

STORM WATER MANAGEMENT PLAN
ACTON, MA


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EXECUTIVE SUMMARY

Introduction

Contaminated storm water runoff is a leading contributor to water quality problems in this nation's surface waters. Even though regulations have been in place for many years regarding the treatment and disposal of municipal and industrial waste streams, the majority of storm water runoff flows untreated into the nation's surface waters.

The National Pollution Discharge Elimination System (NPDES) Storm Water Program is a nationwide, two phase program aimed at reducing the impacts of storm water on the nation's surface waters. Phase I of the program requires permitting of Municipal Separate Storm Sewer Systems (MS4s) serving populations of 100,000 persons or greater. Phase II of the NPDES program requires storm water permitting for communities with smaller populations and urbanized areas such as the Town of Acton.

The Town of Acton is very interested in improving surface water quality and has for many years included programs that address watershed health. The Town is committed to compliance with the Environmental Protection Agency's (EPA's) Phase II requirements. Historically, Acton has been proactive with storm water management. They have partnered with local organizations such as SuAsCo (Sudbury/Assabet/Concord Rivers Organization) and OAR (Organization for the Assabet River) and regularly operate and maintain their storm sewer system through catch basin cleaning and street sweeping programs. The program outlined herein will take storm water management in Acton to the next level.

Storm Water Management Plan

The Storm Water Management Plan (SWMP) takes advantage of ongoing and planned efforts wherever possible. The overall level of effort to comply with the final SWMP will be determined by three factors:

- Requirements of the SWMP based on EPA's NPDES Phase II Final Rule and Massachusetts' Final NPDES General Permit
- The mitigation of threats to public and environmental health
- The financial and staffing resources of Acton

Although the Town is obligated to meet EPA's requirements, the five year plan will be modified in the event that one or more of these factors changes from its current status.

We have organized Acton's SWMP to be consistent with EPA and Massachusetts Department of Environmental Protection (MADEP) standards for the six Minimum Controls Measures (MCMs) outlined by EPA for implementation as part of the Phase II requirements. They include:

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



Recommendations

- Small MS4s must meet the Eligibility Criteria, defined in the Phase II General Permit Part I.B. Submission of a signed NOI will be deemed to constitute certification of eligibility under the General Permit. Information used to determine eligibility must be maintained as part of the Storm Water Management Program. Eligibility criteria should be reassessed yearly during the reporting period including through investigations the effects of storm water runoff on critical habitat and historic properties. A thorough investigation including a physical inspection of the related areas will be required to fully understand how these areas are affected by storm water runoff.
- If it is determined that the impacts posed by storm water runoff to critical habitat and historic properties is minimal, we recommend that the Town consider creating bylaws to further protect these areas from future development that could lead to runoff impacts.
- Woodard & Curran recommends that Acton review this plan every quarter to make sure that the BMPs are being implemented within the timeline that has been identified by MADEP and in the Notice of Intent (NOI) submitted by the Town. If during a quarterly review, it is determined that the implementation of a scheduled BMP is not possible due to financial constraints or other reasons, we recommend that the Town write a memo to MADEP to explain the situation and the reasons that implementation is not possible at this time. Then, during the annual reporting process a new schedule should be submitted.
- Storm water management is best approached proactively. Long-term solutions to storm water challenges should receive priority. During each budgeting season it will be important to assess the budgetary needs for the Board of Health, Conservation Commission, Planning Department, Recreational Department and the Department of Public Works for planning and resource allocation.
- Although partnering with non-profit organizations such as SuAsCo can be part of public education and outreach activities as well as public involvement and participation, it is important that the Town not rely solely on SuAsCo's efforts since Acton is accountable to MADEP for its own storm water management program.
- Woodard & Curran recommends that the Board of Health be the clearing house for maintaining an up to date SWMP since annual reporting falls under their responsibility, as stated in the NOI. A copy of the SWMP should also be located at the DPW, Conservation Commission, Recreational Department and the Planning Department, all of whom have responsibilities for implementing portions of the program. All departments should provide yearly reports with attachments to the Board of Health to ensure reporting requirements are being met.
- MADEP requires that the Town review the SWMP and submit a report to MADEP each year. To support this annual report, it is imperative that the Town maintain records of storm water management activities. This record keeping can also help to support an asset management plan, should the Town wish to pursue one. This package provides the mechanism to maintain consistent record-keeping for the reporting requirements.



1. INTRODUCTION

1.1 Background

Contaminated storm water runoff has become recognized as the leading contributor to water quality problems in this country today. Regulations have been in place for many years regarding the treatment and disposal of municipal and industrial waste streams. The majority of storm water runoff, however, flows untreated into the nation's surface waters. This poses a challenge for communities such as Acton that rely on an old storm drain infrastructure.

Historically, storm drain systems were designed to merely collect and convey storm water to reduce ponding in wet areas or prevent localized flooding, with little emphasis placed on the treatment of runoff. Older designs typically leave little room for retrofitting treatment technologies. Structural solutions applied Town-wide are not feasible because of technical and cost considerations. Therefore, an alternative means of controlling the Town's storm water runoff must be sought.

New developments are required through State and local guidelines to treat the runoff produced from impervious surfaces by means of suspended solids removal and infiltration practices. The Environmental Protection Agency (EPA) is implementing an initiative that goes beyond controlling storm water runoff produced from new developments. The National Pollution Discharge Elimination System (NPDES) Storm Water Program is a nationwide, two phase program aimed at reducing the impacts of storm water on the nation's surface waters. Phase I of the program requires permitting of Municipal Separate Storm Sewer Systems (MS4s) serving populations of 100,000 persons or greater. Phase II of the NPDES program requires storm water permitting for communities with smaller populations such as the Town of Acton. The complete **EPA Storm Water Phase II Final Rule Fact Sheet Series**, released January 2000, is provided in [Appendix A](#). Please refer to these fact sheets for program information, requirements, and guidelines.

1.2 Acton SWMP

This Storm Water Management Plan (SWMP) represents the Town of Acton's plans to comply with NPDES Phase II guidelines over a five year period, 2003 – 2008. The goal is to create a fully integrated plan, both chronologically and comprehensively. Chronologically, the Best Management Practices (BMPs) developed in any year should provide data, tools or programmatic assistance to BMPs developed or implemented in future years. Comprehensively, the BMPs developed for any one Minimum Control Measures (MCM) should be linked to all other (MCMs) to the fullest extent possible. The SWMP will be assessed yearly and adapted continually to reapply functional BMPs, replace ineffective BMPs, and target new discoveries from field work and public outreach efforts.

This SWMP takes advantage of ongoing or planned efforts whenever possible. The Town is seeking funding to expand upon work currently underway through the Health Department and a previous 319 Grant Project. The scope of work associated with the initial 319 Non-Point Source Control Grant programs provides a good opportunity to begin the *Public Education and Outreach* MCM through creating a kiosk at the North Acton Recreational Area (NARA) Beach and to begin to meet the *Illicit Detection* MCM by identifying BMPs for installation at existing outfalls in the community. The proposed 319 Grant Program will expand upon the public education and outreach themes by involving stream teams and local volunteers in a surface water monitoring and assessment program.



The Comprehensive Water Resources Management Program (CWRMP), funded under the Department of Environmental Protection – State Revolving Fund Loan Program for Clean Water Projects (SRF) FY 02, provides other opportunities to streamline the Town’s storm water management efforts. The CWRMP will assess options for wastewater disposal needs in the community and assess water resource issues in Acton.

The overall level of effort to comply with the final SWMP will be determined by three factors:

- Requirements of the SWMP based on EPA’s NPDES Phase II Final Rule
- The mitigation of threats to public and environmental health
- The financial and staffing resources of Acton

Although the Town is obligated by law to meet EPA’s requirements, the five year plan will be modified in the event that one or more of these factors changes from its current state.

We have organized Acton’s SWMP to be consistent with EPA and MADEP standards for Phase II. The six MCMs outlined by EPA and contained herein include:

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

1.3 Town Input to Plan

To develop a SWMP that fulfills EPA’s Phase II requirements and is suitable for the Town of Acton, a SWMP workshop was held with town department heads on February 13, 2003. Departments represented included: Board of Health, Engineering, Highway, Recreation and Planning. During the workshop, numerous BMPs and measurable goals were proposed for each of the six MCMs. Discussions took place between departments to determine which particular BMPs and measurable goals were suitable for the Town of Acton. Individuals from each department offered suggestions on BMPs that could be implemented or managed by their particular department. The SWMP was further refined based on input from the Board of Selectmen at a public meeting held on February 24, 2003 and a workshop conducted with the Town Manager and Board of Health Director on March 4, 2003.

1.4 Potential Grant Funding Sources

It is recommended that the Town pursue all opportunities available to assist in the implementation of the SWMP. There are many grant programs available which the Town may be eligible to obtain. Availability of grants, however, may be affected by State and Federal budget cuts.

