TOWN OF SMITHFIELD,
RHODE ISLAND

PHASE II
STORM WATER MANAGEMENT PLAN (SWMP)

MARCH 2006

PREPARED BY:

MAGUIRE GROUP INC.

WITH:

NORTHERN RHODE ISLAND CONSERVATION DISTRICT

SMITHFIELD
STORM WATER MANAGEMENT COMMITTEE

The following individuals are acknowledged for their time and effort given for the development of the Smithfield Storm Water Management Plan:

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EXECUTIVE SUMMARY

The US Environmental Protection Agency (EPA), on December 8, 1999, finalized the Storm Water Phase II Final Rule. The Phase II rule requires all municipal separate storm sewer systems (MS4s) to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage, or to obtain discharge permits from the local permitting authority, and establish a storm water management program intended to improve water bodies by reducing the quantity of pollutants entering storm sewer systems during storm events.

In Rhode Island, the local NPDES permitting Authority is the Rhode Island Department of Environmental Management (RIDEM). Their permit program is known as the Rhode Island Pollutant Discharge Elimination System (RIPDES). RIPDES Phase II Storm Water regulations became effective March 19, 2002. Under the regulations, the Town of Smithfield is required to develop and implement a storm water management program that includes six minimum control measures, evaluation and reporting efforts, and recordkeeping. The storm water management program must be designed to reduce the discharge of pollutants to the "maximum extent practicable", protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act.

The Smithfield Storm Water Management Plan (SWMP) is composed of six required elements, or minimum control measures, each of which identifies best management practices and measurable goals:

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

The SWMP was developed with the assistance of the Smithfield Storm Water Management Committee. The built and natural environments were inventoried to assess the current status of land use, soils, watersheds, wetlands, and surface water quality. Municipal programs and policies were reviewed, including zoning ordinances, land development and subdivision regulations, and municipal activities and programs that have the potential to impact storm water. A public workshop was held in January 2003, where Town officials and consultants made presentations on the importance of storm water management, the need to protect water quality, and specific measures those individuals and families can take to improve management of storm water runoff.

The **Public Education and Outreach Program** focuses efforts on an on-going program conducted by Northern Rhode Island Conservation District (NRICD) to educate local residents about storm water management and cooperative programs with other public and non-profit organizations. Targeted audiences are reached through various activities including the NRICD's "Do's and Don'ts for the Woonasquatucket River" outreach and education program, development and distribution of brochures and fact sheets about

pollutants of primary concern in Smithfield, and developing a pilot project with a local gas station to reduce petroleum runoff.

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

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

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

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

The last minimum control measure is the **Pollution Prevention and Good Housekeeping Program**. The Town reviewed its existing municipal operations and programs impacting storm water. An Operation and Maintenance Plan is to be developed that addresses activities associated with parks and open space, fleet and building maintenance, storm water system maintenance, and road, highway, and parking lot maintenance. The Town currently meets many requires of the Final Rule regarding this control measure. New operations and programs are proposed as well as additional training of municipal employees.

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

Storm Water Management Program Plan
Implementation Schedule and Summary of Best Management Practices and Measurable Goals

Permit ID#	SWMPP BMP ID	Required Measurable Goals	Smithfield SWMPP	Goal Year	Leader	Completed
2.0 Public Education and Outreach Program						
IV.B.1. b.2	2A	Strategies on how to inform the community on how to become involved in the storm water program and how operators will utilize partnerships with governmental and non-governmental entities (year 1)	• Each year, conduct a presentation to 300 students and distribute take-home materials. Teachers will evaluate program. • Install 12 Woonasquatucket River Watershed signs throughout town	• Year 1 • Year 4	• NRICD, School Dept. • Town Planner	
IV.B.1. b.4	2B	Strategies to list target pollutant sources the public education program is designed to address (1st year)	• Kick off campaign through an information workshop • Educate 200 households each year thereafter through brochures and fact sheets.	• Year 2 • Years 3-5	• Recreation Department, Town Planner	
IV.B.1. b.4	2C		• Identify all homes currently using septic systems. • Identify all homes prioritized to obtain sewers. • Hold a workshop for this audience after a direct mailing.	• Year 3 • Year 3 • Year 3	• Wastewater Management District, Town Planner	
IV.B.1. b.4	2D		• Post 4 signs throughout town. • Develop and distribute flyers.	• Year 4 • Year 4	• Recreation Department	
IV.B.1. b.4	2E		• Conduct a pilot program with a volunteer gas station to determine a workable schedule for clean up. • Investigate the use of a Town ordinance to require periodic grounds cleaning. • Implement periodic grounds cleaning.	• Year 4 • Year 4 • Year 5	• Town Planner, Town Engineer • • Town Planner, Town Engineer • Town Planner, Town Engineer	
IV.B.1. b.4	2F		• Work with two funeral homes in town to foster a tree-planting program.	• Year 2	• Smithfield CC	
IV.B.1. b.5		Outreach strategy, including the mechanism(s) that will be used to target audiences.	• Throughout Section 2.0; see above.	•	• SWM Committee	During dvpmt of SWMPP
IV.B.1. b.7	2G	Procedures to evaluate the success of this minimum measure, including discussion of how the measurable goals for each of the BMPs were selected.	• Develop procedures to evaluate the efforts of the program.	• Year 3	• Town Planner, SWM Committee	
3.0 Public Participation Program						
IV.B.2. b.2.i		Strategies to identify the target audiences of the public involvement program and description of the groups engaged (1st year)	• Target audiences are listed in SWMPP, see below.	• Year 1	• SWM Committee	• Year 1
IV.B.2. b.2.ii		Strategies to describe types of public involvement activities in the program (1st year)	• Through public notification procedures, hold a public hearing regarding the Storm Water Management Plan.	• Year 1	• DPW	• Year 1

Permit ID#	SWMPP BMP ID	Required Measurable Goals	Smithfield SWMPP	Goal Year	Leader	Completed
			• Identify areas where riparian buffers and wetland restoration projects would be applicable and develop strategies for their development. • Complete first project and include 5 community members on each project for clearing and planting. • Complete a minimum of one project each year after.	• Year 1 • Year 2 • Years 3-5	• Town Planner • Town Planner • Town Planner	
			• Train 7 to 8 people per year as watchmen.	• Years 3-5	• Town Planner, Recreation Department	
			• Each year, stencil 20 storm drains using 5 volunteers.	• Years 1-5	• Town Planner, WRWC, BRWC	
			• Each year, involve 20 people to participate in litter clean up around local water bodies. • Conduct local clean-up activities on Earth Day	• Years 1-5 • Years 1-5	• Town Planner, WRWC, BRWC, Smithfield CC	
IV.B.2. b.2. iii	3A	The operator must provide adequate public notice of the draft annual report and provide the opportunity for public comment (annually)	• Public notification, agenda and attendance at the hearing, year 1. • Submit each annual report for public notice.	• Year 1 • Years 1-5	• Town Engineer • Town Engineer	• Year 1 • Years 1-5
4.0 Illicit Discharge Detection and Elimination Program						
IV.B.3. b.1	4A	Development of an outfall map showing the location of all outfalls and names of receiving waters (3rd year)	• Create a storm sewer mapping system of all known outfalls and their receiving waters.	• Year 1	• Town Engineer	2003
IV.B.3. b.2	4B	Strategies for tagging outfall pipes if GIS maps are not being developed(1st year)	• Develop procedures for the tagging of outfall pipes.	• Year 1	• DPW	Year 1
IV.B.3. b.4	4C	Introduction of an ordinance to prohibit and enforce illicit discharges to the MS4 (1st year)	• Develop an ordinance that prohibits illicit discharges.	• Year 3	• Town Planner, Town Engineer	
		Ordinance adoption (2nd year)	• Adopt an ordinance that prohibits illicit discharges to the storm sewer system.	• Year 3	• Town Planner, Town Engineer	
IV.B.3. b.5. i	4D SOP	Strategies for locating priority areas (1st year)	• Develop strategies for identification of priority areas for assessment.	• Year 1	• Town Engineer, DPW Director	Year 1
IV.B.3. b.5. ii		Procedures for receipt and consideration of complaints (1st year)	• Develop procedures for receipt and consideration of complaints	• Year 1		Year 1
IV.B.3. b.5. iii		Procedures for tracing the source of an illicit discharge (1st year)	• Develop procedures to trace the source of an illicit discharge.	• Year 1		Year 1
IV.B.3. b.5. iv		Procedures for removing the source of the illicit discharge (1st year)	• Develop procedures to remove an illicit discharge.	• Year 1		Year 1
IV.B.3. b.5. v		Procedures for program evaluation and assessment (1st year)	• Develop procedures for program evaluation and assessment	• Year 1		Year 1
IV.B.3. b.5. vi		Procedures for inspection of all catch basins and manholes for illicit connections and non-storm water discharges (1st year)	• Develop procedures to include identification of illicit discharges in existing inspections catch basin and manhole inspections.	• Year 1		Year 1
		Inspections taking place at least once (4th year)		• Year 1		Year 1
IV.B.3. b.5. vii		Procedures for conducting a minimum of two dry weather surveys, one between Jan 1st and April	• Develop procedures for dry weather surveys including field screening for non-storm water	• Year 3		Year 1

