	Maintain records of curb-miles swept, approximate volume of material collected.	Formalized by: 12/2006 Annually commencing 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.6.A.iv	Formalize procedures for inspections, cleaning and repair of storm water structures and catch basins once per year. The Town is already conducting a portion of these tasks. Maintain records of all inspections and corrective actions required and completed. During these inspections, odors or flow and any other observations will be noted and reported for the purposes of determining whether illicit discharges should be investigated discharging to those structures.	DPW	Identify the structures tributary to the system. Conduct a catch basin sediment accumulation pilot program. Establish a routine inspection and maintenance program. Maintain records of inspections conducted, number of structures/catch basins cleaned, approximate volume of material collected. Number of corrective measures required and completed.	Developed by: 12/2006	As discussed in <u>Section 9.6</u> of the SWMPP.
6.a.5.A.v	Develop a program to evaluate and if necessary prioritize conveyances, structures, and outfalls in the MS4 for repairing, retrofitting, or upgrading. List planned capital improvements in the Annual Report.	DPW, Mayor, Storm Water Committee	Meeting held to discuss municipality's needs. Improvements assessed and listed.	January of every permit year (commencing 2005)	

EXECUTIVE SUMMARY
STORM WATER MANAGEMENT PROGRAM PLAN SUMMARY AND SCHEDULE
TOWN OF PROSPECT
Prospect, Connecticut

Permit Reference	Minimum Control Measure Best Management Practice (BMP) Description	Potential Responsible Party/Department	Measurable Goal	Proposed Schedule	Comments
6.a.6.B.i	Develop a program to evaluate and prioritize those streets that may require sweeping more than once a year.	DPW, Storm Water Committee		Developed by: 12/2006 Implemented by: 12/2007	
6.i	Evaluate the success of this minimum measure.	DPW, Mayor, Storm Water Committee	Annual Report completed	Begin data gathering October, draft report November, make plan available to public by December 1 of each permit year (commencing 2005)	As discussed in <u>Section 11.0</u> of the SWMPP.

APPENDIX L
ANNUAL REPORT TEMPLATE

**STORM WATER MANAGEMENT
ANNUAL REPORT**

NAME OF CLIENT
City, State

DATE

**STORM WATER MANAGEMENT PROGRAM PLAN
ANNUAL REPORT
Client Name**

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**STORM WATER MANAGEMENT PROGRAM PLAN
ANNUAL REPORT**

Client Name

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2.3 Workshops/Meetings Attended

2.4 Modifications to Plan

2.5 Activities Scheduled for Next Year

3.0 PUBLIC PARTICIPATION

3.1 Public Meetings Conducted

3.2 Presentations Given

3.3 Notices Published

Appendix B examples

3.4 Feed Back - Letters/Comments Received

3.5 Website

3.6 Modifications to Plan

3.7 Activities Planned for Next Year

4.0 ILLICIT DISCHARGE DETECTION/ELIMINATION

4.1 Illicit Discharge Investigation Activities

Location	Type	Date Identified	Identified By	Estimated Flow	Scheduled for Repair
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4.2 Illicit Discharge Removal Activities

Location	Type	Date Removed	Removed By	Cost
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4.3 Modifications to Plan

4.4 Planned for Next Year

5.0 CONSTRUCTION SITE RUNOFF CONTROLS

5.1 Construction Plans Reviewed

5.2 Construction Activities Commenced

5.3 Construction Sites Inspected

5.4 Modifications to Plans

5.5 Activities Planned for Next Year

Name	Site	Type	Date Reviewed	Date Commenced	Date Inspected
------	------	------	---------------	----------------	----------------

6.0 POST CONSTRUCTION STORM WATER MANAGEMENT

6.1 Structures Installed

6.2 Structures Inspected

6.3 Modifications to Plan

6.4 Activities Planned Next Year

Project	Site	Type Structure	Date Installed	Date Inspected
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7.0 POLLUTION PREVENTION/GOOD HOUSEKEEPING

7.1 Employee Training Conducted

7.2 Street Sweeping

Curb miles swept, # material removed

7.3 Snow Removal

7.4 Catch Basin Cleaning

cleaned, # material removed

7.5 Preventative Maintenance Activities

Work order tracking

7.6 Complaint Responses

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**APPENDIX M
CT DEP GENERAL PERMIT**



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT
PERMITTING, ENFORCEMENT AND REMEDIATION DIVISION
860-424-3018

A stylized, woodcut-style illustration of a city skyline with various buildings and a bridge. In the foreground, there is a body of water with a boat and some reeds or plants. The illustration is rendered in a light gray tone.