The following is a partial list of agencies who administer grant programs:

- Executive Office of Environmental Affairs (EOEA): MA Watershed Initiative Grants, Monitoring Grants, Outdoor Classroom Grants, Community Development Planning Program and Conservation District Grants



- Massachusetts Environmental Trust: General Grants Program, Biodiversity Program, Environmental Education Program, Environmental Monitoring Program.
- Department of Environmental Protection: 319 Non-point Source Program, Water Quality and Wetlands Grant Program.
- Department of Food & Agriculture (DFA).
- Department of Fisheries, Wildlife and Environmental Law Enforcement (DFWELE): Riverways Small Grants Program, Urban Rivers Small Grants Lake Watershed Stewardship Program.

1.5 NOI Requirements

The Town of Acton is one of the many communities in Massachusetts that must file a Notice of Intent (NOI) with the MADEP. The original submission date was March 10, 2003 but the final NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) was issued and effective on May 1, 2003. Acton filed the NOI by July 30, 2003. A copy of the Final Permit and Response to Comment document is included in [Appendix B](#). To obtain an NPDES Phase II permit for the Town's storm sewer system, the Town of Acton must develop a SWMP to implement proposed BMPs submitted under the NOI.

This document represents Acton's five-year SWMP and includes an implementation schedule for the Plan over the next five years. The plan follows the SWMP guidelines set up by the EPA, containing separate sections for each of the six MCMs. A copy of the NOI submitted by the Town is provided in [Appendix C](#).

1.6 Additional NOI Requirements

The MADEP has determined with EPA that DPW yards conducting maintenance at facilities will not be required at this time to file separate Industrial Permits for the operations of these facilities. There will be a separate permit filing requirement for these facilities in the near future, however, at this time there is no specific schedule defined. See memo dated February 13, 2003 in [Appendix D](#).

The Phase II NOI requires that the other regulated MS4 facilities in the community be listed. Acton is not responsible for the water quality of storm water runoff from these facilities into Acton's storm sewer system but MADEP is looking for Acton to be aware of these discharges and proactively promote BMPs and potential effluent limits for these MS4s. Potential MS4s identified within Acton include:

- Rte. 111 MassHighway
- Rte 2 MassHighway
- Rte 2A MassHighway



2. ELIGIBILITY CRITERIA

Small MS4s must meet the Eligibility Criteria defined in the Phase II General Permit Part I.B. Submission of a signed NOI will be deemed to constitute certification of eligibility under the General Permit. Unauthorized storm water discharges are described in the General Permit Part I.B.2 and require individual permits. Information used to determine eligibility must be maintained as part of the Storm Water Management Program.

2.1 Current Eligibility

Acton meets all eligibility criteria as shown in Table 2-1. Acton has not yet located and mapped every outfall. The current eligibility is based on discharges known to the Town as of March 2003.

TABLE 2-1: YEAR 1 ELIGIBILITY STATUS

Criteria Reference	Brief Description	Is Acton Eligible?		Comments
		YES	NO	
Part I.B.2.a	Non-Storm Water	✓		
Part I.B.2.b	Industrial Activity	✓		
Part I.B.2.c	Construction Activity	✓		
Part I.B.2.d	Discharges Covered by Another Permit	✓		
Part I.B.2.e	Endangered Species	✓		See Appendix E for Year 1 documentation.
Part I.B.2.f	Essential Fish Habitat	✓		
Part I.B.2.g	Historic Properties	✓		See Appendix E for Year 1 documentation.
Part I.B.2.h	Ocean Discharge Criteria	✓		
Part I.B.2.i	State's Anti-degradation Policy	✓		
Part I.B.2.j	Non-Storm Water	✓		
Part I.B.2.k	In stream Exceedances of Water Quality Standards	✓		
Part I.B.2.l	TMDL	✓		See Section 9 for details.



2.2 BMPs for Acton

EC-1 *Reassess eligibility criteria under the General Permit*

During the reporting period of each year (winter), Acton will re-evaluate eligibility based on data collected that year (i.e. mapping, sampling). Any unauthorized discharges will be addressed in the following year on a case-by-case basis. Additional BMPs may need to be added to the SWMP.

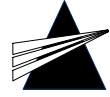
2.3 Timeline of Measurable Goals

Setting measurable goals allows the Town of Acton the ability to gauge permit compliance with NPDES Phase II. Listed in Table 2-2 are Acton's measurable goals and target dates.

TABLE 2-2: SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR ELIGIBILITY CRITERIA

Best Management Practice/Responsible Department	Measurable Goals (Implementation is subject to appropriation of funds)				
	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
EC-1 Reassess eligibility criteria/ Health Department (Doug Halley)	Done	Review data collected during the reporting period and reassess the eligibility criteria Add BMPs to the SWMP if necessary			

Reassessing eligibility criteria is not a MCM and is not listed separately in the NOI, but is included as part of the measurable goals for illicit detection and elimination and good housekeeping.



3. PUBLIC EDUCATION AND OUTREACH

A major component of this Storm Water Management Plan is to implement a *Public Education and Outreach* program on the topic of storm water management. Educating the public about non-point source pollution and the functions of Acton's storm drain system helps establish a Town-wide initiative to protect local surface waters.

This chapter presents Acton's five-year *Public Education and Outreach* plan. BMPs and measurable goals are presented within the body of this chapter. As these measurable goals are fulfilled, the Town must keep track of what has been accomplished. Documentation on an annual basis through an annual report to the DEP that the program goals have been achieved is required as proof of compliance with NPDES Phase II.

3.1 Regulatory Requirements

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

The following should be included in the education and outreach efforts:

- (a.) Cover both industrial and residential activities including illegal dumping into storm drains.
- (b.) Coordination with local groups (i.e. watershed associations, or schools)
- (c.) Materials for outreach/education may include, but are not limited to, pamphlets; fact sheets; brochures; public service announcements; storm drain stenciling and newspaper advertisements.
- (d.) Topics may include, but are not limited to, litter disposal, pet waste, household hazardous waste disposal, proper use of fertilizer and pesticides, and effects of impervious areas on water bodies.

3.2 Current Programs

As of March 2003, Acton has begun a *Public Education and Outreach* campaign through the efforts of the Acton Board of Health and Conservation Commission. The work begun includes the construction of a vegetated wetland at the Town's public beach in NARA which is being funded under an EPA 319 Grant Program. The Town will further leverage this project by installing a kiosk which outlines the purpose of the wetland. The wetland is being utilized as an end of pipe treatment for a drainage outfall prior to entrance to NARA Pond, where a public beach is located. The intent of the wetland is to reduce nutrient and sediment loading to the Pond. This work is already funded and underway.

Partner/Support Local Watershed Group – BMP #PE1 Year1

The Town of Acton has contributed monetarily to become part of the SuAsCo Storm Water Community Assistance Program. The program was created to aid municipalities in their compliance with two of the six storm water minimum control measures, specifically *Public Education and Outreach* and *Public Participation/Involvement*. Municipalities contracting yearly with SuAsCo will receive yearly education, outreach, and involvement and participation materials to implement in their community. The program is set up to provide partnered communities with flyers and information packages throughout the 5 year



permit period to assist in meeting the *Public Education and Outreach MCM* and the *Public Participation/Involvement MCM*. A copy of the SuAsCo WCC Community Assistance Plan is included in [Appendix F](#).

Distribute Public Awareness Survey BMP # PE2 Year 1 & 2

As part of the 319 Grant Project the Town will distribute a survey to evaluate and educate the public on storm water issues. The surveys will be distributed to residents at the NARA beach house and will focus on the impact of BMPs at the NARA site. The survey will be reapplied to determine if the educational component of the wetlands have had an impact on public awareness of storm water issues.

3.3 Proposed BMPs for Acton

The following BMPs reflect the Town of Acton's planned involvement with the SuAsCo community assistance program.

a) Storm Water Flyer to Community Residents (BMP #PE2)

A storm water flyer will be sent to households with their tax bills during year #2. The flyer will cover topics such as pesticide and herbicide use in lawns and gardens, water conservation practices, pet waste management, trash management, car washing, and proper disposal of household hazardous wastes including motor oil. In a user-friendly and appealing manner, the flyer will explain what storm water is and will frame storm water concerns from a watershed perspective. The flyer is meant to be an educational and motivational tool, increasing public awareness of storm water and empowering citizens regarding their influence on storm water quality and flow.