Permit ID#	SWMPP BMP ID	Required Measurable Goals	Smithfield SWMPP	Goal Year	Leader	Completed
		30th and one between July 1st and Oct 31st. (Sanitary sewers- bacteria sampling is only required once between July 1st and Oct 31st (1st year)	flows and tests of selected parameters and bacteria.			
		Two dry weather surveys to be completed (4th year)	• Perform two dry weather surveys.	• Year 3+4		
IV.B.3. b.6		Procedures for coordinating with physically interconnected MS4s, including state and federal owned or operated MS4s, when illicit discharges are detected or reported (1st year)	• Develop procedures to notify physically interconnected MS4s when illicit discharges are detected and reported.	• Year 1		
IV.B.3. b.7		Procedures for referral to RIDEM of non-storm water discharges not authorized by this permit or a pre-existing permit (1st year)	• Develop procedures for referral to RIDEM of non-storm water discharges not authorized by this permit or a pre-existing permit.	• Year 1		
IV.B.3. b.9		Procedures for tracking and recording actions to detect/address illicit discharges (1st year)	• Develop procedures for tracking and record keeping of all actions taken to detect and address illicit discharges.	• Year 1		
	4E	Develop and implement an outreach program in conjunction with existing public outreach activities to inform public employees, businesses, and the general public of the hazards associated with illicit discharges.	• Develop an outreach program. • Train all public works and recreation department employees as well as field personnel.	• Year 1 • Year 2	• DPW, NRICD	
	4F	Develop procedures to evaluate BMPs and measurable goals of the Illicit Discharge Detection and Elimination Program.	• Develop procedures to evaluate the program. • Conduct evaluation of illicit discharge program	• Year 2 • Year 3-5	• SWM Committee • DPW Director	
5.0 Construction Site Storm Water Runoff Control Program						
IV.B.4. b.1	5A	Development and introduction of a mechanism to require erosion and sediment control, control of other wastes, and sanctions to ensure compliance (1st year)	• Review and update, if necessary, existing Erosion and Sediment Control Ordinance to meet Phase II Final Rule and state requirements.	• Year 1	• SWM Committee	• Year 1
		Mechanism adoption (2nd year)				
IV.B.4. b.2	5A	Procedures for issuing permits and implementing policies and procedures for all construction projects disturbing ≥1 acre (2nd year)				
		Implementation of procedures (end of 2nd year)				
IV.B.4. b.4	5B	Implementation of program to review 100% of plans and SWPPPs for construction projects ≥ 1 acre not reviewed by other State Programs (2nd year)	• Review and amend, if necessary, existing Erosion and Sediment Control Ordinance to ensure site plan review process meets BMP. • Review all site plans subject to local ordinance.	• Year 1 • Year 1	• SWM Committee Town Engineer	• Year 1
IV.B.4. b.5		Procedures for coordination of site plan and SWPPP review when relying on State program reviews of construction activity (2nd year)				
		Implementation of procedures (end of 2nd year)				
IV.B.4. b.7	5D	Inspect 100% of all construction projects within the regulated area that discharge or have the potential to discharge to the MS4 (2nd year)	• Review existing construction site inspection procedures to ensure they meet requirements of Phase II Final Rule and state requirements.	• Year 1	• SWM Committee	• Year 1

Permit ID#	SWMPP BMP ID	Required Measurable Goals	Smithfield SWMPP	Goal Year	Leader	Completed
			• Establish criteria to prioritize construction sites and to determine which ones will be inspected more than once. • Inspect all construction sites that are regulated by local ordinance at least once.	• Year 1 • Years 2-5	• Town Engineer • Town Engineer	
IV.B.4. b.8	5E	Procedures for referral to the State of non-compliant construction site operators (2nd year)	• Review current procedures that refer non-compliant construction site operators to the State when all local enforcement efforts fail.	• Year 2	• Town Engineer	• Year 2
6.0 Post-Construction Storm Water Management Program						
IV.B.5. b.2	6A	Description of how the program is consistent with the State of Rhode Island Storm Water Design and Installation Manual and will be tailored for the community/facility, minimize water quality impacts, and maintain pre-development runoff conditions (2nd year)	• In Section 6.0, it is described how it will be consistent with the RI Storm Water Design and Installation Manual and will be tailored to meet the needs of Smithfield, minimize water quality impacts and maintain pre-development runoff conditions.	• Year 2	• SWM Committee Town Engineer	• Year 1
IV.B.5. b.3	6A	Procedures for pre-application meetings (2nd year)	• Review existing requirements and procedures for pre-application meetings during the development of the SWMPP	• Year 1	• SWM Committee Town Engineer	• Year 1
IV.B.5. b.4	6A	Implementation of program to review 100% of plans for development projects one or more acres not reviewed by other State Programs (2nd year)	• Continue to review 100% of plans for development projects that disturb ½ acre or more, specifically projects one acre or more not reviewed by the State.	• Year 1	• SWM Committee Town Engineer	• Year 1
IV.B.5. b.5		Description of how the program will coordinate with existing State programs requiring post-construction storm water management (2nd year)				
IV.B.5. b.6	6C	Procedures for referral of new discharges of storm water associated with industrial activity (2nd year)	• Develop procedures for referral of new discharges of storm water associated with industrial activities to RIDEM	• Year 3	• Town Engineer DPW Director	
IV.B.5. b.9	6A	Develop and introduce regulatory mechanism to address post-construction runoff (1st year) Mechanism adoption (2nd year)	• Review existing policies and regulations that address post-construction run-off to ensure compliance.	• Year 3	• Town Engineer Town Planner	
IV.B.5. b.10	6A	Procedures for post-construction inspections of BMPs and inspect 100% of all development ≥ 1 acre within the regulated area that discharges to the MS4 (2nd year) Implementation of procedures (end of 2nd year)	• Review existing policies and regulations that address post-construction BMP inspections and update as needed.	• Year 1	• SWM Committee Town Engineer	• Year 1
IV.B.5. b.12	6D	Development of a program to identify existing structural BMPs (2nd year)	• Develop procedures to identify existing structural BMPs and update annually.	• Year 1	• Town Engineer	• Year 1
7.0 Pollution Prevention and Good Housekeeping Program						
IV.B.6. b.1.i	7A	Procedures for identifying, locating and describing all municipally owned structural BMPs (1st year)	• Develop procedures for identifying, location and describing municipal structural BMPs.	• Year 1	• Town Engineer	• Year 1
IV.B.6. b.1.ii	7G	Procedures for inspecting and cleaning BMPs (1st year)	• Review existing procedures for inspecting and cleaning BMPs and amend as needed.	• Year 1	• Town Engineer DPW Director	• Year 1

Permit ID#	SWMPP BMP ID	Required Measurable Goals	Smithfield SWMPP	Goal Year	Leader	Completed
IV.B.6. b.1. iii	7G	Procedures for an annual catch basin inspection and cleaning program (1st year)	• Review existing procedures for inspecting and cleaning BMPs catch basins and amend as needed.	• Year 1	• Town Engineer DPW Director	• Year 1
		Implementation of program (3rd year)	• Implement BMPs catch basins inspection and cleaning program.	• Year 3	• Town Engineer DPW Director	
IV.B.6. b.1. iv	7J	Procedures to minimize erosion of road side shoulders and ditches (1st year)	• Develop procedures that require stabilization of road shoulders and roadside ditches. • Incorporate investigation into existing system inspection and maintenance activities. (see sweeper form)	• Year 1 • Year 3	• Town Engineer DPW Director	• Year 1
IV.B.6. b.1.v	7G	Procedures to identify and report annually the known discharges causing scouring at outfall pipes or outfalls with excessive sedimentation (1st year)	• Develop procedures to identify and report known discharges causing scouring and sedimentation.	• Year 1	• Town Engineer DPW Director	• Year 3
IV.B.6. b.1. vi	7I	Procedures for a road sweeping program that includes sweeping all streets and roads within the regulated area annually (1st year)	• Review existing street sweeping program to ensure that all streets and roads are swept annually.	• Year 1	• SWM Committee	• Year 1
		Implementing the program to occur annually (3rd year)				
IV.B.6. b.1. vii	7C 7G	Description of maintenance activities, schedules and long-term inspection procedures for controls to reduce floatables (1st year)	• Implement pollution prevention and good housekeeping practices for park and open space maintenance. • Develop procedures for maintenance activities, schedules and long-term inspection procedures for controls to reduce floatables.	• Year 3	• Recreation Dept. Town Engineer DPW Director	
IV.B.6. b.1. viii	7G	Procedures for the proper disposal of removed waste from the MS4 (1st year)	• Review existing removal of waste and its disposal by the Town to ensure that proper procedures are being implemented	• Year 1	• Town Engineer DPW Director	• Year 1
IV.B.6. b.2	9A	Operator must report and describe all operations under legal control that may have the potential to introduce pollutants into storm water runoff (1st year)	• The SWMPP under Section 9.2 describes operations identified by the Town.	• Year 1	• SWM Committee	• Year 1
IV.B.6. b.4	9A	Procedures for the development of an O&M and good housekeeping program for non-industrial facilities with the potential to introduce pollutants to their storm water discharges with the goal of minimizing or eliminating pollutant runoff (1st year)	• Identify and prioritize storm water abatement opportunities. • Develop necessary scopes of work for abatement opportunities.	• Year 1 • Year 3	• SWM Committee • Town Engineer DPW Director	• Year 1
		All recommended BMPs to be implemented by 4th year	• Implement scopes of work.	• Year 4	• Town Engineer DPW Director	
IV.B.6. b.7	7F	Procedures for assessment of flow management projects (1st year)	• Review existing procedures for selection of BMPs for new public development and redevelopment projects.	• Year 1	• Town Engineer DPW Director	• Year 1
IV.B.6. b.8	7E	Procedures for implementing proper erosion and sediment and water quality control for construction projects (1st year)	• Public projects are required to follow requirements of the Sediment and Erosion Control Ordinance.	• Year 1	• Town Engineer DPW Director	