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Issuance Date: January 9, 2004

Printed on recycled paper

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

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General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Section 1. Authority

This general permit is issued under the authority of Section 22a-430b of the Connecticut General Statutes.

Section 2. Definitions

The definitions of terms used in this general permit shall be the same as the definitions contained in Sections 22a-423 of the Connecticut General Statutes and Section 22a-430-3(a) of the Regulations of Connecticut State Agencies. As used in this general permit, the following definitions shall apply:

“Authorized activity” means any activity authorized under this general permit.

“Best Management Practices (BMP)” means those practices, which reduce pollution and which have been determined by the Commissioner to be acceptable based on, but not limited to, technical, economic, and institutional feasibility.

“Coastal area” means coastal area as defined in Section 22a-94 of the Connecticut General Statutes.

“Coastal waters” means coastal waters as defined in Section 22a-93 of the Connecticut General Statutes.

“Department” means the Department of Environmental Protection.

“Fresh-tidal wetland” means a tidal wetland with an annual average salinity of less than 0.5 parts per thousand.

“Guidelines” means the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, established pursuant to Section 22a-328 of the Connecticut General Statutes.

“High tide line” means high tide line as defined in Section 22a-359(c) of the Connecticut General Statutes.

“Illicit Discharge” means any unpermitted discharge to waters of the state that does not consist entirely of stormwater or uncontaminated ground water except those discharges identified in Section 3(a)(2) of this general permit when such non-stormwater discharges are approved, in writing, by the Commissioner as discharges that are not significant contributors of pollution to a discharge from an identified MS4.

“Individual permit” means a permit issued to a named permittee under Section 22a-430 of the Connecticut General Statutes.

"Inland wetland" means wetlands as that term is defined in Section 22a-38 of the Connecticut General Statutes.

"Municipal separate storm sewer system (MS4)" means conveyances for stormwater, including, but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains owned or operated by any municipality, State agency or Federal agency and discharging directly to surface waters of the state.

"Permittee" means any municipality, that initiates, creates originates or maintains a discharge authorized by this general permit and that has filed a registration pursuant to Section 4 of this permit.

"Point Source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

"Registration" means a registration form filed with the Commissioner pursuant to Section 4 of the general permit.

"Regulated Small MS4" means any municipally-owned or municipally-operated Small MS4 (as defined below) authorized by this general permit including all those located partially or entirely within an Urbanized Area and those additional municipally-owned or municipally-operated Small MS4s located outside an Urbanized Area as may be designated by the Commissioner. (Note: A list of municipalities containing Small MS4s is included in Appendix A of this general permit.)

"Retain or retention" means to permanently hold stormwater runoff on-site with no subsequent point source release.

"Small MS4" means any MS4 that is not already covered by the Phase I MS4 stormwater program including state- and federally-owned systems, such as colleges, universities, prisons, and military bases. (Note: state- and federally-owned MS4s are authorized under separate general permits.)

"Stormwater" means waters consisting of precipitation runoff.

"Tidal wetland" means a wetland as that term is defined in Section 22a-29(2) of the Connecticut General Statutes.

"Urbanized Area (UA)" means the areas of the State of Connecticut so defined by the U.S. Census Bureau for the 2000 census.

"Total Maximum Daily Load (TMDL)" means the maximum capacity of a surface water to assimilate a pollutant as established by the Commissioner including pollutants contributed by point and non-point sources and a margin of safety.

Section 3. Authorization Under This General Permit

(a) Eligible Activities

- (1) The discharge of stormwater from or associated with a Regulated Small MS4 is authorized by this general permit, provided the requirements of subsection (b) of this section are satisfied and the activity is conducted in accordance with the conditions listed in Section 5 of this general permit.
- (2) This permit authorizes the following non-stormwater discharges provided they do not contribute to a violation of water quality standards and such discharges are identified in the Stormwater Management Plan and approved, in writing, by the Commissioner as discharges that are not significant contributors of pollutants to any identified MS4:
 - 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); and
 - 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.

(b) Requirements for Authorization

This general permit authorizes the activity listed in subsection (a) of this section provided:

(1) 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.

(2) 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.

(3) National Historic Preservation Act

Stormwater discharges or implementation of the registrant's stormwater management plan 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.

(4) The stormwater is *not* discharged to a Publicly Owned Treatment Works (POTW) or to ground water except for stormwater infiltration through a designed basin or structure.