The flyer will include a storm water awareness survey that citizens can tear-off and submit to the municipality for compilation. The tear-off survey can be returned at the storm water display (see BMP #PP2 Year #2), through the mail to a storm water municipal official, or by some other means. The purpose of the survey is to establish a baseline on general awareness of storm water issues in the municipality.

b) Storm Water Flyer to Community Businesses (BMP #PE2 Year #3)

A storm water flyer will be sent to businesses in the community during permit year #3 via the BOH Annual Health Permits. The flyer will explain what storm water is and will frame storm water concerns from a watershed perspective. The flyer will discuss potential impacts businesses may have on storm water quality and flow. The flyer is meant to be both an educational and motivational tool, increasing awareness of storm water in the business community and challenging businesses to take steps towards storm water quality improvements in their own business practices. The storm water flyer will include a self-test for businesses to grade their own storm water "compliance". Businesses that deem themselves "storm water aware and participatory", i.e. compliant with good storm water practices according to the self-test, will be given a decal sticker of the storm water logo to display in their establishment for the general public to see. Storm water "participatory measures" may include improved housekeeping in parking areas, litter management in loading docks, restaurant installation and maintenance of



grease traps, stores carrying and promoting environmentally friendly products, employee training and other similar activities.

c) Storm Water Media Campaign (BMP #PE2 Year #4 and Year #5)

The BOH will engage local news media (newspapers, radio stations, and cable stations) in raising public awareness about storm water. A press release will be developed for use in the “campaign”. The press releases will cover such topics as “What is storm water?” the municipality’s 5-year storm water management program, the SuAsCo storm water education and involvement program, how the general public can help improve storm water quality and prevent polluted runoff, and ongoing community and collaborative efforts to manage storm water.

d) Structural BMP Education (BMP #PE3 Year 2, 3, 4 and 5)

Under the current 319 Grant Program Acton has constructed a wetland to filter storm water runoff discharging to the NARA town beach area. A kiosk will be constructed at the site of the wetland explaining the construction of the wetland in relationship to storm water management. In addition, the 319 Grant project may identify two sites for the installation of structural BMPs where constructed signs could be posted outlining the purpose of the BMP installation in relationship to storm water management. Otherwise, signs can be constructed at two existing BMP locations. The educational signs will be installed in Year 4.

e) Cable Access TV Program (BMP #PE4 Year 1 and 5)

Selectmen’s Meeting held on February 24, 2003 on cable, taped and reshowed. A cable TV show will be developed and aired through the SuAsCo WCC Community Assistance Plan.

3.4 Timeline of Measurable Goals

Setting measurable goals allows the Town of Acton the ability to gauge their permit compliance with NPDES Phase II. Listed in Table 3.1 are Acton’s measurable goals and target dates.



**TABLE 3.1 – SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR PUBLIC EDUCATION
AND OUTREACH**

Best Management Practice/Responsible Dept. Contact	Measurable Goals (Implementation is subject to appropriation of funds)				
	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
BMP #PE 1 Partner w/ local organization/ <i>Doug Halley – Board of Health (BOH)</i>	Form partnership with 1 org with financial contribution (SuAsCo) Done				
BMP #PE 2 Develop public education brochures/press releases/ <i>Doug Halley BOH</i>	Finalize watershed awareness survey through 319 Grant Program	Storm Water Flyer distributed to 6,600 households w/ tax bills. Re-issue watershed awareness survey through 319 Grant Program	Distribute with regular Annual Health Permits Storm Water Flyer to 50% of businesses, with storm water logo displayed at business properties.	Generate 1 press release for media	Generate 1 press release for media
BMP #PE 3 Develop signs for structural BMPs/ <i>Doug Halley BOH</i>		Kiosk at NARA constructed wetland	Identify 2 BMP locations for signs	Install 2 signs at BMP locations	Check signs for damage or wear & tear
BMP #PE 4 Media/Cable Access TV/ <i>Mark Hald (IT)</i>	Selectmen's Meeting held on February 24, 2003 on cable, taped and reshown	-	-	-	Create storm water video and show at one public meeting and one local cable station event



4. PUBLIC PARTICIPATION/INVOLVEMENT

The most effective method of gaining a continuous level of support and awareness for Acton's Storm Water Management Plan is to get the community involved. Public participation accomplishes several objectives:

- It invokes a feeling of pride and accomplishment among those involved.
- It acts to educate the public on the importance of good storm water management practices.
- It makes teachers of the volunteers, promoting public education beyond the individual event.

This section presents Acton's five-year *Public Participation/Involvement* plan. Measurable goals have been developed to guide Acton in implementing this MCM. As these measurable goals are fulfilled, the Town should keep track of what has been accomplished. Documentation that the program goals have been achieved is valuable for future compliance with NPDES Phase II.

4.1 Regulatory Requirements

Public involvement and participation: All public involvement activities must comply with state public notice requirements at MGL Chapter 39 Section 23B

(a.) The permittee must provide opportunity for the public to participate in the development, implementation and review of the storm water management program.

(b.) Activities may also include volunteer stream monitoring or formation of a storm water management committee.

4.2 Current Programs

Stenciling Program (BMP #PP-5 Year 1)

As of March 2003, Acton had already organized a stenciling program by partnering with the Organization for the Assabet River (O. A. R.) Acton Stream Team. The stenciling was conducted in 1998. As outlined in the *Public Education and Outreach MCM*, the Town has entered into a partnership with SuAsCo to obtain materials in meeting the requirements of the *Public Education and Outreach MCM* and the *Public Participation/Involvement MCM*.

In 1998 the O.A.R. Acton Stream Team completed a report entitled Acton Shoreline Survey. This survey was funded by a grant from the Crossroads Community Foundation. The project goal was to form a volunteer stream team to conduct visual shoreline surveys of the two primary stream systems in Acton: the Nashoba Brook System and the Fort Pond Brook system. Both of these streams are tributaries to the Assabet River. The surveys were conducted in the spring of 1998. The goal of the survey was to help identify and reduce sources of pollution and excessive nutrients contributed to Acton's waterways and to raise awareness of the wildlife habitat and recreational opportunities provided by Acton's local streams. A steering committee was formed to publicize the Stream Team project, select survey areas, generate and review maps and finalize plans for the training sessions. More than 150 volunteers participated in some aspect of the Stream Team effort.



OAR organized and carried out river cleanup and distributed public education materials to Acton taxpayers and water users. A copy of the report is attached in Appendix G.

Partner/Support Local Watershed Group (BMP #PP-1 Year 1)

As indicated under MCM#1 the Town of Acton has partnered for one year with SuAsCo to assist the Town in the preparation of materials for Public Education and Public Participation.

4.3 Proposed BMPs for Acton

a) Storm Water Traveling Display (BMP #PP-2 Year 1, 2, 3, 4, 5)

The Storm Water Traveling Display is a portable folding display board that can be located at various locations in the community, such as the municipal building, public library, schools, post office, and at community events. The display will have a professional, attractive appearance that is eye-catching and appealing. The display can be conveniently placed on a table in a visible and central location frequented by the general public. Extra storm water flyers will be posted with the display along with a collection box for the citizen storm water survey.

Similar to the flyer, the display will explain what storm water is and will frame storm water concerns from a watershed perspective. The display will present practical ideas for how citizens can manage housekeeping practices so as to have a positive impact on storm water. Such practices may include pesticide and herbicide use on lawns and gardens, water conservation, pet waste management, trash management, car washing, and proper disposal of household hazardous wastes including motor oil. The display is meant to be an educational and motivational tool, increasing public awareness of storm water and influencing citizens regarding their role in preserving storm water quality and flow. The display will be developed in Year 1 and placed in four locations over the course of the next four years.

b) Storm Water Poster Contest (BMP #PP-3-Year 2 permit years 2, 3, 4 and 5)

The Storm Water Poster Contest will engage youth groups throughout the Recreational Department in understanding storm water and creatively depicting their knowledge through a poster medium. The general public will also be involved in the poster contest through parent interaction with the students, the creation of a panel of judges, and display of the posters in public locations and on the website. The program may be extended to be an annual event if participation and results warrant.

c) Storm Water Photo Contest (BMP #PP-3 Year 3)

The Storm Water Photo Contest will engage youth groups throughout the Recreational Department in understanding storm water, its effect on water quality, and good storm water management strategies. The photo contest will challenge high school students to creatively depict their knowledge through a photographic medium. The general public will also be involved in the photo contest through parent interaction with the students, the creation of a panel of judges, and display of the photographs in a public location and on the website.



d) Discuss Storm Water Issues at Public Meetings (BMP #PP-4 Year 1, 2, 3, 4 and 5)

Public meetings, either town-wide or within individual Town districts, will address storm water related issues as part of the yearly assessment/report to the EPA. These meetings will address citizen complaints about the existing drainage system, environmental problems associated with storm water or any other storm water related topic. Although storm water will not be the sole subject matter at the meetings, discussion of storm water will be a component of these meetings.

e) Implement a storm drain stenciling program (BMP #PP-5 Year 1)

Acton will organize future storm drain stenciling programs in areas not already covered. Town personnel and qualified volunteers will identify one sub-basin of interest and map out all catch basins leading to a specific water body. Catch basins can then be stenciled by volunteers with permanent labels reminding people not to “dump” trash down the drain. Stenciling the name of the water body that each particular catch basin discharges to typically works well in getting the point across. The Town has submitted a grant application to fund additional stenciling programs.