TABLE OF CONTENTS

APPENDICES

Appendix A: Smithfield Soil Erosion and Sediment Control Ordinance
Appendix B: Smithfield Landscape Ordinance
Appendix C: Smithfield Earth Removal Ordinance
Appendix D: "What Can I Do to Reduce Flow and Improve Water Quality in the Town of Smithfield"
Appendix E: Woonasquatucket River Riparian Buffer Restoration Project
Appendix F: Wetland Restoration Plan for the Woonasquatucket River Watershed, Rhode Island (DRAFT)
Appendix G: Outfall-Related Data for Smithfield
Appendix H: Storm Water Outfall Inventory Form
Appendix I: Catch Basin Inventory
Appendix J: Draft Smithfield Storm Sewer Ordinance
Appendix K: People Trained in West Nile Virus Prevention
Appendix L: State Revolving Fund Facilities Planning Checklist

LIST OF FIGURES

1.0 INTRODUCTION

1.1 Background and Regulatory Context

The US Environmental Protection Agency (EPA), on December 8, 1999, finalized the Storm Water Phase II Final Rule. The Phase II rule requires all municipal separate storm sewer systems (MS4s) to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage, or to obtain discharge permits from the local permitting authority, and establish a storm water management program intended to improve water bodies by reducing the quantity of pollutants entering storm sewer systems during storm events. MS4s are considered point sources of pollution because they discharge storm water into discrete conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains. MS4s are publicly owned, operated, and designed or used for collecting or conveying storm water.

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

In Rhode Island, the local NPDES permitting Authority is the Rhode Island Department of Environmental Management (RIDEM). Their permit program is known as the Rhode Island Pollutant Discharge Elimination System (RIPDES). RIPDES Phase II Storm Water regulations became effective March 19, 2002. The Town of Smithfield is within an urbanized area, as defined by the Bureau of the Census and, therefore, required to obtain RIPDES permit coverage (Figure 1). Under the regulations, the Town of Smithfield is required to develop and implement a storm water management program that includes six minimum control measures, evaluation and reporting efforts, and recordkeeping. The storm water management program must be designed to:

- Reduce the discharge of pollutants to the “maximum extent practicable”
- Protect water quality
- Satisfy the appropriate water quality requirements of the Clean Water Act

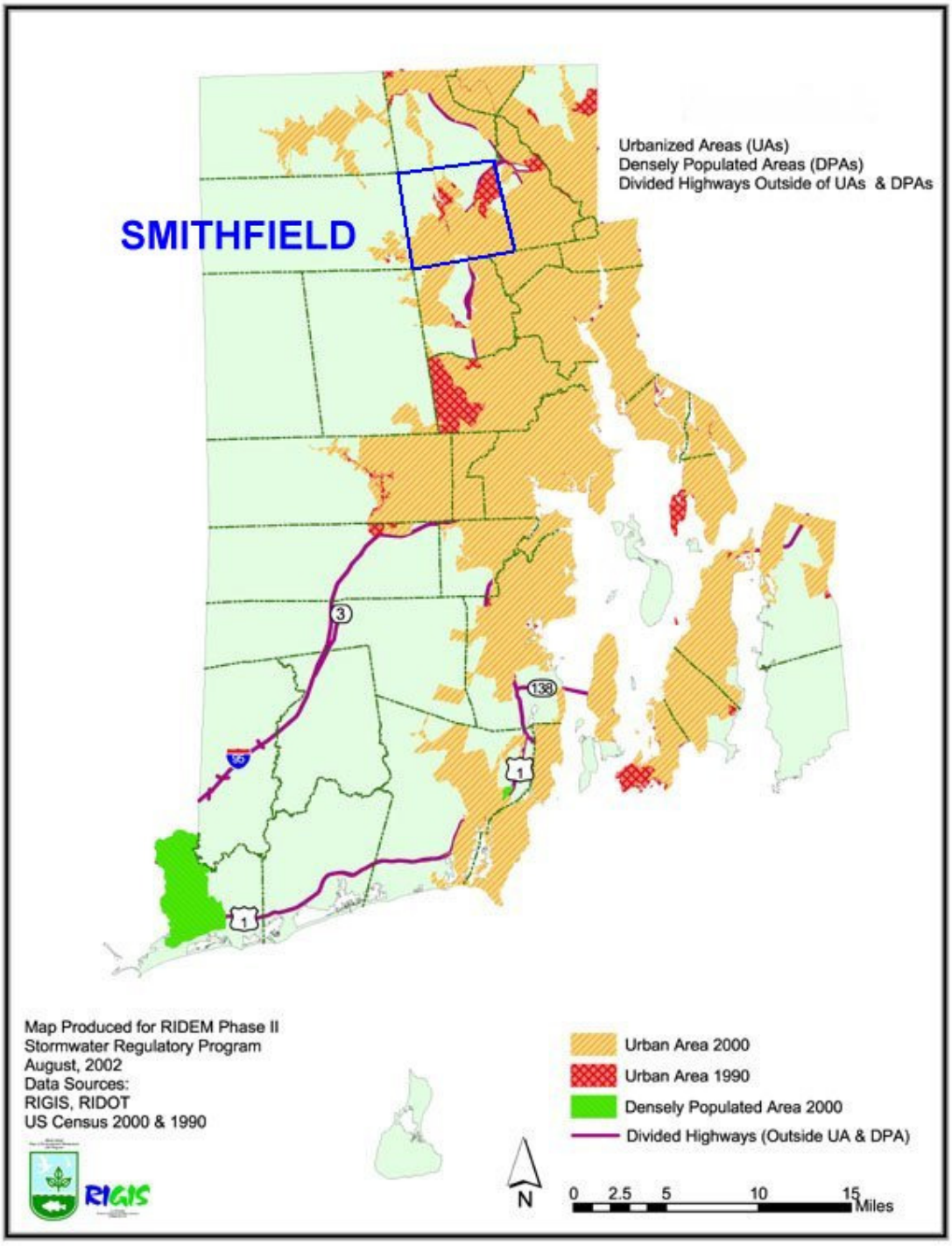


Figure 1: Rhode Island Urbanized Areas.

This document is the Smithfield Storm Water Management Plan (SWMP). It is composed of six required elements, or minimum control measures, as follows:

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

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

1.2 Storm Water Management Committee

A Storm Water Management Committee was assembled to direct the development of the Smithfield SWMP. The committee consisted of representatives of the Town Engineer's Office, the Director of Public Works, the Town Planner, the Conservation Commission, the Smithfield Land Trust, and interested citizens. They assisted in the preparation of this plan, were charged with the task of overseeing the consultant, and helped to generate public interest and input in the plan to ensure its success.

1.3 Existing Conditions

The existing conditions within the Town of Smithfield were analyzed in order to gain a better understanding of the Town's water quality and current programs and policies that currently comply with the Phase II Final Rule. The built and natural environments were inventoried to assess the current status of land use, soils, watersheds, wetlands and surface water quality. Additionally, municipal programs and policies were examined to identify and, if necessary, change existing programs and practices that are or could be impacting water quality. The following discusses the results of the inventories and analyses.

1.3.1 Built and Natural Environments

Land Use, Impervious Surfaces, and Developed Land

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

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

Almost half (43.6%) of the area of Smithfield is covered by forest (Figure 2), including deciduous, evergreen and mixed forest. Approximately 20% is residential uses and less than 3% is commercial. Wetlands make up about 11% of the Town's land area. Roads and North Central Airport account for about 3%.