(c) ***Registration***

Pursuant to Section 4 of this permit, any municipality that initiates, creates, originates or maintains any discharge of water from a regulated Small MS4 shall submit a registration using forms prescribed and provided by the Commissioner (or a photocopy thereof).

(d) ***Geographic Area***

This general permit applies throughout the State of Connecticut.

(e) ***Effective Date and Expiration Date of this General Permit***

This general permit is effective January 9, 2004 and expires on January 8, 2009.

(f) ***Effective Date of Authorization***

An activity is authorized by this general permit on the date the general permit becomes effective or on the date the authorized activity is initiated.

(g) ***Waiver of Authorization***

A municipality may request a waiver from authorization under this general permit if the population within the Urbanized Area portion of town is less than 1000 people, the discharge from the MS4 within the UA does not exceed a Total Maximum Daily Load (TMDL) allocation or is not otherwise a significant contributor to degradation of water quality and the Commissioner issues such waiver in writing.

Section 4. Registration Requirements

(a) ***Who Must File a Registration***

Any municipality that initiates, creates, originates or maintains a discharge of stormwater from or associated with a regulated Small MS4 shall file with the Commissioner a two-part registration form that meets the requirements of this section of this general permit. Part A of the registration shall be submitted on or before April 9, 2004. Part B of the registration shall be submitted on or before July 9, 2004.

(b) *Scope of Registration*

A registrant shall register on one set of registration forms for all discharges that are operated by the registering municipality. A municipality may not submit more than one registration under this general permit.

(c) *Contents of Registration*

(1) Fees

- (A) The municipal registration fee of \$250.00 shall be submitted with the Part A registration form. No activity shall be authorized by this general permit until the registration fee has been paid in full.
- (B) The registration fee shall be paid by check or money order payable to the **Department of Environmental Protection**.
- (C) The registration fee is non-refundable.

(2) Part A Registration Form

Part A of the registration shall be filed on forms prescribed and provided by the Commissioner and shall include the following:

- (A) Name of the municipality and the name, title, address, and telephone number of the chief elected official or principal executive officer.
- (B) Name, address, and telephone number of the primary contact person for the municipality.
- (C) Name, primary contact, address, and telephone number of any consultant(s) or engineer(s) retained by the municipality to prepare the registration,
- (D) Name of receiving stream(s), watershed(s) or waterbody(s) to which the MS4 discharges.

(3) Part B Registration Form

Part B of the registration shall be filed on forms prescribed and provided by the Commissioner and shall include the following:

- (A) Name of the municipality and the name, title, address, and telephone number of the chief elected official or principal executive officer.
- (B) For each of the Minimum Control Measures in Section 6(a), the following information shall be included:
 - (i) each Best Management Practice (BMP) to be implemented;
 - (ii) the person(s) responsible for implementing each BMP;

- (iii) the date by which each BMP will be implemented;
 - (iv) the measurable goal(s) by which each BMP will be evaluated.
- (C) The signature of the chief elected official or principal executive officer of the municipality or their designee (as specified in RCSA Section 22a-430-3(b)(2)(B) or as acceptable to the Commissioner) and of the individual or individuals responsible for actually preparing the registration, each of whom shall certify in writing as follows:

“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 certify that this permit registration is on complete and accurate forms as prescribed by the Commissioner without alteration of the text.

I also certify under penalty of law that I have read and understand all requirements of the General Permit for the Discharge of Stormwater from a Municipal Separate Storm Sewer System issued on January 9, 2004 and that all requirements for authorization under the general permit are met and that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit for the municipality. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly making false statements.” (See CGS § 53a-157b.)

(d) Availability of Part B Registrations, Annual Reports, and Stormwater Management Plans

- (1) At least thirty days prior to submission of the Part B Registration to the Department, each municipality shall make available for public review and comment a draft copy of the complete Part B Registration. Reasonable efforts to inform the public of this document shall be undertaken by such municipality. Such draft copies shall be made available at the municipality’s main office or at a local library for public inspection and copying consistent with the federal and state Freedom of Information Acts.
- (2) At least thirty days prior to submission of each Annual Report to the Department, each municipality shall make available for public review and comment a draft copy of the complete Annual Report. Reasonable efforts to inform the public of this document shall be undertaken by such municipality. Such draft copies shall be made available at the municipality’s main office or at a local library for public inspection and copying consistent with the federal and state Freedom of Information Acts.