4.4 Timeline of Measurable Goals

Setting measurable goals allows the Town of Acton to gauge their permit compliance with NPDES Phase II. Listed in Table 4.1 are Acton’s measurable goals and target dates.



TABLE 4.1 – SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR PUBLIC PARTICIPATION/INVOLVEMENT

Best Management Practice/Responsible Dept. Contact	Measurable Goals (Implementation is subject to appropriation of funds)				
	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
BMP #PP 1 Partner w/ local organization/ <i>Doug Halley BOH</i>	Continue partnership with SuAsCo				
BMP #PP 2 Place Traveling Display at various locations/ <i>Doug Halley BOH</i>	Obtain display from SuAsCo, place at one location throughout the year	Obtain display from SuAsCo, place at one location throughout the year	Obtain display from SuAsCo, place at one location throughout the year	Obtain display from SuAsCo, place at one location throughout the year	Obtain display from SuAsCo, place at one location throughout the year
BMP #PP 3 Poster and Photo Contests/ <i>Nancy Mc Shea Recreational Director</i>	-	Hold a Storm Water Poster Contest for Youth Groups	Hold a Storm Water Photo Contest for Youth Groups		
BMP #PP 4 Organize public meetings and panels/ <i>Doug Halley BOH</i>	Discuss storm water management at 1 public meeting	Discuss storm water management at 1 public meeting	Discuss storm water management at 1 public meeting	Discuss storm water management at 1 public meeting	Discuss storm water management at 1 public meeting
BMP #PP 5 Organize and Conduct volunteer storm drain stenciling program/ <i>Doug Halley BOH</i>	OAR volunteers stenciled portion of Town 1998 Prioritize areas to be stenciled by levels of impairment and seek new grant for stenciling program				



5. ILLICIT DISCHARGE DETECTION AND ELIMINATION

Illicit discharges into a Town's storm drain system are defined as "...any discharge to an MS4 (Municipal Separate Storm Sewer System) that is not composed entirely of storm water..." Exceptions include permitted industrial sources and discharges from fire-fighting activities.

The USEPA has listed several potential sources of illicit discharges within their Minimum Control Measure fact sheet on the topic. Examples of illicit discharges include:

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

These illicit discharges can enter a storm drain system either through a direct connection (wastewater piping connected directly to the storm drain) or indirectly (spills, dumped chemicals, cracks in sanitary sewers). A program to detect and eliminate both direct and indirect illicit discharges into Acton's storm drain system is addressed within this chapter.

5.1 Regulatory Requirements

The permittee must develop, implement and enforce a program to detect and eliminate illicit discharges. An illicit discharge is any discharge to a municipal separate storm sewer that is not composed entirely of storm water. Exceptions are discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal sewer system) and allowable non storm water discharges described in Part I.F of the General Permit (i.e. water line flushing, landscape irrigation, diverted stream flows, foundation drains) and discharges resulting from fire fighting activities. For a complete list please see the EPA NPDES General Permit for MS4s which governs the MS4 storm water NPDES permits.

- (a.) If not already existing, the permittee must develop a storm sewer system map. At a minimum, the map must show the location of all outfalls and the names of all waters that receive discharges from those outfalls. Additional elements may be included on the map, such as, location of catch basins, location of manholes, and location of pipes within the system. Mapping should be based on all existing information available to the permittee including city records, drainage maps and field surveys.
- (b.) The permittee must effectively prohibit, through an ordinance or other regulatory mechanism, non storm water discharges into the system. The regulatory mechanism must provide for appropriate enforcement procedures and actions. If a regulatory mechanism does not exist, development and adoption of such a mechanism must be included as part of the storm water management program.
- (c.) The permittee must develop and implement a plan to detect and address non storm water discharges, including illegal dumping, into the system.

The illicit discharge plan must contain the following elements:



- i. Procedures to identify priority areas. This includes areas suspected of having illicit discharges, for example: older areas of the city, areas of high public complaints and areas of high recreational value or high environmental value such as beaches and drinking water sources.
 - ii. Procedures for locating illicit discharges (i.e. visual screening of outfalls for dry weather discharges, dye or smoke testing)
 - iii. Procedures for locating the source of the discharge and procedures for the removal of the source.
 - iv. Procedures for documenting actions and evaluating impacts on the sewer system subsequent to the removal.
- (d.) The permittee must inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper waste disposal.
- (e.) The non-storm water discharges listed in Part I.F. must be addressed if they are identified as being significant contributors of pollutants.

5.2 Current Programs

Acton has recently constructed a sewer system that services only a portion of the Town. Illicit discharges that consist of sewage or gray water discharged directly into the storm drain system are less likely in Acton than in a community with an older sanitary system since illicit connections typically occur when a building is “supposedly” tied into a sewer line. The possibility exists, however, for failing septic systems or illegal tie-ins to be contaminating storm water within Acton.

Acton Surface Water Sampling Program

Surface water sampling programs provide valuable data for assessing potential point and non-point sources of water pollution. Large amounts of sampling data collected over an extended period of time allow for a comprehensive analysis of impacts to water quality. Analyses could include correlating physical changes in the community such as industrial, commercial or residential growth to changes in water quality. Situations where extensive growth has occurred in a particular section of Town may be reflected by a continual decline in surface water quality. Perhaps more important to a community such as Acton, the addition of sewer can potentially be correlated to changes in stream water quality.

The Acton Board of Health (BOH) has always been forward thinking when it comes to assessing the health and environmental quality of the Town. Twenty years ago, in 1982, the Acton BOH started a surface water sampling program that has lead to a valuable, ever growing database of surface water quality information. The program started with 47 site locations throughout the town, primarily at stream junctures with the 11 wastewater districts.

Samples from the 47 sites were initially analyzed for fecal and total coliform counts. The intent of the sampling program was to monitor for failing septic systems. The idea was, if high fecal and total coliform counts were detected at one or more of the sampling locations, additional samples could be taken to “pinpoint” the source of contamination. The total coliform sampling parameter was eventually



discontinued, since fecal coliform provides a better indication of potential septic system failure. Fecal coliform is a bacteria present in the feces of warm blooded animals and, although not a significant health risk on its own, high concentrations may indicate that potentially harmful pathogens are present. Since Acton has and still is primarily a septic system community, the chances of a failed septic system resulting in decreased surface water quality at a particular location is fairly high. Also, if multiple septic systems cause the decline of surface water quality in a particular wastewater district, the data may indicate that a larger scale solution, such as installing sewer in that particular area, is necessary.

Today, in 2003, the surface water sampling program has been fine-tuned and continues to add valuable data to Acton's database. The BOH has set a protocol for sampling and has a staff of qualified senior citizens that perform the work. Some analyses have been performed using this database, the findings of which are recorded in a report entitled "A Unique Solution to the Problem of Organizing and Analyzing 20 Years of Stream Sampling Data: Assessing Stream Sampling Data and Rainfall Data for Acton, Massachusetts". The report was written by members of the sampling team and the Acton BOH. The analyses contained within the report primarily focus on developing correlations between rainfall data and high concentrations of fecal coliform.

Although no conclusive correlations have been made to date between failing septic systems and high concentrations of fecal coliform detected in Acton's surface waters, the continuous monitoring may provide noticeable results as Acton addresses wastewater needs in the years to come. The sampling program is very important to Town-wide and basin-wide wastewater initiatives, as it provides a baseline to the current and past quality of Acton's surface waters.

The Acton BOH agreed to add several sites to their current sampling program based on the findings of the Comprehensive Water Resources Management Plan (CWRMP) report currently underway by Woodard & Curran. These sites will not only help with data collection on potential septic system failures, they will also provide valuable non-point source runoff information.

The Town has submitted a proposal for grants under the Massachusetts Office of Coastal Zone Management and the EPA s.319 Nonpoint Source program to monitor and manage the Town of Acton's Watershed Health. No funding has been granted yet but the Town plans to resubmit the proposal under the 604(b) grant program. This project will analyze existing fecal coliform data from 10 years of monitoring data currently available from the Town. Criteria will then be developed based on the data to provide an initial impairment characterization to identify micro-watersheds (further delineation of 11 watershed districts to 47 micro-watersheds) that are in need of further investigation to determine the extent and causes of the fecal coliform contamination (characterizations will include: severely impaired, impaired, slightly impaired and not impaired). The second task will be to conduct a desk top study of the micro-watersheds that are classified as slightly impaired, impaired and severely impaired, identify potential sources of contamination to develop a fecal coliform sampling program, and develop a sampling methodology for nutrient pollution for follow-up testing programs to be implemented over the 5 year NPDES permit period.