The Smithfield wastewater treatment facility is located off Esmond Mill Drive along the Woonasquatucket River in the southern part of the Town. It is designed to handle a maximum flow of 3.5 million gallons per day (MGD) and presently has an average flow of about 1.5 to 2.0 MGD. A RIPDES permit is on record for the facility with limits on the amounts of flow, biochemical oxygen demand, suspended solids, residual chlorine, and bacteria that may be discharged from the facility.

Watersheds

There are four major watersheds within Smithfield: Woonasquatucket River Basin, Blackstone River Basin, Moshassuck River Basin and the Pawtuxet River Basin (Figure 3). Nearly the entire area of the Town, 87.9%, is within the Woonasquatucket River Basin. The Blackstone and Moshassuck River Basins cover approximately 6% of the Town each, and the Pawtuxet River Basin is less than 1%.

Surface Water Protection Areas (SWPAs) are drainage areas contributing to drinking water supply reservoirs that serve public water systems. The part of Smithfield within the Blackstone River Basin drains to Woonsocket Reservoir #3 and the Crookfall Brook SWPA. Part of Smithfield in the Pawtuxet River Basin drains to the Moswansicut Reservoir SWPA.

Insert

Figure 2: Land Use.

Insert

Figure 3: Watersheds and Surface Water Protection Areas.

Soils

Soil types have an impact on the runoff potential of storm water. The drainage characteristics of soils, as classified by the Soil Survey Geographic (SSURGO) database, affect the absorption, or infiltration, of runoff and, subsequently, the amount of runoff reaching a receiving water body. Figure 4 shows the soils drainage characteristics of Smithfield. More than half (62%) of the land area of Smithfield has soils that are well drained, meaning they have intermediate water holding capacity. Approximately 9% of the land area is poorly to very poorly drained. Poorly drained soils may have a saturated zone, a layer of low hydraulic conductivity, or seepage. The depth to the water table is less than one foot. Very poorly drained soils are wet at the surface most of the time and the water table is less than a foot in depth or is ponded. Another 8% of the land area is classified as having variable drainage. Soils that drain moderately well comprise 7% of the Town's land area, meaning the soils have a layer of hydraulic conductivity and the wet state is high in the soil's profile. The remaining 14% of land area is a mixture of all other drainage characteristics.

Wetlands

Wetlands retain water from either rainfall or runoff and feed water sources. They provide many functions and values including trapping pollutants, providing wildlife habitat, retaining storm water for flood protection, and other aesthetic and recreational functions. Most of the Town of Smithfield is categorized as upland (83.8%), as shown in Figure 5. Nearly 10% of the Town is forested wetlands, 5% is open water, and the remaining classifications of wetlands each represent less than 1% of the Town's area.

Surface Water Quality

Knowing the condition of receiving waters and their designated uses allows the Town to design the SWMP to address the specific needs of Smithfield and to focus on water resources that need to be protected. In accordance with Section 305(b) of the Clean Water Act, the State of Rhode Island is required to survey water quality for attainment of the fishable/swimmable goals of the Act, and to report the findings in the biennial "State of the State's Waters Report". The State of Rhode Island 2002 "State of the State's Waters Report" and the 303(d) State of Rhode Island 2002 List of Impaired Waters (Draft), both prepared by RIDEM, were used to assess surface water quality in the State and in the Town of Smithfield. Both reports evaluate waters based on their designated uses: aquatic life, drinking water supply, shellfishing, fish consumption, and swimming. From these reports, we are able to gather the following information about surface waters in Smithfield: the names and locations of waters that receive a discharge, the character and quality of waters, waters that are impaired, and the designated uses of waters. There are three water bodies in Smithfield listed by RIDEM as being impaired or not currently meeting Rhode Island Water Quality Standards based on biological or chemical data: Woonasquatucket River, Nine Foot Brook, and Latham Brook (Figure 6).

Insert

Figure 4: Soil Drainage Characteristics

Insert

Figure 5: Wetlands Classifications.

Insert

Figure 6: Impaired Surface Waters.

The impaired waters of the Woonasquatucket River are divided into two segments. The first is from the Georgiaville Pond outlet to the Smithfield Wastewater Treatment Facility discharge point at Esmond Mill Drive. The water use is classified by the state as B, designated for fish and wildlife habitat and primary and secondary contact recreational activities. The waters are suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses and they have good aesthetic value. This portion of the river exceeds the acute aquatic criteria for the following metals: mercury, cadmium, copper and lead. This means that metal concentrations are high enough to harm aquatic life. Point sources of metals vary from permitted industrial and municipal discharges to combined sewer overflows (CSOs) and to storm drains as well as contaminated sediments. Nonpoint sources can be urban runoff or sources upriver. The level of pathogens (potentially harmful bacteria) is also in excess of the standards in this section of the river. Sources of pathogens can be point and nonpoint sources such as CSOs, seepage from failing septic systems, runoff during storm events and natural sources such as wildlife or waterfowl.

The second water quality impaired segment of the Woonasquatucket River is from the discharge point at Esmond Mill Drive to the southerly Town line, extending to the CSO outfall at Glenbridge Avenue in Providence. The water use is classified by the state as B1, the same designated uses as category B, however, primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges. RIDEM testing indicates the reasons for impairment include exceedance of acute aquatic criteria for metals such as mercury, cadmium, copper and lead, pathogens, polychloro-biphenols (PCBs), and dioxins. Point and nonpoint sources of metals and pathogens can be those listed above. PCB's and dioxins in the water can be the result of industrial sources. Additionally, there is excess algal growth and low dissolved oxygen in this portion of the river. Eutrophication, a natural process in the life of freshwaters, is often accelerated by human-related development, resulting in high inputs of nutrients and heavy algal blooms that eventually result in low levels of dissolved oxygen.

Nine Foot Brook, which flows through the Town of Smithfield and Glocester to the Waterman Reservoir, is also listed as impaired by RIDEM. Its water use classification is B and it is listed because of biological impacts. Impairment of the physical habitat and/or biological community is generally due to nonpoint sources of pollution such as runoff, in addition to low flow conditions associated with drought years.

Latham Brook is listed as impaired because of biodiversity impacts and unknown toxicity. The water use classification is B and the brook feeds the Stillwater Reservoir. There is a Record of Decision from 1997 for the Davis Glocester-Smithfield Regional Landfill, which states baseline risk assessment concluded that conditions at the site pose no unacceptable risk to human health and the environment.

Figure 6 also identifies leaking underground storage tanks (LUSTs), EPA Superfund CERLIS sites, and sites issued a RIPDES permit for sanitary waste discharges, all of which may contribute to surface water quality. LUSTs are underground storage tanks (UST's) and associated piping used for petroleum and certain hazardous substances that

have experienced leaks as determined by RIDEM. These sites are categorized as active, inactive, or soil has been removed from the site. Active sites are either presently under investigation or groundwater monitoring or remediation is underway. Inactive sites are either closed or the UST release has been remediated or attenuated. For sites with a status of soil that has been removed, contaminated soil was removed during a UST closure.

Potentially hazardous waste sites are listed by EPA on the Comprehensive Environmental Response Compensation and Liability Information System (CERLIS). The sites shown in Figure 6 are designated as either being actively investigated by EPA, designated on the EPA's National Priority List, requiring no further remedial action, or one time removal by EPA.

Critical Habitats

RIDEM requires the Town to identify all discharges into areas identified as critical habitats of rare and threatened species. Figure 7 shows three areas: north of Stillwater Reservoir along the Woonasquatucket River, north of Hawkins Brook, and around Wenscott Reservoir.

Topography

As stated above, the Town of Smithfield is mostly upland (Figure 8). The topography of the area indicates the direction in which water flows and helps to identify the water bodies that receive storm water discharges. Smithfield has a very complex topography. In general, surface runoff flows from the northern and western parts of the Town into Stillwater Reservoir, then down into Stillwater Pond and Georgiaville Pond. The eastern part of Town drains generally westward also toward Stillwater Pond and Georgiaville Pond. From there, the water flows generally southward, through Esmond, and exits the Town to the southeast. This means that most of the runoff from the Town eventually makes its way to Esmond via Stillwater and Georgiaville.

Insert

Figure 7: Critical Habitats of Rare and Threatened Species.

Insert

Figure 8: Topography.

1.3.2 Municipal Programs and Policies

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

Zoning Ordinances

The Town of Smithfield currently has in place a Soil Erosion and Sediment Control Ordinance (See Appendix A). The ordinance applies to any situation involving the disturbance of land that include the following specific situations:

- Any development project required to obtain a building permit based on the building code
- Any development project required to submit a subdivision plan based on the subdivision regulations
- All Town projects undertaken by private contractors
- All projects undertaken directly by the Department of Public Works
- Any wood cutting operation involving an area of one-half acre or more or where the slope is greater than 10 percent

The Town Engineer's Office reviews and approves applications for Soil Erosion Permits. If the application is found to be applicable to the Soil Erosion and Sediment Control Ordinance, an erosion and sediment control plan must be developed and approved by the Soil Erosion Committee. The plan must contain sufficient information about the proposed activities and land parcel(s) as well as clearly demonstrate how performance principles are met. Performance principles include the following:

There is regard for natural drainage characteristics and topography.