- (3) Draft copies of each Storm Water Management Plan shall be made available for upon request.

(e) *Where to File a Registration*

A registration shall be filed with the Commissioner at the following address:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

(f) *Additional Information*

The Commissioner may issue a written request to require a municipality, state agency or federal agency to submit additional information that the Commissioner reasonably deems necessary to evaluate the consistency of the subject activity with the requirements for authorization under this general permit. A response to the Commissioner's request for additional information shall be submitted to the Department within thirty days of the Commissioner's request.

- (1) A copy of the Stormwater Management Plan shall be made available for review by the general public upon request at a designated town office(s) during regular town business hours.
- (2) The permittee shall make a copy of the Stormwater Management Plan available to the following immediately upon request:
 - (A) the Commissioner (see Section 6(e));
 - (B) in the case of a municipality, state or federal agency adjacent to or interconnected with the permittee's storm sewer system, to the owner or operator of that MS4; and
 - (C) in the case of an MS4 stormwater discharge to a water supply watershed, to the public water supply company.

(g) *Action by Commissioner*

- (1) In the event the Commissioner determines that a Minimum Control Measure or Best Management Practice as identified in the Part B Registration or in the Stormwater Management Plan may not reduce stormwater discharges from a municipal separate storm sewer system to the maximum extent practicable, the Commissioner may allow or require a municipality to resubmit the Part B Registration prior to the Commissioner issuing a notice to obtain an individual permit for a discharge provided the municipality conducts a timely public hearing, after adequate public notice, to investigate what, if any, additional plans, measures or practices are necessary to reduce stormwater discharges to the maximum extent practicable. Any such request to resubmit a Part B Registration shall be in writing, and may be submitted to the Commissioner by the

municipality or by any interested person. Written notice of the Commissioner's decision to allow a municipality to resubmit the Part B Registration shall be provided to the chief elected official or principal executive officer of such municipality and to any other person submitting a written request for such notice.

- (2) The Commissioner may require that a permittee obtain an individual permit for any discharge authorized by this permit in accordance with Section 22a-430b of the Connecticut General Statutes.
- (3) The Commissioner shall disapprove a registration:
 - (A) if the Commissioner finds that the subject activity is ineligible for this general permit, or that the municipality cannot or is unlikely to comply with this general permit; or
 - (B) for any other reason provided by law.
- (4) Disapproval of a registration shall constitute notice to the applicant that the subject activity may not lawfully be conducted or maintained or that the subject activity may not lawfully be conducted or maintained without issuance of an individual permit issued pursuant to Section 22a-430 of the Connecticut General Statutes.
- (5) Disapproval of a registration shall be in writing.

Section 5. Requirements of this General Permit

The permittee shall at all times continue to meet the requirements for authorization set forth in Section 3 of this general permit. In addition, a permittee shall ensure that authorized activities are conducted in accordance with the following conditions:

(a) Conditions Applicable for Certain Discharges

- (1) If the permittee initiates, creates, or originates a discharge of stormwater which is located less than 500 feet from a tidal wetland that is not a fresh-tidal wetland, such discharge shall flow through a system designed to retain the volume of stormwater runoff generated by 1 inch of rainfall on the watershed for that system.
- (2) If the permittee wishes to initiate, create, or originate a discharge of stormwater below the high tide line into coastal, tidal, or navigable waters for which a permit is required under the Structures and Dredging Act in accordance with Section 22a-361(a) of the Connecticut General Statutes or into tidal wetlands for which a permit is required under the Tidal Wetlands Act in accordance with Section 22a-32 of the Connecticut General Statutes, the municipality shall obtain such permit(s) from the Commissioner prior to initiating, creating or originating such discharge.

(b) *Stormwater Management Plan*

The permittee shall develop, implement, and enforce a stormwater management plan designed to reduce the discharge of pollutants from the Small MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. Under this program, the permittee shall prepare a Stormwater Management Plan pursuant to Section 6 of this general permit, which plan shall be completed, and all Minimum Control Measures implemented, by January 8, 2009.

Section 6. Development of Stormwater Management Plan

The Stormwater Management Plan (the Plan) shall address the Minimum Control Measures as indicated in this section. Those measures indicated as required within the Urbanized Area portion of the Regulated Small MS4 shall be implemented, at a minimum, within those areas. At the discretion of the permittee, the Minimum Control Measures required within the Urbanized Areas may also be applied to any MS4 outside of the Urbanized Area. Those measures indicated as required throughout the municipality shall be implemented for all areas of the municipality regardless of Urbanized Area.