The testing program will be expanded to include priority areas that will be identified by reviewing historical sampling data (stream and beach) and monitoring public complaints concerning sewer odor in drains or near outfalls. Outfalls will be identified for further study based on the Board of Health's comprehensive sampling program (and as modified by the grant program if approved by the funding agency).

Drainage Mapping (BMP #10-1 Year 1)



The GIS mapping of the Town's drainage system was completed as part of the CWRMP project and will be utilized to further investigate areas with a high likelihood of illegal discharges to the storm drain system. The Town of Acton is divided into two major (or macro) watersheds, (1) Nashoba Brook and (2) Fort Pond Brook. For planning purposes, the Town was sub-divided into 11 watershed districts (7 for Fort Pond Brook and 4 for Nashoba Brook) representing individual drainage basins.

5.3 Proposed BMPs for Acton

The following BMPs shall be implemented in Acton over the next five years. Some BMPs may be unnecessary if they are resolved during the implementation of a prior BMP. The overall goal is to determine the locations of illicit discharges (to the maximum possible extent) and to remove or correct those illicit discharges in an appropriate fashion. All actions taken toward implementing these measures should be documented for NPDES Phase II compliance.

a) *Generate Comprehensive Storm Drain Map (BMP ID #1 Year 1, 2, 3, 4 and 5)*

Develop a program to field verify the GIS drainage map currently available and maintain and update the existing drainage map. Locate remaining outfalls not yet located utilizing a Global Positioning System (GPS) to add to the drainage map already completed. The Town will conduct verification at a rate of 25% of streets older than 1960 yearly during permit years 2, 3, 4 and 5. The map will be updated with new construction and repair information yearly for permit years 2, 3, 4 and 5.

Add database information such as inspection record information on drainage features.

b) *Reassess Eligibility Criteria as it Relates to Drainage Map (BMP ID #1 Year 1, 2, 3, 4 and 5)*

As required under the NOI all communities must identify potential runoff impacts to areas of essential fish habitation, endangered species and historical concern. The General Permit eligibility criteria will be reassessed as part of the yearly reporting review period.

c) *Implement a By-Law (BMP #ID-2 Year 2, 3, 4 and 5)*

A Town by-law will be implemented that prohibits non-storm water discharges into Acton's storm drain system. Accompanying this bylaw should be a description of appropriate enforcement procedures, penalties, and actions. Implementation of a By-law can also serve as a BMP for the MCM of Pre and Post Construction Runoff Control. The existing by-laws and rules and regulations will be reviewed and analyzed in Year 2 of the permit. A new by-law, if required, will be developed over permit years 2 and 3. The by-law will be presented along with proposed rules and regulations for public comment and input in permit year 4. The by-law will be brought to town meeting for a vote in year 5 of the permit.

d) *Illicit Discharge Detection Campaign (BMP #ID-3 Years 1, 3, 4 and 5)*

Acton will utilize the grant project submitted to EPA s.319 Non-Point Source Program to monitor and manage the town's watersheds. The grant submission is considered the Year 1 portion of this BMP. The project consists of conducting initial testing to identify dry weather flows in Year 3 of the permit.



Acton has one 303(d) listed waterway within the Town's boundaries, the Assabet River. Eleven drain outfalls have been identified that directly discharge into the Assabet. These outfalls will be prioritized for sampling and investigation in Year 2. Stream team involvement will be used to locate any other outfalls to the Assabet River. The Town's overall surface water sampling and monitoring program will incorporate these outfalls as specific points of concern. Sampling will commence during Year 2 of the SWMP. If results indicate no contribution of contaminants that contribute to the degradation of the Assabet River the Town will continue on a yearly monitoring program. If sampling results show contaminant contribution, the Town will proceed with an investigation phase with a goal of removing illicit connections by Year 5.

A dry weather sampling effort will be performed in Year 4. Sampling parameters and their associated indicator concentrations should include: Specific Conductance (300 umhos/cm), Fluoride (0.5 mg/L), Ammonia Nitrate (0.4 mg/L), Surfactants (0.1 mg/L), and Fecal Coliform (200 MPN/100 mL). Specific conductance measured at concentrations above 300 umhos/cm may indicate the presence of de-icing salts used during the winter season. Fluoride concentrations higher than 0.5 mg/L may indicate a leaking water main or runoff from lawn watering. Ammonia nitrate may indicate sewage contamination, as it is a component of urea. Surfactants are present in soaps and detergents, generally indicating clothes washing or dishwashing activities. Fecal coliform can indicate human sewage and/or animal contamination.

Any single parameter measured at concentrations above the indicator level does not provide enough evidence to ensure that an illicit discharge has occurred. The key to effectively analyzing samples is to determine if a strong correlation exists between multiple parameters, sampling locations, or sample concentrations, which may indicate that an illicit discharge is occurring.

If the dry weather flow or sampling investigations do not reveal the source of contamination, additional efforts may be necessary. These efforts can include such measures as dye or smoke testing homes and businesses or performing video inspections of storm drain lines. Buildings that are correctly tied into the sewer or to a septic system should be certified as properly tied in for future reference.

e) Corrective Illicit Discharges (BMP ID-4 Year 5)

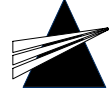
Once an illicit discharge is determined, the owner of the property or the perpetrator of the illicit discharge should be contacted and notified of their non-compliance. The Town of Acton has discretion to be lenient and provide guidance to the individual on how to quickly correct the infraction, or to assess fines or other penalties (as stated in the Town's by-law or regulation on this subject). In either case, the Town should oversee the correction.

5.4 Timeline of Measurable Goals

Setting measurable goals allows the Town of Acton the ability to gauge their permit compliance with NPDES Phase II. Listed in Table 5.1 are Acton's measurable goals and target dates.

TABLE 5.1 - SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR ILLICIT DISCHARGE DETECTION AND ELIMINATION

Best Management	Measurable Goals (Implementation is subject to appropriation of funds)
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Practice/Responsible Dept. Contact	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
BMP #ID 1 Generate a comprehensive Storm Drain Map for the Town/Doug Halley BOH	Drainage Map with Watershed delineations (completed) Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960. Update map as new drainage is installed or replaced Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960. Update map as new drainage is installed or replaced Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960. Update map as new drainage is installed or replaced Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960. Update map as new drainage is installed or replaced Reassess eligibility criteria
BMP #ID 2 Implement a Town By-Law/ Roland Bartl Planning Dept. & Doug Halley BOH	-	Review & Analyze existing bylaws and rules and regulations. Develop bylaw if required with stated penalties governing illicit discharges	Continue to develop bylaw with stated penalties governing illicit discharges	Present Bylaw and Rules and Regulations to Public for comment.	Bring bylaw in front of Town Meeting
BMP #ID 3 Perform an illicit discharge detection campaign/ Doug Halley BOH	Submit Grant proposal to conduct Acton Watershed Health Monitoring and Management Plan to identify potential problem areas (completed)	Conduct investigation and sampling of outfalls discharging to Assabet River (an impaired waterway on 303(d) list)	Conduct testing in areas identified as potential locations for illicit connections.	Conduct dry weather flow observation effort and sampling program.	Pinpoint sources of illicit discharges
BMP #ID 4 Correct Illicit Discharges/Doug Halley BOH	-	-	-	-	Enforce By-Law to correct detected illicit discharges corrected.



6. CONSTRUCTION SITE RUNOFF CONTROL

Improperly controlled storm water runoff from construction sites can deposit sediments into local surface waters at rates of up to 2,000 times greater than those of undisturbed forest land (USEPA Phase II Fact Sheet 2.6). Even small construction jobs with one acre of disturbed earth can fill the sumps of catch basins and choke small streams with sediment. In addition to sediment, other pollutants commonly found in construction site runoff include solid and sanitary wastes, phosphorus (fertilizer), nitrogen (fertilizer), pesticides, oil and grease, concrete truck washout, and construction chemicals. Due to the unfavorable conditions that have historically resulted from storm water runoff at construction sites, USEPA has included *Construction Site Runoff Control* as its fourth MCM.

6.1 Legal Requirements

The permittee must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to **one acre**. The permittee must include disturbances less than one acre if part of a larger common plan. The permittee does not need to apply its construction program provisions to projects that receive a waiver from EPA under the provisions of 40 CFR§122.26(b)(15)(i).

At a minimum, the program must include:

- (a.) An ordinance or other regulatory mechanism to require sediment and erosion control at construction sites. If such an ordinance does not exist, development and adoption of an ordinance must be part of the program.
- (b.) Sanctions to ensure compliance with the program. Sanctions may include monetary or non-monetary penalties.
- (c.) Requirements for construction site operators to implement a sediment and erosion control program which includes BMP's that are appropriate for the conditions at the construction site, including efforts to minimize the area of the land disturbance.
- (d.) Require control of wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes.
- (e.) Procedures for site plan review including procedures which incorporate consideration of potential water quality impacts. The site plan review should include procedures for preconstruction review.
- (f.) Procedures for receipt and consideration of information submitted by the public.
- (g.) Procedures for inspections and enforcement of control measures at construction sites.