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

- Areas damaged during construction must be resodded, reseeded, or otherwise restored.
- Storm runoff at the completion of a project must be the equal to runoff prior to the beginning of work.
- A licensed engineer shall perform drainage calculations.
- Applicants may be required to post a performance bond prior to the approval of an erosion sediment control plan.

Additionally, the *Rhode Island Erosion and Sediment Control Handbook* must be used as a reference in determining best management practices (BMPs) for the suitability and adequacy of erosion and sedimentation control plans. The ordinance also includes provisions for a fee schedule, periodic and final inspections, complaint procedures and penalties for non-compliance.

Once the Town Engineer's Office reviews the erosion and sediment control plan, comments and the office's opinion regarding the plan is sent to the Town's Soil Erosion Committee if the project meets applicable criteria according to the ordinance. The Soil Erosion Committee approves all applicable soil erosion permits in conjunction with the Town Engineer's Office.

The Town also has a Landscaping Ordinance for off-street parking lots and other vehicular use areas. The purpose of the ordinance is to incorporate landscaping into these areas in order to protect and preserve the appearance, character and value of the surrounding neighborhoods. This ordinance also benefits the SWMP by reducing impervious surfaces and thereby reducing the amount of storm water runoff from these areas. The ordinance outlines requirements for maintenance, plant material, and planting procedures as well as specifics regarding landscaping along right-of-ways and abutting properties. Interior landscaping in the form of islands or medians is required if there are 18 parking spaces or more. See Appendix B for Landscape Ordinance.

Smithfield also has an Earth Removal Ordinance, where a license is issued by the Town Engineer's Office before any such work begins. Earth removal is defined in the ordinance as the extraction or removal of any sand, gravel, loam, topsoil, stone, clay, or shale from the deposits on any tract of land. Exclusions include earth removal involved in the process of grading land for the construction of a building for which a building permit has already been issued, for construction of a roadway, or for a subdivision with plans approved by the Planning Board. To be issued an earth removal license, an application must be submitted to the Town Engineer's Office, which contains a plan prepared by a registered engineer showing existing contours of the land, final contours of the land upon the completion of earth removal, and the type of ground cover to be planted or applied after removal takes place. The ground cover should effectively control wind and water erosion and slopes shall remain at the natural angle of repose. Provisions in the ordinance require adequate drainage to prevent the permanent collection and stagnation of surface or underground waters and the flooding or erosion of surrounding properties during earth removal. See Appendix C for the Earth Removal Ordinance.

Land Development and Subdivision Regulations

The Town of Smithfield Land Development and Subdivision Regulations were adopted in 1996. These include many elements that support the efforts of the SWMP. In being consistent with the Town's zoning ordinance, the subdivision regulations require an approved erosion and sediment control plan prior to the Preliminary Plan Stage. Preliminary and Final Plans are required to show in detail temporary and permanent soil erosion and sediment control measures. When construction is complete, as-built drawings of all land improvements must be recorded. These plans show, among other requirements, all catch basins, storm pipes, rim elevations, inverts, headwalls, flared end sections, and pipe sizes entering and leaving structures, as well as detention basins in detail, invert of outlet and inlet structures, and elevation on the top and bottom of basins.

The subdivision regulations also contain design standards that all subdivisions must meet. Standards that support the SWMP include those that apply to surface and subsurface storm drainage and permanent soil erosion and sediment control structures. The design standards require structures and facilities to be connected to the public storm sewer system, catch basins, watercourses, or dry wells. Storm water runoff calculations must be submitted with the Preliminary Plan and the regulations outline conduit design criteria to ensure that capacities are adequate.

The Planning Board also reviews plans based on the following considerations:

- Open space accommodates the projected intensity of the use as determined by the population density and composition of the proposed site
- The natural terrain and drainage flow that reduces flooding and/or soil erosion is preserved, the existing natural and built environments are protected, and all significant negative impacts of any proposed development on the existing environment is mitigated
- Plans conform with State and Federal Laws designed to protect wetlands
- Surface waters, subsurface aquifers, and other water resources are protected

Additionally, the Planning Board has the authority to require applicants to prepare an Environmental Impact Statement if they find there is reasonable expectation that the proposal will have a significantly negative impact on the natural system located on the subject property.

Other Municipal Policies

In addition to the regulatory tools discussed above, the Town also enforces a Storm Sewer Connection Policy. The Town of Smithfield must give permission to tie a perimeter underdrain or subsurface drain into an existing Town storm drain system.

There are specific conditions that must be met before permission is granted:

- Only a perimeter underdrain, yard drain or subsurface drain is allowed to tie into the storm drain system. All drains must have backwater valves attached.
- No drainage directly from the house is to be tied into the system.
- If the home has a leaching field or if the area is not sewered and sewage shows up in the Town drain any time after the connection, the Town will permanently plug the connection.
- All perimeter underdrains must conform to state law as far as the distance between the drain and the proposed leaching fields. The Town must have a copy of the approved ISDS plan.

2.0 PUBLIC EDUCATION AND OUTREACH PROGRAM

2.1 Why is this program important?

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

2.2 Requirements

The Phase II program requires the Town of Smithfield to implement a Public Education and Outreach Program. That outreach campaign is charged with distributing educational materials to the community or conducting equivalent outreach activities, which present the impacts of storm water discharges on State water bodies, along with the steps that can be taken to reduce storm water pollution. The Public Education and Outreach Program should form partnerships with other governmental agencies, take advantage of storm water educational information provided by EPA, the State, and/or other environmental, public interest, or trade organizations (if available), and use a mixture of appropriate local strategies to address the viewpoints and concerns of various audiences and communities, including minority and disadvantaged communities, as well as children.

2.3 Public Education and Outreach Program

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

1. Public meetings, workshops and hearings conducted during and after the preparation of the plan
2. An on-going program conducted by the Northern Rhode Island Conservation District to educate Town residents on the importance of storm water management in the community
3. Public storm water management education through cooperative programs with other public & non-profit organizations

Public meetings, workshops and hearings were conducted throughout the preparation of this Phase II Storm Water Management Plan. The steering committee met monthly while the Storm Water Management Plan was being prepared. Outreach mechanisms, including notices in the Town Hall, advertisements in local publications, items posted on the community website, and word of mouth were used to generate interest in the project. In January 2003, a public workshop was held to kick off the public education and

outreach program. At this workshop, Town officials and consultants made presentations on the importance of storm water management, the need to protect water quality, and specific measures those individuals and families can take to improve management of storm water runoff.

The community representation determined that in order to assist the public in understanding the impact of storm water discharges on water bodies, the public needs to receive information concerning watershed dynamics, pollution loading, and practical ways they can aid in reducing the detrimental impacts that the community has on water quality. Community members will also receive instruction about storm water flow and how increasing the number/amounts of impervious surfaces and direct drainage impacts water bodies.

The following are of primary concern to the Town's people and the following will be supplied as public information:

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

- *Septic system operation and maintenance* – Although much of the Town is sewered, there are areas of prime concern that are still using septic systems. Because many of the homes on septic systems also have public or private water, the concern over contaminating one's own well is nonexistent for these persons. However, there is always a potential contamination concern for the smaller percentage of persons with both septic systems and wells.

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

- *Waterfowl* – The closing of a Town beach in the not to distant past due to bacteria contamination from waterfowl has caused concern and action from the Town.

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

- *Petroleum Products* – Several service stations in Town could improve operations by a periodic clean up of the grounds closest to gas pumps.

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

Target audiences for the education campaign as chosen by the group include:

- *Elementary School students* – Grade school students have been chosen as a target audience because the team realizes their importance in society. Students are our future and a well-educated student will grow up to be a valuable, community minded

citizen. In addition, training students initiate a domino effect. The Northern RI Conservation District will provide the students with brochures, facts sheets and other attractive take home materials that will serve to educate parents in the process. Today's society is competing for the attention of decision-making adults, and while many adults do not have time to attend to all deserving causes, they will tend to listen to what their child learned in school that day.

- *Adult stakeholders* – It is in the best interest of all property owners to invest into the environmental quality of their surroundings, as this will also affect the quality of life and property values. Through brochure distribution, workshops, direct mailings, media and word of mouth adults will become more aware of the impacts they have on water quality.

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

- *Commercial enterprises* – Although businesses can negatively and positively impact the water quality. Service stations and funeral homes will be targeted. Service stations, construction storage yards, and large parking lots offer opportunities to mitigate potential negative impacts on water quality. Funeral homes offer an opportunity to improve water quality.

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

The **Northern Rhode Island Conservation District** (NRICD) has been involved in water quality education since its founding. NRICD, one of three Conservation District organizations in the State, is a tax-exempt, local quasi-governmental unit, which is headed by a volunteer board of directors and is overseen by the State Conservation Committee. NRICD is managing several other educational efforts in the community and the Woonasquatucket River watershed. The Smithfield Phase II Storm Water Plan intends to work with these on-going programs to include public education components related to storm water management and best management practices.