(a) *Minimum Control Measures*

For each Minimum Control Measure, the permittee shall: define appropriate BMPs; designate a person(s) and job title responsible for each BMP; define a time line for implementation of each BMP; and define measurable goals for each BMP. The Minimum Control Measures in the Stormwater Management Plan include, but are not limited to:

- (1) Public education and outreach on stormwater impacts.
 - (A) Required throughout the municipality:
 - (i) implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on waterbodies and the steps that the public can take to reduce pollutants in stormwater runoff.
- (2) Public Involvement/Participation.
 - (A) Required throughout the municipality:
 - (i) comply with state and local public notice and Freedom of Information requirements when implementing a public involvement/participation program. Where notice requirements are inconsistent, the notice provisions providing for the most notice and opportunity for public comment shall be followed.
 - (ii) develop a public involvement/participation program that includes the public in developing, implementing, and reviewing your stormwater management plan.

- (3) Illicit discharge detection and elimination.
- (A) Required throughout the municipality:
- (i) implement an ordinance or other regulatory mechanism to effectively prohibit non-stormwater discharges, except as provided in Section 3(a)(2), into the MS4, as well as sanctions to ensure compliance, to the extent allowable under State or local law;
 - (ii) inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste; and
 - (iii) by the end of the third year of the general permit, expand the map required by subsection (B)(i) below to identify on such map all outfalls of 15" or greater where such outfalls are located anywhere within each municipality;
- (B) Required within the Urbanized Area:
- (i) by the end of the second year of the general permit, develop a map or series of maps at a minimum scale of 1"=2000' and maximum scale of 1"=100' showing all stormwater discharges from a pipe or conduit with a diameter of 15" or greater (or equivalent cross-sectional area) owned or operated by the municipality. For each discharge the following information shall be included:
 - a. Type, material, and size of conveyance, outfall or channelized flow (e.g. 24" concrete pipe);
 - b. The name and Surface Water Quality Classification of the immediate surface waterbody or wetland to which the stormwater runoff discharges;
 - c. If the outfall does not discharge directly to a named waterbody, the name of the nearest named waterbody to which the outfall eventually discharges;
 - d. The name of the watershed in which the discharge is located.
 - (ii) By the end of the fourth year of the general permit, expand the map required by subsection (B)(i) above to identify on the map all outfalls of 12" or greater that are located within an urbanized area;
 - (iii) develop, implement and enforce a program to detect and eliminate existing illicit discharges, as defined in 40CFR 122.26(b)(2), into the MS4; and

- (iv) develop and implement a plan to detect and address future non-stormwater discharges, including illegal dumping, to the MS4.
- (4) Construction site stormwater runoff control.
- (A) Required throughout the municipality:
 - (i) develop, implement, and enforce a program, or modify an existing program, to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre shall be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. The program shall include, but not be limited to, the development and implementation of: an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions for non-compliance, to the extent allowable under state or local law;
 - a. procedures for notifying construction site developers and operators of the requirements for registration under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities;
 - b. requirements for construction site operators to implement appropriate erosion and sediment control best management practices in accordance with the Guidelines;
 - c. requirements for construction site operators to control waste at the site such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste that may cause adverse impacts to water quality;
 - d. procedures for site plan review which incorporate consideration of potential water quality impacts;
 - e. procedures for receipt and consideration of information submitted by the public; and
 - f. procedures for site inspection and enforcement of control measures.
- (5) Post-construction stormwater management in new development and redevelopment.
- (A) Required throughout the municipality:
 - (i) develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb 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, that discharge into

the MS4 or directly to waters of the State. This program shall ensure that controls are implemented to require appropriate infiltration practices, reduction of impervious surface, creation of or conversion to sheet flow, measures and/or structures to reduce sediment discharge and any other innovative measures that will prevent or minimize water quality impacts;

- (ii) develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your municipality;
 - (iii) use an ordinance or other regulatory mechanism to address the elements of subsection (i) above regarding post-construction runoff from new development and redevelopment projects to the extent allowable under State or local law; and
 - (iv) ensure adequate long-term operation and maintenance of BMPs.
- (6) Pollution prevention/good housekeeping for municipal operations.
- (A) Required throughout the municipality:
 - (i) develop and implement an operation and maintenance program that includes a training component for municipal employees and contractors and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations;
 - (ii) using training materials that are available from the EPA, the State or other organizations, this program shall include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance;
 - (iii) develop and implement a program to sweep all streets at least once a year as soon as possible after snowmelt;
 - (iv) develop and implement a program to evaluate and, if necessary, clean catch basins and other stormwater structures that accumulate sediment at least once a year, including a provision to identify and prioritize those structures that may require cleaning more than once a year; and
 - (v) develop and implement a program to evaluate and, if necessary, prioritize for repairing, retrofitting or upgrading the conveyances, structures and outfalls of the MS4.
 - (B) Required within the Urbanized Area:
 - (i) develop and implement a program to evaluate and prioritize those streets that may require sweeping more than once a year.