6.2 Current Programs

The *Construction Site Runoff Control* MCM, has been partially implemented in Acton. Basic requirements for erosion control at a construction site are included in the Town Subdivision Rules and Regulations and the Zoning By-Laws. However, these rules will be reviewed to determine if they adequately meet the requirements of Phase II.

Currently the review process is coordinated among several departments. The Planning Board administers all plans for subdivisions, the Building Department administers all commercial plans. Multiple departments review these plans. The Conservation/Natural Resources department administers and reviews plans with potential impacts to wetlands or riverways.

Current erosion control plan requirements for new developments come from the DEP or EPA Storm Water Management Handbook.

6.3 Proposed BMPs for Acton

Develop/Implement Construction Site Runoff Control Program (BMP #CS-1 Year 2, 3 and 5)

a) *In-house assessment - Year 2*

Currently the Building Department includes in their permitting process a review by the Engineering Department and Conservation Commission. An assessment of the bylaws and rules and regulations will be conducted to determine if changes are needed to be made to the bylaws and local rules and regulations.

b) *Regulatory Mechanism – Year 3 & 4*

A more precise description of specific controls must be incorporated within the Rules and Regulations. Acton must incorporate erosion and sediment control regulations within its Subdivision Rules and Regulations. By providing a clear description of the required measures, Acton will have a standard by which to base their review of construction plans. A model by-law is being developed by DEP governing pre-post-construction site runoff control. The Town of Acton should consider implementing this model by-law when it is finished. Sanctions must be established in an ordinance, or other regulatory mechanism, to ensure compliance.

Procedures for site plan review of construction plans that will consider potential water quality impacts will be developed. The review process provides a way to track new construction activities. The tracking of sites is useful for Town recordkeeping and reporting purposes which is required under the NPDES storm water permit.

Procedures for site inspection and the enforcement of control measures will be developed. Procedures could include steps to identify priority sites for inspection and enforcement. To conserve staff resources, one possible option is to have inspections performed by the Building Inspector while he/she visits the site to check compliance with health and safety building codes.

The Planning Department will establish procedures for the receipt and consideration of information submitted by the public. Any public inquiry, concern, or information, written or verbal, should be recorded. The Town is only required to *consider* the information submitted.



Public participation should be encouraged as the public can play a crucial role in identifying instances of noncompliance.

All proposed by-laws will be submitted for vote at Town meeting in permit Year 5.

6.4 Timeline of Measurable Goals

Setting measurable goals allows the Town of Acton the ability to gauge their permit compliance with NPDES Phase II. Listed in Table 6.1 are Acton's measurable goals and target dates.

TABLE 6.1 - SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR CONSTRUCTION SITE RUNOFF CONTROL

Best Management Practice/Responsible Dept. Contact	Measurable Goals (Implementation is subject to appropriation of funds)				
	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
BMP #CS 1 Develop/Implement construction site runoff control/ <i>Roland Bartl</i> <i>Planning Dept.</i>	-	Begin in-house assessment	Continue to develop and add "Erosion and Sediment Control" by-law to Town By-Laws	Continue to develop and add "Erosion and Sediment Control" by-law to Town By-Laws	Present to Town Meeting for vote
BMP #CS 2 Develop/Implement erosion and control sediment by-law <i>Roland Bartl</i> <i>Planning Dept.</i>	-	Begin in-house assessment	Continue to develop erosion and control sediment by-law	Continue to develop erosion and control sediment by-law	Present to Town Meeting for vote



7. POST-CONSTRUCTION RUNOFF CONTROL

The *Post-Construction Runoff Control* MCM addresses implementing measures to minimize the impacts of storm water runoff on receiving waters from new developments and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre. The goal of this MCM is to create and implement procedures that address storm water quality and quantity in the planning and design phases of a project. Proper planning and design in the initial phases of a development project can avoid the potential for significant pollutant loading or the generation of large runoff volumes from the newly developed land. Because the controls implemented with this measure will continue to influence storm water quality throughout the life of the development, a well implemented *Post-Construction Runoff Control* Program is a significant step toward preserving surface water quality.

7.1 Legal Requirements

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

The post construction program must include:

- (a.) An ordinance or other regulatory mechanism to address post construction runoff from new development and redevelopment. If such an ordinance does not exist, development and adoption of an ordinance must be part of the program.
- (b.) Procedures to ensure adequate long term operation and maintenance of best management practices.
- (c.) Procedures to ensure that any controls that are in place will prevent or minimize impacts to water quality.

7.2 Current Programs

The 319 Grant program currently underway in Acton is designed to identify non-structural and structural BMPs which will reduce phosphorous loading to watersheds. The scope includes the creation of a Watershed Trading Program that is intended to show that phosphorous reduction goals can be achieved through full implementation over the next several years. The 319 Grant program will provide a valuable test case for trading programs implemented both in Acton and throughout Massachusetts.

The Town's by-laws implementing the Subdivision Rules and Regulations lack specific Town-wide legislation pertaining to current Massachusetts storm water rules, regulations, and best management practices. They do not provide enough power of enforcement for storm water regulation and basic maintenance of private systems. Furthermore the existing by-laws do not provide an avenue of legal enforcement for discharges to private property.

Any bylaws, ordinances or regulations resulting from this MCM should also contain special consideration for outfalls that discharge directly to impaired waterways such as the Assabet River.



Current Structural BMPs

In the late 1980s, Acton implemented a regulation requiring any new commercial or residential development to construct retention basins designed to treat 1" of storm water falling on any impervious surface. Specifically, retention basins must be sized for 1-inch of run-off volume, have a clay liner and no outlet. However, the typical design for retention basins includes a splitter box that directs initial flow to the retention basin and excess flow to an outlet point. Retention basins in Acton generally contain cattails and large amounts of pollywogs. This supports the intent of the regulation, which is to create naturalized basins; therefore, very little maintenance is required.

Current Reviews and Inspection Procedures

Currently, the Engineering Department conducts final inspections of all streets prior to acceptance and approval to construct. Subdivision as-builts are required to be submitted to the Engineering Department upon completion of work. The Engineering Department adds new storm drain structures to a town-wide drainage map. This does not include the location of basins (detention/retention) associated with the drainage systems.

Current Operations & Management Regulations

Currently there are no requirements for operations and maintenance of private storm water collection, treatment or conveyance systems. Therefore it is difficult for Acton to enforce the maintenance of these private systems. Commercial establishments have special permits that must be renewed if the owner decides to modify the site. Currently the only regulation that covers cleaning and maintaining private storm drain systems is enforced when a special permit is required.

7.3 Proposed BMPs for Acton

Develop/Implement Post Construction Runoff Control Program (BMP #PC-1 Years 2, 3, and 5)

Over the course of the next 5 years, the Town of Acton will review current rules and regulations, identify changes or additions required, develop proposed restructured rules and regulations and bring to Town Meeting for vote. This will include:

a) Planning Guidelines

Non-structural BMPs, outlined in the rules and regulations which are implemented under the Zoning By-laws, should be incorporated into the Town Master. The town's new wetlands by-laws address the following recommendations:

- Diverting community or commercial development away from sensitive areas to help protect local waterways from storm water pollution;
- Requiring mandatory buffer strips and riparian zone preservation; and
- Increase setbacks from surface waters.

Zoning By-laws can be developed to maximize open space preservation where appropriate and minimize connected impervious surfaces to reduce direct runoff to wetlands.



b) Implementation Guidelines

Post-construction runoff controls must be implemented to meet State or local law. The Massachusetts Department of Environmental Protection (MADEP) does not allow the discharge of untreated storm water from new developments directly to the waters or wetlands of the Commonwealth. Storm water must be treated with a structural BMP designed to remove 80% of the average annual Total Suspended Solids (TSS) load (see the Massachusetts Storm water Management Handbook, Volume I for applicability and conditions). MADEP has set several other standards including recharging storm water at a rate similar to that of pre-development conditions and controlling the rate of discharge. These standards should be incorporated into Acton's Subdivision Rules and Regulations, at least by reference. The town has already incorporated the requirement for recharging storm water at a rate similar to that of pre-development conditions and controlling the rate of discharge. A model by-law is being developed by DEP governing pre-post-construction site runoff control. The Town of Acton should consider implementing this model by-law when it is finished. Any other enhancements that may be of particular benefit to Acton should be added.

c) Structural BMPs

Develop strategies to use structural BMPs to control post-construction site runoff. These BMPs can control storm water volume, reduce mobilization of pollutants, and promote healthier habitats. Some BMPs suggested by EPA include:

- Storage Practices (e.g. multichamber catch basins and detention ponds)
- Infiltration Practices (e.g. infiltration basins and porous pavement).
- Vegetative Practices (e.g. grassy swales and artificial wetlands).