Chief among NRICD's efforts is the "*Do's and Don'ts for the Woonasquatucket River,*" a multi-lingual education campaign. The "Do's and Don'ts" campaign has worked for three years to educate children, families and local residents about the appropriate uses of the Woonasquatucket River. Smithfield will participate in this program and support the NRICD's efforts to increase public awareness of the environmental and public health issues surrounding the Woonasquatucket River and to encourage community involvement and stewardship of the river and surrounding watershed. This program has included a poster contest for third grade students and a sponsorship campaign to involve local businesses in maintaining and enhancing the program.

The NRICD will also continue in-classroom educational presentations and distribution of multi-lingual brochures reaching over 300 children and their families. Project partners include the Northern Rhode Island Conservation District, The Urban Rivers Team's Health and Education Subcommittee, Woonasquatucket River Greenway Project, Socio-Economics for South East Asians, Genesis Center, Paddle Providence, and USDA Natural Resources Conservation Services.

Audubon Society of RI provides walking tours of the wildlife refuge in Smithfield and offers a "Watershed Walk" along with other environmental education programs for students and scout groups. In addition Audubon has worked on a biological stream assessment of Nine Foot Brook near Tarklin Road in Smithfield.

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

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

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

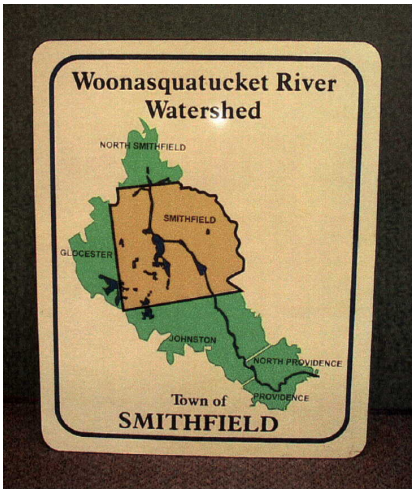
Using the above-targeted audiences, pollutants and making the best of existing partnerships and Town assets, the following strategies, BMPs and measurable goals have been determined:

BMP 2A – In support and partnership with Northern Rhode Island Conservation District continue to implement the "Do's and Don't for the Woonasquatucket River" outreach and education program, educating the public on watershed dynamics and pollution loading issues.

Measurable Goal: 300 students per year will receive the presentation and take home materials. Teachers will evaluate program.

Measurable Goal: Install 12 Woonasquatucket River Watershed signs throughout town by Year 1.

Pending continued funding, each third grade class in the Town of Smithfield will be given the opportunity to receive a 1½-hour presentation with hands-on activities. Materials and brochures will be distributed to each student to take home to their parents. Each folder will include the following information: *"What is a Watershed", "Do's and Don'ts for the Woonasquatucket River", " Nonpoint Source Pollution", and a fact sheet, "What can I do to reduce flow and improve water quality in the Town of Smithfield"* also



included will be a map delineating the Woonasquatucket River Watershed (See Appendix D). The Northern RI Conservation District will oversee this BMP as long as funding is secured.

The Town Planner currently has 12 metal signs that depict Smithfield in the Woonasquatucket River Watershed. These signs can be placed throughout town to increase the general public's awareness of the boundaries of the watershed.

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

Measurable Goal: Educate 200 households per year through brochures and facts sheets. And information workshop for homeowners will be held in year two.

Brochures will be available through the Smithfield Town Hall, the Recreation Department and in partnership with Northern RI Conservation District, Audubon Society of Rhode Island, and local businesses retailing lawn products. The Town of Smithfield personnel will also assist in the distribution of brochures.

Pending funding and volunteers a workshop, will be held to demonstrate proper measuring and use of fertilizers and pesticides. The Town Planner in conjunction with the Recreation Director will be responsible for this BMP.

BMP 2C – Reduce the impact of failing septic systems on the quality of water bodies in the Town of Smithfield.

Measurable Goal: Identify all homes currently using septic systems in a prioritized area selected to have sewers installed. Identify all homes prioritized to obtain sewers. The number of direct mailings to this selected audience will be a measurable goal. A public workshop will be held following the mailing – Year 3.

Using the "On-Site Sewage Disposal Wastewater Management Plan" developed by BETA Group, Inc. for the Town of Smithfield and completed in February of 2003, all homes not currently sewered will be identified and a list developed by the Town Tax Assessor in conjunction with the Town Engineer's Office. Pending availability of funds, a folder of information will be assembled in cooperation with partners at the University of RI Cooperative Extension, Northern RI Conservation District and other interested parties. A Septic System Operation and Maintenance workshop will be provided under the over site of the Wastewater Management District and the Town Planner.

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

Measurable Goal: Post 6 signs in the Town. Develop and distribute flyers. Year 4.

There is currently one sign posted at Georgiaville Pond warning residents not to feed the Geese. Since people enjoy feeding wildlife and may be hesitant to comply, information will be more readily available explaining the effects of nutrient loading on water quality. Brochures will be developed and distributed. The potential of a "pooper scooper" ordinance has been investigated to date; this matter will be further researched for potential implementation. An article will be prepared for the Observer Publications. The Recreation Department Director will be responsible for this BMP

BMP 2E – Reduce petroleum run off into water bodies and ground water.

Measurable Goal: Work with one pilot gas station in year 4 to determine a workable schedule for clean up in year 4, investigate the use of a Town ordinance to require periodic grounds cleaning in year 5.

Measurable Goal: Develop outreach efforts to address construction storage yards and large parking areas by end of year 1.

The Town Engineer's Office has expressed concern over the lack of scheduled clean up in and around service stations, potentially risking run off of petroleum products into Smithfield's water resources. The Town Planner and the Town Engineer's Office will work with station owners to devise a schedule and eventually require adherence to Town requirements.

Additional businesses that have the potential to impact runoff into water bodies and groundwater are construction storage yards and large parking areas. Outreach efforts will be developed by the end of the first year.

BMP 2F – Increase business education and reduce soil erosion while increasing filtration of water resources.

Measurable Goal: Work with two funeral homes in Town to foster a tree-planting program.

By establishing opportunities for local businesses and the general public to invest in the future, the community's awareness level will be heightened. Local funeral homes will be asked to investigate a tree planting promotion in memory of loved ones who have died. The Smithfield Conservation Commission will work in cooperation with the funeral homes to locate a suitable place in town where the environment will be enhanced (perhaps a riparian area) by planting trees.

2.4 Program Evaluation

BMP 2G – Evaluate the effectiveness of the Public Outreach and Education Program efforts.

Measurable Goal: Develop procedures to evaluate the program by the end of year 3.

Procedures will be developed to evaluate the Public Education and Outreach Program. This will be conducted by the members of the Smithfield Conservation Commission, Town Planner and Town Engineer. Procedures will include the quantifying of workshops and presentations to various groups (adults and children) and distribution of materials. Qualitative factors will also be considered including, but not limited to, changes in the public's perception of the importance of storm water impacting water quality and their own personal responsibility in introducing pollutants into storm water.

3.0 PUBLIC PARTICIPATION PROGRAM

3.1 Why is this program important?

EPA believes that the public can provide valuable input assistance to a storm water management plan, and therefore, suggests that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a storm water management program. The community is a valuable, free, intellectual resource! When municipalities utilize their community, they are tapping into a broader base of expertise, extending economic benefits, and encouraging community ownership/buy-in. Public participation can also serve as a conduit for other programs. As citizens become more involved in public programs, like the development process for the Storm Water Program, they provide vital connections and relationships to other community-based and/or governmental programs. This benefit is particularly valuable when trying to implement a storm water program on a watershed basis.

3.2 Requirements

The Phase II program requires the Town of Smithfield to comply with applicable State and local public notice requirements. The Town should include the public in development, implementation, and review of their storm water management programs. The Public Participation Program should make every effort to reach out and engage all economic and ethnic groups.

3.3 Public Participation Program

As noted above, the public was invited to participate in the preparation of this plan at several intervals. Plan preparation was directed by a volunteer committee of local citizens including representatives of several Town boards and commissions (Conservation Commission, Land Trust, Planning Board), representatives of the Town Engineer's Office, the Department of Public Works, and citizens at large. All meetings of the committee were public meetings advertised within the community and open to the public.

A public workshop was conducted in January of 2003. The workshop mixed public education and outreach goals with public participation elements. At the workshop, key elements of the plan were presented for public comment and members of the public were provided with an opportunity to comment on the plan, as well as participate in developing elements of the plan.

Information on storm water management, including the preparation of the plan and the public workshops, has also been posted on Internet via the Town of Smithfield's web site at http://www.smithfieldri.com/stormwater.htm.