(b) *Sharing Responsibility*

(1) Qualifying Local Program

The permittee may satisfy the requirement to implement a BMP for a Minimum Control Measure by having a third party implement the BMP.

When a permittee is relying on a third party to implement one or more BMP(s), the permittee shall note that fact in the registration and annual report required in subsection (i) below. If the third party fails to implement the BMP(s), the permittee remains responsible for its implementation.

(Note: For example, if a local watershed organization performs an annual “river clean-up”, this event may be used to satisfy a BMP for the Public Participation and/or the Pollution Prevention and Good Housekeeping Minimum Control Measure.)

(2) Qualifying State or Federal Program

If a BMP or Minimum Control Measure is the responsibility of a third party under another NPDES stormwater permit, the permittee is not required to include such BMP or Minimum Control Measure in its stormwater management plan. The permittee shall reference this qualifying program in their Stormwater Management Plan. However, the permittee is not responsible for its implementation if the third party fails to perform. The permittee shall periodically confirm that the third party is still implementing this measure. If the third party fails to implement the measure, the Stormwater Management Plan may be modified to address the measure, if necessary.

In the case of a permitted municipal industrial activity that is covered by the General Permit for the Discharge of Stormwater Associated with Industrial Activity, the permittee may reference the activity’s Stormwater Pollution Prevention Plan to address a portion of the permittee’s Stormwater Management Plan.

(Note: For example, the permittee may reference a regional mall’s requirement to perform sweeping and catch basin cleaning under the General Permit for the Discharge of Stormwater Associated with Commercial Activity. This third party action may be used to address a portion of the permittee’s requirement under the Good Housekeeping and Pollution Prevention Minimum Control Measure.)

(3) Coordination of Permit Responsibilities

Where a portion of the separate storm sewer system within a municipality is owned or otherwise the responsibility of another municipality, or a state or federal agency the entities shall coordinate the development and implementation of their respective Stormwater Management Plans to address all the elements of Section 6. A description of the respective responsibilities for these elements shall be included in the Stormwater Management Plan for each municipality.

(Note: For example, a storm sewer system within a municipality may be operated and maintained by the DOT. In cases such as these, the two entities shall coordinate their Stormwater Management Plans to address the Minimum Control Measures, particularly at the interface between the two storm sewer systems.)

(c) *Proper Operation and Maintenance*

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control, including related appurtenances, which are installed or used by the permittee to achieve compliance with the conditions of this permit. 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 a permittee when necessary to achieve compliance with this permit.

(d) *Signature Requirements*

The Plan shall be signed by the chief elected official or principal executive officer, as those terms are defined in Section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies. The Plan shall be retained by the chief elected official or principal executive officer and copies retained by town officials or employees responsible for implementation of the Plan.

(e) *Plan Review Fee*

When submitting a Stormwater Management Plan as requested by the Commissioner in accordance with Section 4(f)(2)(A) each municipal permittee shall submit a plan review fee of \$187.50.

(f) *Keeping Plans Current*

The permittee shall amend the Plan 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 Plan fail to ensure or adequately protect against pollution of the waters of the state; or (3) the Commissioner requests modification of the Plan. The amended Plan shall be completed and all actions required by such Plan shall be completed within a time period determined by the Commissioner.

The Commissioner may notify the permittee in writing at any time that the Plan 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 in writing, the permittee shall respond to the Commissioner indicating how they plan to modify the Plan 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 in writing, the permittee shall then revise the Plan, perform all actions required by the revised Plan, and shall certify to the Commissioner that the requested changes have been made and implemented. The permittee shall provide such information as the Commissioner requires to evaluate the Plan and its implementation.

(g) *Failure to Prepare or Amend Plan*

In no event shall failure to complete or update a Plan in accordance with Sections 5(b) and 6 of this general permit relieve a permittee of responsibility to implement actions required to protect the waters of the state and to comply with all conditions of this general permit.