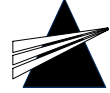
Adequate long-term operation and maintenance of post-construction runoff controls must be ensured through an ordinance or other regulatory mechanism.

d) Reviewing and Inspecting Storm Water Controls

Acton's Building and Engineering Departments, should follow standard guidelines for reviewing construction plans to determine if Town and State standards have been met. Additionally, the Town should ensure through legally binding, signed documentation, that a party will take responsibility for properly operating and/or maintaining every storm water collection and treatment structure existing within a new development.

It is very common for property owners to ignore structural storm water controls on their property. The Town should develop an inspection schedule for private storm water systems to determine if they have been properly maintained. Currently, developers and land owners are required to maintain private storm water systems by order of a condition; however, an order of condition from the Conservation Commission is not always required for a development project.

7.4 Timeline of Measurable Goals



Setting measurable goals allows the Town of Acton the ability to gauge their permit compliance with NPDES Phase II. Listed in Table 7.1 are Acton's measurable goals and target dates.

TABLE 7.1 - SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR POST-CONSTRUCTION RUNOFF CONTROL

Best Management Practice/Responsible Dept. Contact	Measurable Goals (Implementation is Subject to Appropriation)				
	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
BMP-PC1 Develop/Implement, evaluate, enhance and implement zoning requirements, Post Construction Runoff Program	-	Require in-house assessment.	Continue to develop new zoning by-laws focused on surface water preservation.	Continue to develop new zoning by-laws focused on surface water preservation.	Bring new bylaws to the Town meeting with Post Construction site runoff control bylaw



8. POLLUTION PREVENTION/GOOD HOUSEKEEPING

The Pollution Prevention/Good Housekeeping Minimum Control Measure focuses on strategies that individual Town Departments, such as the Highway Department, can implement to prevent the pollution of storm water. As the name implies, a significant portion of this MCM is focused on “Good Housekeeping” through proper maintenance and storage of Town owned equipment and supplies. Additionally, this measure addresses implementing schedules for catch basin cleaning and street sweeping.

Implementing a pollution prevention plan is the ultimate goal of this MCM. A well implemented plan will help Town departments minimized storm water pollution caused by improper actions or procedures related to cleaning, storage or material handling. The efforts made by the Town to “Housekeep” roads, drains, and equipment have and will continue to provide a good example to Acton residents. The Town should take all opportunities to advertise pollution prevention efforts to ensure that citizens take notice.

8.1 Regulatory Requirements

The permittee must

- (d.) Develop and implement a program with a goal of preventing and/or reducing pollutant runoff from municipal operations. The program must include an employee training component.
- (b.) Include, at a minimum, maintenance activities for the following: parks and open space; fleet and building; new construction and land disturbance; and storm water system maintenance.
- (c.) Develop schedules for municipal maintenance activities described in paragraph (b) above.
- (d.) Develop inspection procedures and schedules for long term structural controls.

8.2 Current Programs

Acton’s DPW building is located on the same property as the old covered landfill site. In addition to the DPW building, the transfer station and recycling station are located on the site. On May 14, 2002 the Town of Acton received a Notice of Non-Compliance in relationship to the Good Housekeeping at the DPW building and the Transfer Station. The items identified covered the following areas:

- At the DPW Building: Hazardous Waste Management, Industrial Wastewater Discharge and Air Quality Control noncompliance issues.
- At the Transfer Station: Solid Waste noncompliance issues.



To date the Town has rectified the following issues:

- DPW Building: Hazardous Waste Management, specifically as it relates to recycling of waste oils.
- DPW Building: Industrial Wastewater Discharge, specifically the Town no longer discharges from a drain to the groundwater. The drains are closed. The Town is still assessing the long term solutions they will implement to deal with the new operations issues that closing the drains have created.
- DPW Building: Air Quality Control. The Town plans to submit a permit for the fuel dispensing facility.
- Transfer Station: Solid Waste, specifically the Town's record keeping program and inspection is back on schedule now that the full time employee previously on sick leave has returned to the job full time.

A questionnaire, which served as the basis for determining the current state of compliance with all six (6) MCMs, was distributed to the DPW and other departments to obtain feedback related to pollution prevention within the departments. A copy of this questionnaire is provided in [Appendix H](#).

a) Drainage Maintenance

Acton's DPW staff performs all catch basin cleaning efforts on publicly owned drains with a clamshell. All catch basins are cleaned annually, typically in the spring. Catch basins with reported problems are cleaned first and then they proceed with a normal town-wide rotation. The Acton DPW keeps track of structures that have been cleaned by counting the number on each street and comparing the totals to their records. Catch basin waste is stored in North Acton and combined with leaves and soil from roadside construction. Trimmings, clippings and general yard waste are added to make compost.

Maintenance is performed at known problem areas and on areas where problems arise. The Highway Staff visits outfalls in late winter/early spring and prioritizes maintenance such as outfall cleaning based on visual observations and complaints. Flushing is not typically performed. The Town has a 2-inch fire hose with a nozzle for emergencies and borrows the Town of Concord's sewer jetter if needed. Of the known outfalls there are currently no issues accessing the structures since easements are maintained regularly.

The Town has identified the following areas as drainage problem areas which they will investigate and prioritize for improvement as needed:

- Corner of Quarry Road and Rte 27 (hillside drainage across road)
- Spencer Road / Prospect Street Area
- Arlington Street / West Acton Center
- Stowe Road
- Cowdrey Lane
- Elementary School
- Roche Brothers
- Ice House Road



- Rte 2A – Acorn Park
- Outfalls to Assabet River

In addition general drainage concerns include:

- Twenty beaver activity areas. These are standing water problem areas near beaver improvements. The Town has a fast growing beaver population therefore the Town should come up with a long term management plan for these areas.
- Stream management such as clearing is partially conducted along shorelines by stream teams but there is no program of clearing of system channels.
- Sources of potential contamination to Nashoba Brook are the construction companies near or on Wetherbee Street. Contamination potential exists due to junk material, automobiles and other machinery left uncovered close to the brook.

The Town's current Drainage Inspection Report should be reviewed based on the recommendations of this SWMP and refined as needed particularly if the Town intends to gather the information and incorporate into a town-wide database to track operation, maintenance and complaints.

b) Street Sweeping

Acton staff and contracted firms perform street sweeping. The Town owns one street sweeper (mechanical brush style) and also rents sweepers for sweeping services. The contract is bid yearly and can be extended up to three years. There is no definitive schedule in place, but every street in Town is swept once per year. A map of the community is displayed at the DPW and streets are highlighted as they are cleaned.

c) Maintenance of Parks and Public Lands

The Natural Resources Department is responsible for fertilizing playing fields or other public lands. Currently there is no control over the lawn care habits of citizens, however, a by-law exists prohibiting pesticide use within 40 feet of a wetland or other water body. The Recreational Department keeps records of the Town properties that are fertilized and the quantities used. Fields adjacent to the NARA swimming pond are deliberately under fertilized due to concerns over nutrient loading to the swimming pond. The Town is currently considering additional "Tuft Maintenance" training for staff members. There are currently four employees and one crew leader. All are licensed as pesticide applicators.

Automatic irrigation occurs at the NARA swimming pond fields (6.5 acres), at Town property located at the intersections of Rtes. 2A and 27 (3 acres) and on Concord Road (2 acres). Irrigation water comes from bedrock wells on-site. No controls currently exist for shutoff due to rain. Automatic irrigation of the school complex is currently planned.



d) Road Deicing Measures

The Town uses a sand and salt mixture for road deicing. The DPW keeps record of the quantity of each used. The sand is mixed with a small amount of salt during storage. Sand and salt are stored in locked covered sheds. There are no areas of restricted road salt use. Snow removed from Town streets is deposited at the now closed landfill and allowed to melt and run off into Cole's Brook.

e) Recycling Program

The Town of Acton has a recycling program and a hazardous waste collection program. The recycling program includes the compost recycling of leaves, ornamental trimmings and grass clippings. A hazardous waste collection day is held every year.

(f.) Yard Waste Program

Highway has a composting program where citizens can bring their leaves, clippings, hedge trimmings and other yard waste to a designated area at the DPW yard. However the Town does not actively advertise recycling of yard waste. Trimmings, clippings and general yard waste are added with catch basin waste to make compost. The Town does not send yard waste drop offs through its chipper due to concerns over potential damage caused by foreign objects. Christmas trees are burned due to concerns with ornaments and tinsel being combined with the compost. Compost is used on recreational fields. All compost is screened prior to application.