Although Public Involvement/Participation is a separate element, it is closely linked with Public Education and Outreach and will therefore show some overlap. The Town of Smithfield will continue to work with existing partners to implement a strategy for Public Involvement and Participation. These partners include but are not limited to:

- **Northern Rhode Island Conservation District (NRICD) –** Outlined in detail under Education and Outreach, the NRICD will provide support and assistance where possible to assist the Town.

- **The RI Department of Environmental Management** is a primary sponsor of the Earth Day clean up activities. They provide media coverage, bags, and gloves and coordinate many entities and volunteers throughout the State of RI.

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

- **Woonasquatucket River Watershed Council** – Coordinates all the cities and Towns located within the Woonasquatucket River Watershed. Often hosts water festivals and community clean ups.

- **University of RI Cooperative Extension-** Home of Watershed Watch and RI Home-A-Syst.

- **Audubon Society of RI**

- **Smithfield Conservation Commission**

- **Boy Scouts of America**

- **Girl Scouts of America**

- **YMCA** – Located on Deerfield Drive, the YMCA also has a summer camp for inner city youth called Camp Shepard located on Cowell Road.

The targeted audiences for public involvement not only include the above-mentioned governmental partners and organization, but also local organizations and community members. Several key audiences in Smithfield's community include the Smithfield Senior Center and its senior population participants, the Smithfield Recreation Department and all effectual participants, and members of the Smithfield Conservation Commission

The Smithfield Recreation Director will oversee projects involving the Senior Center and the Recreation Department. Specifically, baseball coaches, team members and other recreation department stakeholders will be involved in projects that enhance riparian buffers in the Town. The Smithfield Conservation Commission will partner with other agencies to oversee various projects, including Earth Day Cleanups.

Public participation activities will include:

BMP 3A – Public hearing to review Storm Water Management Plan and public notices for each annual report.

Measurable Goal - Public notification, agenda and attendance at the hearing in year 1

Measurable Goal – Submit a public notice for each annual report.

Upon completion of the draft Storm Water Management Plan, a public hearing will be held following all state and local public notice requirements. A public notice will be submitted for each annual report. Notifications will be submitted to The Observer and Providence Journal as well as being posted on the Town's website. The annual reports will be made available in the Town Clerk's office during normal town hall business hours.

BMP 3B - Installation of riparian buffers and wetland restoration projects.

Measurable Goal: Identify areas where riparian buffers and wetland restoration projects would be applicable and develop strategies for their development by end of year 1.
(has this been done?)
Measurable Goal: Include the 5 community members on each project for clearing and planting.

Measurable Goal: Complete first project by end of year 2 and a minimum of one project per year thereafter.

Streams receiving direct storm water runoff show severe levels of pollution loading. A riparian buffer can work to slow and filter water, dramatically decreasing effects. Involving the community in the planting of riparian buffers will educate residents and give them a sense of pride and ownership. When community members are involved, they will be more likely to maintain and keep those areas clean. The Town of Smithfield has received a Wildlife Habitat Incentive Program grant for $9,000 to implement the riparian buffer at Whipple Field, home to Smithfield's recreational baseball league. The adult coaches and teams will be solicited to participate in clearing away brush and debris at the field site. Young team players will be encouraged to assist in planting materials already approved by the USDA, NRCS. The Town has also prepared a study for the Woonasquatucket River Riparian Buffer Restoration Project (see Appendix E).

The Town Planner has submitted a grant application for funding from EPA to implement a wetland restoration and riparian buffer project, the Mountaindale Pond Wetland Restoration Project for a degraded wetland behind the DPW facility. This project also includes an oil and grease separator, a new drainage system, and a Vortex structure at the DPW site as well as efforts to improve the water quality of Mountaindale Pond. Activities are to begin spring 2003. The Town has also prepared a draft restoration plan for the Woonasquatucket River (see Appendix F).

BMP 3C – Implement Neighborhood Watch

Measurable Goal: 20 people trained and signed on as watchmen. Year 3 - 5

The seniors are an underused segment of the community. Seniors have a lot to offer in terms of wisdom, experience, time and concern. The Town Planner in conjunction with the Recreation/Senior Center Director and the Town Engineer will oversee training of seniors at the Senior Center. Seniors will be asked to take note of suspicious behavior in their neighborhood (i.e. illicit discharges, etc.). They will be asked to call the Smithfield Environmental Affairs office at 233-1041 with concerns related to water quality degradation.

BMP 3D – Storm drain stenciling

Measurable Goal: *100* storm drains stenciled; 20 volunteers involved in stenciling. Years 1-5 (Have 2 summer interns working on this. Trying to purchase a GPS unit to locate and place on GIS as well.)

Often the public is under the impression that storm drains lead to the sewage treatment plant and that, therefore their deposits will be filtered. Stenciling storm drains with words like, "Do no dump! Drains to river!", ultimately educates the public. They learn that drains are directly linked to nearby water bodies and therefore, water degradation is likely to occur. Media coverage of storm drain stenciling teams can also serve to educate the public. People who volunteer will not only become more aware of storm water issues but also be equipped to train others whom they come into contact with. Storm drain stenciling will be accomplished in cooperation with the Woonasquatucket River Watershed Council and the Blackstone River Watershed Council.

BMP 3E – Litter clean up

Measurable Goal: Involve the Smithfield Conservation Commission and 100 volunteers by year 5.

Measurable Goal: Conduct local clean-up activities on Earth Day (Don Burns from the Conservation Comm. had young teens working on litter cleanup within walking trails and side of roads)

The Woonasquatucket River Watershed Council has been active in the community for four years. This energetic, visionary group regularly holds water festivals and community clean-ups. The Town of Smithfield will support their efforts and encourage participation by townspeople in these activities. In addition the RI Department of Environmental Management regularly holds Earth Day clean-ups. The Town of Smithfield will take advantage of the publicity, energy and volunteerism sparked by Earth Day to plan local clean-ups. The Conservation Commission will oversee these activities. Any Earth Day grants available through RIDEM will be applied for. The

Town will also support the clean-up activities of the Blackstone River Watershed Council.

4.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

4.1 Why is this program important?

Federal regulations define an illicit discharge as any discharge to an MS4 that is not composed entirely of storm water. Exceptions are given to discharges under a RIPDES permit and discharges from fire-fighting activities. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-storm water wastes. Sources of illicit discharge include:

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

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

4.2 Requirements

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

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

- Irrigation water
- Water from crawl space pumps
- Dechlorinated swimming pool discharges
- Foundation drains
- Springs
- Footing drains
- Individual residential car washing
- Air conditioning
- Lawn waterings
- Flows from riparian habitats and wetlands
- Rising groundwaters

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

4.3 Illicit Discharge Detection and Elimination Program

4.3.1 Storm Sewer Mapping

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

Measurable Goal – Verify the location of all known outfalls and receiving waters by end of year 1.

As part of the preparation of this plan, the Town has located all known outfalls from the Storm Sewer system. Outfalls were located in the field using a backpack mounted Global Positioning System (GPS). The GPS uses satellite signals and local repeating stations to determine outfall locations with a typical accuracy of ± one meter.

Each outfall was located and examined in the field. Probable outfall locations were identified from topographic, geographical information systems, (GIS) mapping and through discussions with Town personnel. A map was prepared to differentiate between Town-maintained roads from State-maintained roads (Figure 9). Each potential outfall location was visited if it was on a Town-maintained road. The following information was recorded on field data sheets and entered into a GIS coverage for the Town:

- **ID#** - Each outfall was assigned an identification number, (ID) number for GIS purposes. This ID was assigned as the data was input to the GIS system.
- **Location** – Outfall location is provided as easting and northing coordinates in the universal transverse Mercator (UTM) coordinate grid system.
- **Plat/Lot** – Outfall location is also indicated using property information from the Tax Assessor's plat map and lot number using plat and lot mapping prepared for the Town by the Town Surveyor.

Insert

Figure 9: Road Ownership.

- **Maintenance** – Current status of outfall maintenance is recorded to indicate if maintenance is or is not presently required (e.g. clogged, eroded, undermined, none, etc.)
- **Pipe Material** – The type of pipe (concrete, corrugated metal, plastic) is recorded if the pipe itself is visible.
- **Pipe Diameter** – The pipe diameter (in inches) is recorded as an indicator of the size of the drainage system and the potential volume of the discharge.
- **Pipe Condition** – Pipe condition is recorded as excellent, good, fair, poor, or very poor if the pipe is visible.
- **Outlet Type** – The outlet type is indicated. (open end, flared end, headwall, etc.)
- **Receiving Body** – The name of the receiving water body is recorded if the receiving water is named or the type of receiving body (wetland, intermittent stream, paved swale, earthen swale, etc.) is recorded if it is un-named. Where available, wetlands are also identified by the ID numbers used in the Town's Natural Resource Inventory prepared by Wetlands Management Specialists.
- **Comment** – This field provides space for any other observations made during field inspection.

Field data forms are attached to this plan as Appendix G. Figure 10 shows the locations of outfalls identified and mapped as part of this effort. Appendix H provides a summary of outfall related data. The GIS coverage has been provided to the Town on compact disc, (CD) format.