(h) *Monitoring Requirements*

(1) Schedule of Monitoring

- (A) Stormwater monitoring shall be conducted by the Regulated Small MS4 annually starting in 2004. At least two outfalls apiece shall be monitored from areas of primarily industrial development, commercial development and residential development, respectively, for a total of six (6) outfalls monitored. Each monitored outfall shall be selected based on an evaluation by the MS4 that the drainage area of such outfall is representative of the overall nature of its respective land use type.
- (B) The municipality may submit a request to the Commissioner in writing for implementation of an alternate sampling plan of equivalent or greater scope. The Commissioner will approve or deny such a request in writing.

(2) Parameters to be monitored

The parameters to be monitored for each discharge point shall include:

- pH (SU)
- Hardness (mg/l)
- Conductivity (umhos)
- Oil and grease (mg/l)
- Chemical Oxygen Demand (mg/l)
- Turbidity (NTU)
- 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.

(3) Stormwater Monitoring Procedures

(A) 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 6 hours of a storm event discharge. The uncontaminated rainfall pH measurement shall also be taken at this time. Samples for all discharges shall be taken during the same storm event.

(B) Storm Event Information

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

- (i) The date, temperature, time of the start of the discharge, time of sampling, and magnitude (in inches) of the storm event sampled.
- (ii) The duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event.

(C) Test Procedures

Unless otherwise specified in this permit, all pollutant parameters shall be tested according to methods prescribed in Title 40, CFR, Part 136 (1990).

(i) Reporting & Record Keeping Requirements

- (1) The permittee shall keep records required by this permit for at least 5 years following its expiration or longer if requested by the Commissioner in writing. Such records, including the Stormwater Management Plan, shall be available to the public at reasonable times during regular business hours.
- (2) By January 1, 2005 and annually thereafter by January 1, the permittee shall submit an Annual Report to:

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

The report shall include:

- (i) A municipal plan review fee of \$187.50;
- (ii) The status of compliance with this general permit, an assessment of the appropriateness of the identified best management practices and progress towards achieving the implementation dates and measurable goals for each of the Minimum Control Measures;

- (iii) All monitoring data collected and analyzed pursuant to Section 6(g);
- (iv) All other information collected and analyzed, including data collected under Section 6(a)(3), during the reporting period;
- (v) A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle; and
- (vi) A change in any identified measurable goals or implementation dates that apply to the program elements.

(j) Other Requirements

- (1) There shall be no distinctly visible floating scum, oil or other matter contained in the stormwater discharge. Excluded from this are naturally occurring substances such as leaves and twigs provided no person has placed such substances in or near the discharge.
- (2) The stormwater discharge shall 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.

(k) Total Maximum Daily Load (TMDL) Allocations

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

Section 7. Additional Requirements of this General Permit

(a) Regulations of Connecticut State Agencies Incorporated into this General Permit

The permittee shall 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:

- (1) 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)
 - Subsection (e) Duty to Comply
 - Subsection (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 Limitation Violations
Subsection (n) Enforcement
Subsection (p) Spill Prevention and Control
Subsection (q) Instrumentation, Alarms, Flow Recorders
Subsection (r) Equalization

(2) Section 22a-430-4

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

(b) *Reliance on Registration*

In evaluating the permittee's registration, the Commissioner has relied on information provided by the permittee. If such information proves to be false or incomplete, the permittee's authorization may be suspended or revoked in accordance with law, and the Commissioner may take any other legal action provided by law.

(c) *Duty to Correct and Report Violations*

Upon learning of a violation of a condition of this general permit, a permittee shall 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 permittee shall report in writing such violation and such corrective action to the Commissioner within five (5) days of the permittee's learning of such violation. Such information shall be filed in accordance with the certification requirements prescribed in Section 7(e) of this general permit.

(d) *Duty to Provide Information*

If the Commissioner requests any information pertinent to the authorized activity or to compliance with this general permit or with the permittee's authorization under this general permit, the permittee shall provide such information within thirty (30) days of such request. Such information shall be filed in accordance with the certification requirements prescribed in Section 7(e) of this general permit.

(e) *Certification of Documents*

Any document, including but not limited to any notice, information or report, which is submitted to the Commissioner under this general permit shall be signed by the chief elected official or principal executive officer of the municipality, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

“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.”

(f) *Date of Filing*

For purposes of this general permit, the date of filing with the Commissioner of any document is the date such document is received by the Commissioner. The word “day” as used in this general permit means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day.