8.3 Proposed BMPs for Acton

The following BMPs comprise the Town's **Pollution Prevention Plan**.

a) Audit Reporting of Town Facilities (BMP #GH-1 Year 1, 2, 3, 4 and 5)

Reporting and record-keeping procedures will be installed in Year 1, with reporting completed yearly under NPDES Phase II regulations. The Town will develop methods to record good housekeeping procedures and other storm water related activities, especially as they correspond to the Storm Water Management Program. The General Permit eligibility criteria will be reassessed for new drain construction and discovered connections.

b) Audit Reporting of Town Facilities (BMP # GH-2 Year 3, 4 and 5)

The Town's facilities (DPW yard, WWTP, etc.) will be assessed for compliance with EPA's NPDES Phase II regulations and other State and Federal regulations. Audits will be conducted at the facilities as follows:

- Permit Year 3 – WWTF
- Permit Year 4 – Parks, cemetery and recreational properties
- Permit Year 5 – DPW facilities

c) Operation and Maintenance Program (BMP #GH-3 Year 1, 2, 3, 4, and 5)

The Town will create a map with drainage feature id nomenclature and will keep records of features that have been inspected and cleaned.



The Town will begin to track the amount of sediment removed from each catch basin cleaned. Ideally, the depth of sediment and the date of cleaning should be recorded so that catch basins that commonly see high sediment loads can be cleaned out more frequently. Another possible way of recording the amount of debris cleaned would be to measure the weight of the debris removed from each catch basin or a group of catch basins within close proximity to each other.

The current disposal program for the sediment and debris collected during catch basin cleaning and street sweeping activities should be reviewed to confirm that it is being conducted properly. Procedures for disposing of this waste should be set if they do not currently meet disposal requirements and employees should be trained on the proper technique for waste disposal if not already trained.

Although it is important to protect all receiving water bodies in Acton from storm water pollution, sensitive areas in Town that border wetlands, streams, or lakes should receive increased attention related to street sweeping and catch basin cleaning. The Conservation Commission is a good source for help in highlighting environmentally sensitive areas of Town.

d) Employee Training Programs (BMP GH-4 Years 1 and 3)

Town employees will be trained on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as:

- Park and open space maintenance (e.g. turf management)
- Fleet and building maintenance (e.g. vehicle maintenance procedures)
- New construction and land disturbances
- Storm water system maintenance

In Year 1 the Town will conduct a department wide meeting on pollution prevention. In Year 1 the Town will also identify training activities previously conducted with employees and implement a tracking plan for all future training. A good housekeeping workshop will be conducted at the DPW in Year 3. A copy of the MADEP document “Managing Stormwater at Municipal Garages” is included in Appendix H as reference materials for the training program.



8.4 Timeline of Measurable Goals

Setting measurable goals allows the Town of Acton the ability to gauge their permit compliance with NPDES Phase II. Listed in Table 8.1 are Acton's measurable goals and target dates.

TABLE 8.1 – SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS FOR POLLUTION PREVENTION / GOOD HOUSEKEEPING

Best Management Practice/Responsible Dept. Contact	Measurable Goals (Implementation is Subject to Appropriation)				
	Year 1 (Mar 03 – Mar 04)	Year 2 (Mar 04 – Mar 05)	Year 3 (Mar 05 – Mar 06)	Year 4 (Mar 06 – Mar 07)	Year 5 (Mar 07 – Mar 08)
BMP# GH1 Reporting / David Brown DPW and Doug Halley BOH	Create Method of Reporting	Report activities, modify method and reassess eligibility criteria as appropriate.	Report activities, modify method and reassess eligibility criteria as appropriate.	Report activities, modify method and reassess eligibility criteria as appropriate.	Report activities, modify method and reassess eligibility criteria as appropriate.
BMP# GH2 Audit of Town GH1 Facilities/David Brown DPW	-	-	WWTF Audit and Report	Parks, Cemetery and Recreation Audit and Report	DPW Audit and Report
BMP# GH3 Operation and Maintenance Program/David Brown DPW	Complete 1 st round of outfall cleaning. Begin tracking records for catch basins cleaned each year. Generate a list of priority outfalls to visit including Assabet River outfalls.	Revisit 25% of priority outfalls. Monitor amount of sediment in catch-basins	Measurable schedule for catch basin cleaning based on priority areas Measurable schedule for street sweeping	Revisit 25%	Revisit 25%
BMP# GH4 Employee Training Programs/David Brown DPW	Department meeting on pollution prevention. Generate list of all prior relevant employee training activities	-	Administer a good housekeeping workshop at DPW	-	-
BMP# GH5 Recycling Program/David Brown DPW	Review current recycling program	Monitor recycling program and enhance if necessary	Monitor recycling program and enhance if necessary	Monitor recycling program and enhance if necessary	Monitor recycling program and enhance if necessary



9. OVERVIEW OF ASSABET RIVER TMDL PHASE I FINDINGS

In November of 2001, ENSR International completed Phase I of a nutrient Total Maximum Daily Load (TMDL) study on the Assabet River. The findings of this study along with future TMDL allocations derived for the Assabet River are very important to the Town of Acton. All of Acton's sub-basins eventually drain to the Assabet River. Also, a portion of the Assabet River crosses into the southeastern corner of Acton. Therefore, Acton will be affected by point and non-point nutrient loading restrictions placed on the Assabet River as a result of the findings of this TMDL.

Between July of 1999 and September of 2000, ENSR International conducted a total of 13 field investigations of the Assabet River. These field investigations included measuring and sampling for a variety of parameters, including stream flow, dissolved oxygen concentration, water column nutrient concentration, point source nutrient loads, non-point source tributary nutrient loads, sediment nutrient flux, and levels of aquatic vegetation. The conclusion reached by these field investigations is that the Assabet River receives excessive levels of the nutrients, phosphorus and nitrogen, resulting in a severe ecological condition known as eutrophication (Assabet River TMDL Study: Phase I, ENSR International, November 2001).

The field investigations discovered that in-stream nutrient concentrations were often a full order of magnitude higher than nutrient limiting conditions. This means that nutrient loadings, hence in-stream nutrient concentrations, would need to be reduced significantly to even begin to lower biological production within the Assabet River. Slight reductions in nutrient loadings will not affect the eutrophic state of the river. Significant steps need to be taken to lower nutrient concentrations to points lower than the limiting concentrations.

The sources identified as the leading cause of nutrient impairment on the Assabet River are the publicly-owned treatment works (wastewater treatment facilities) located along the river with the exception of the Acton WWTF, which is a new facility. During the summertime months, under low flow conditions, wastewater treatment facility effluent accounts for approximately 80% of the total river flow. Wastewater treatment facilities were determined to be the source of a vast majority of the critical nutrient constituent, ortho-phosphate. Ortho-phosphate is the dissolved form of phosphorus which is readily available for biological uptake. Non-point sources, analyzed as tributaries of the Assabet River, were identified to contribute the majority of most nutrient constituents during periods of wet weather.

On January 31, 2003 EOEa notified all watershed team leaders that the EOEa/Massachusetts Watershed Initiative was ending on February 28, 2003 due to reorganization and budget cuts. The state's goal is to have the existing agencies make watersheds the framework for their environmental decision making. The current EOEa watershed team is therefore being dissolved.

In addition, the FY2004 Work Plan and the watershed initiative projects associated with the work plan will not be funded and therefore will not go forward until further notice. Projects included in the plan were the Assabet River TMDL Model finalization and a review of the Assabet River NPDES permits.

Until such time as the TMDL study is continued the Town does not plan on implementing BMPs associated with complying with the TMDL study since they are not required to do so.



Currently the Town of Acton's Middle Fort Pond Brook WWTF discharges to infiltration beds rather than directly into the Assabet River and has the most stringent NPDES permit requirements on the river. The Town has successfully been meeting the limit of 0.05mg/l for phosphorous and is committed to continuing to meet these high standards.

Reference

SuAsCo Watershed, Assabet River TMDL Study, Phase One: Assessment. Massachusetts Department of Environmental Protection, Army Corp of Engineers and ENSR International. November 2001. Project Number 9000-259-100.



APPENDIX A
EPA STORM WATER PHASE II FINAL RULE FACT SHEET SERIES



APPENDIX B
FINAL PERMIT AND RESPONSE TO COMMENTS



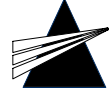
APPENDIX C
NOTICE OF INTENT



APPENDIX D
TELEPHONE CONVERSATION MEMORANDUM RE: INDUSTRIAL PERMITS (DPW YARD)



APPENDIX E
GENERAL PERMIT ELIGIBIITY CRITERIA DOCUMENTATION



APPENDIX F
PUBLIC EDUCATION AND OUTREACH MATERIAL (SUASCO CAP)



APPENDIX G
PUBLIC PARTICIPATION MATERIAL (OAR REPORT)



APPENDIX H
GOOD HOUSEKEEPING DOCUMENTATION
Interview Questionnaire
Drainage Inspection Report



APPENDIX I
REPORTING – YEAR 1