(g) *False Statements*

Any false statement in any information submitted pursuant to this general permit may be punishable as a criminal offense, in accordance with Section 22a-6, under Section 53a-157b of the Connecticut General Statutes.

(h) *Correction of Inaccuracies*

Within fifteen days after the date the permittee 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 information has been omitted, the permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the Commissioner. Such information shall be filed in accordance with the certification requirements prescribed in Section 7(e) of this general permit.

(i) *Other Applicable Law*

Nothing in this general permit shall relieve the permittee 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.

(j) *Other Rights*

This general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges, and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any activity authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state. The issuance of this general permit shall not create any presumption that this general permit should or will be renewed.

Section 8. Commissioner's Powers

(a) Abatement of Violations

The Commissioner may take any action provided by law to abate a violation of this general permit, including but not limited to penalties of up to \$25,000 per violation per day under Chapter 446k of the Connecticut General Statutes, for such violation. The Commissioner may, by summary proceedings or otherwise and for any reason provided by law, including violation of this general permit, revoke a permittee's authorization hereunder in accordance with Sections 22a-3a-2 through 22a-3a-6, inclusive, of the Regulations of Connecticut State Agencies. Nothing herein shall be construed to affect any remedy available to the Commissioner by law.

(b) General Permit Revocation, Suspension, or Modification

The Commissioner may, for any reason provided by law, by summary proceedings or otherwise, revoke or suspend this general permit or modify to establish any appropriate conditions, schedules of compliance, or other provisions which may be necessary to protect human health or the environment.

(c) Filing of an Individual Application

If the Commissioner notifies a permittee in writing that such permittee shall obtain an individual permit under Section 22a-430 of the Connecticut General Statutes if he wishes to continue lawfully conducting the authorized activity, the permittee shall file an application for an individual permit within thirty (30) days of receiving the Commissioner's notice, or at such other date as the Commissioner may allow. While such application is pending before the Commissioner, the permittee shall comply with the terms and conditions of this general permit and the subject approval of registration. If the Commissioner issues an individual permit to a permittee under this general permit, this general permit, as it applies to such permittee, shall automatically terminate on the date such individual permit is issued. Nothing herein shall affect the Commissioner's power to revoke a permittee's authorization under this general permit at any time.

Issued Date: January 9, 2004

ARTHUR J. ROCQUE, JR.

Commissioner

This is a true and accurate copy of the general permit executed on January 9, 2004 by the Commissioner of the Department of Environmental Protection.

Appendix A: Connecticut Towns with Urbanized Areas

Andover*	Ansonia	Avon
Beacon Falls	Berlin	Bethany
Bethel	Bloomfield	Bolton
Bozrah*	Branford	Bridgeport
Bristol	Brookfield	Burlington
Canterbury*	Canton	Cheshire
Chester	Clinton	Coventry*
Cromwell	Danbury	Darien
Deep River	Derby	Durham
East Granby	East Hampton*	East Hartford
East Haven	East Lyme	East Windsor
Easton	Ellington	Enfield
Essex	Fairfield	Farmington
Franklin*	Glastonbury	Granby
Greenwich	Griswold	Groton
Guilford	Haddam*	Hamden
Hartford	Hebron	Killingworth*
Ledyard	Lisbon	Litchfield*
Lyme*	Madison	Manchester
Marlborough	Meriden	Middlebury
Middlefield	Middletown	Milford
Monroe	Montville	Naugatuck
New Britain	New Canaan	New Fairfield
New Hartford*	New Haven	New London
New Milford	Newington	Newtown
North Branford	North Haven	Norwalk
Norwich	Old Lyme	Old Saybrook
Orange	Oxford	Plainfield*
Plainville	Plymouth	Portland
Preston*	Prospect	Putnam
Redding	Ridgefield	Rocky Hill
Salem*	Seymour	Shelton
Sherman*	Simsbury	Somers
South Windsor	Southbury	Southington
Sprague*	Stafford*	Stonington
Stratford	Suffield	Thomaston
Thompson	Tolland	Trumbull
Vernon	Wallingford	Washington*
Waterbury	Waterford	Watertown
West Hartford	West Haven	Westbrook
Weston	Westport	Wethersfield
Wilton	Windsor	Windsor Locks
Wolcott	Woodbridge	Woodbury
Woodstock*		

*Denotes town with population less than 1,000 in the Urbanized Area.