BMP 4B – Develop procedures for tagging outfall pipes.

Measurable goal – Develop procedures for the tagging of outfall pipes by the end of year one. (Any progress to-date on this)

The Town is required to tag outfall pipes with an identification number. RIDEM requires the tags to contain the following information: name of the municipality or facility operating the discharge and the discharge serial number for the particular outfall. Tags shall be made of durable material and maintained on a regular basis to ensure that they are legible and properly attached to the outfall. During the initial mapping of outfalls, as each one was found, it was assigned a unique identification number. This number will be used as part of its tag proceeded by "SMITH". These outfalls will be revisited and tagged during dry weather as the catch basins are cleaned and inspected for illicit discharges, as discussed in Section 4.3.3 and the Pollution Prevention and Good Housekeeping Program. As new outfalls are located or constructed, the next available number will be assigned and it will be tagged.

Insert

Figure 10: Identified Outfall Locations.

4.3.2 Legal Prohibition and Enforcement

BMP 4C – Develop and enforce an ordinance that prohibits illicit discharge and dumping and authorizes enforcement actions, including on private property, which is consistent with existing land use control policies and regulations.

Measurable Goal – Adopt an ordinance that prohibits illicit discharges to the storm sewer system by the end of year 3.

A Storm Sewer Use ordinance provides regulation of storm sewers in a manner similar to what is customarily used for sanitary sewers. Typically, a Storm Sewer Use ordinance regulates connections to the storm sewers and controls discharges to the storm sewers for the protection of water quality. The ordinance contains administrative and technical procedures, enforcement mechanisms and penalties.

The Town will draft a Storm Water Management Ordinance that will combine the requirements of a Storm Sewer Ordinance and the implementation of the SWMPP. It will be drafted by the Town Engineer's Office and the Town Planner during year 3 and adopted in the same year.

Existing land use controls are presently adequate to protect storm water quality. The Town has a zoning ordinance that specifies permitted uses by district. Figure 2 on page5 shows existing land use based on current zoning. No changes to land use and zoning regulations are proposed as part of this plan.

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

4.3.3 Detection and Addressing Illicit Discharges

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

BMP 4D – Develop Standard Operating Procedures (SOP) to detect and address illicit discharges that include, at a minimum, the following components:

- Strategies for locating priority areas for assessment
- Procedures for receipt and consideration of complaints
- Procedures for catch basin and manhole inspections for illicit discharges
- Procedures for dry weather surveys including field screening for non-storm water flows and tests of selected parameters and bacteria
- Characterizing any discharges found
- Procedures to trace an illicit discharge
- Procedures to remove an illicit discharge

- Procedures for referral to RIDEM of non-stormwater discharges not authorized by permit or pre-existing permit
- Procedures for coordination with other physically interconnected MS4s when illicit discharges are detected or reported.
- Recording keeping and tracking of all actions taken to detect and address illicit discharges
- Procedures for program evaluation and assessment

Measurable goal – Develop Standard Operating Procedures to detect and eliminate illicit discharges by the end of year one.

Identification of Priority Areas for Assessment

The GIS coverage of outfall locations provides information vital to the implementation of this BMP. The outfall mapping indicates the areas where there is the highest potential for illicit discharges. In general, these are the areas with the highest density of outfalls and the areas with the oldest and largest storm sewer systems. In Smithfield, these areas include Esmond, Georgiaville, Greenville, and Sprague ville. These areas will therefore be the priority areas for illicit detection.

The Town conducts catch basin cleaning and storm water system inspection annually using a catch basin cleaning vehicle and a two-person crew. While the routine cleanings and inspections will continue, the crew supervisor in conjunction with the Deputy Director of Public Works will be provided with the inventory. They will establish priorities for the cleaning work based on what is viewed in the field. Catch basins and storm drains flagged as needing attention in the inventory will be given the first priority.

The next priority will be given to outfalls that are located along the water bodies in Smithfield that are classified as degraded, particularly Nine Foot Brook, Latham Brook and the lower reaches of the Woonasquatucket River. Development along the Woonasquatucket River is some of the oldest development in Smithfield and therefore has the oldest drainage systems. Much of this older development predates modern construction standards indicating a higher potential for illicit connections in the areas with the oldest development.

Procedures for receipt and consideration of complaints

Smithfield already has procedures in place for consideration and processing of environmental-related citizen complaints. Complaints are received by the Town Engineer's office. Follow-up inspections are then conducted by Town Engineering staff and/or the Department of Public Works, who then make a determination as to appropriate actions. All complaints are recorded and the follow-up actions are noted in the file for future reference.

Procedures for catch basin and manhole inspections for illicit discharges

As noted above, annual manhole and catch basin inspection is undertaken by the Town's Public Works crews as part of the Town's inspection and maintenance program. Crews will be trained in the identification of illicit discharges as well as procedures for reporting to the Public Works Director and/or the Town Engineer any indication that an illicit discharge may be present within the Town's system. Illicit discharges are identified by visual inspection for dry weather flow, flow that is discolored or "cloudy" and odors not normally associated with storm sewer systems. These screening criteria are then used to identify locations for subsequent follow-up, which may include sampling and testing suspected dry weather flows for physical, chemical, and biological indicators of illicit discharges. At the end of each day, the crew will complete a log of the daily activities (where they were and what was addressed) and will note any indication of illicit or non-stormwater discharges along with other maintenance requirements like the presence of sedimentation and souring at outfalls or damaged structural components.

If an illicit discharge is suspected during these routine inspections either by identification of dry weather flow or odor, it is reported to the Public Works Director and the Town Engineer, who also serves as the Environmental Affairs officer. The Town Engineer will conduct an inspected to determine if an illicit connection exists. If there is a problem, a notice will be sent to the violating party with copies other entities interconnected to the Town's storm sewer system. A log will be maintained of illicit discharges suspected and verified and kept in the Town Engineer's Office.

Dry Weather Surveys

The Town will develop a plan to conduct two dry weather surveys at priority outfalls by the end of the fifth year. Dry weather surveys will be performed consistent with the protocols outlined by RIDEM, once between January 1st and April 30th and again between July 1st and October 31st. Surveys will be conducted no less than 72 hours after the last rain fall of 0.10 inches or more. At a minimum, surveys will be analyzed for temperature, conductivity, pH, and bacteria (Who will analyze for Conductivity, pH and Bacteria? Does the Town need to purchase this testing equipment?). Visual inspections during the dry weather surveys will note any odors, sheen, stressed vegetation, coloration or staining, algae growth, sedimentation and/or scouring in the vicinity of the outfall. Results of the surveys and inspections will be kept on file at the Town Engineer's Office with other records associated with this SWMPP. Dry weather surveys will begin in year 3, targeting first areas identified as priority for assessment.

Measurable goal – Complete two dry weather surveys of all outfalls by year 5.

Characterizing any discharges found

Chemical, physical and biological testing may be used to fully characterize suspected illicit discharges. Indicators such as dissolved oxygen (DO), biological oxygen demand (BOD), chemical oxygen demand (COD), color, odor, temperature, fecal coli form

bacteria, total coli form bacteria, petroleum hydrocarbons, and volatile or semi-volatile organic content may be used to characterize the discharges and potentially identify their sources. (Again – who performs the testing for the above?)

Procedures to trace an illicit discharge

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

Procedures to remove an illicit discharge

Any publicly owned illicit discharges identified would be corrected as soon as possible by rerouting the discharge to an appropriate destination [typically the Town's Publicly Owned Treatment Facility (POTW)] using public funds. Private illicit discharges will be corrected by enforcement of local health and sanitation codes, and the Municipal Storm Sewer Ordinance (Same as Illicit Discharge Ordinance?). In limited cases, the Town may provide technical assistance and/or financial assistance to private owners who are otherwise unable to correct discharge problems.

Procedures for referring an illicit discharge to RIDEM deemed appropriate

At times, the Town may deem appropriate the continuation of unauthorized non-storm water discharges into the MS4. When such instances occur, the Town will formally request approval in writing from RIDEM for approval under the appropriate permit. The Town will demonstrate how the activity is not a significant contributor to pollutants and will not be mixed with storm water discharges. As part of the public education component of this plan, the Town will target the entities associated with these non-storm water discharges to promote reduction of pollution. These procedures will be established within the first year. (Were these procedures developed?)

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

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

Procedures for program evaluation and assessment

In accordance with the program evaluation section of this plan, the effectiveness of the program for detection and elimination of illicit discharges will be evaluated annually. The Town Engineer, with the assistance of the DPW Director, will use the information described above to compile an annual report on the actions taken to identify illicit discharges, all illicit discharges detected by this program and the actions taken to address and eliminate these discharges.

4.3.4 Education Outreach

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

Measurable goal – Develop an outreach program by the end of year one. (Completed?)

Measurable goal – Train all public works and recreation department employees as well as field personnel by the end of year 2.

In order for the Illicit Discharge Detection and Elimination Program to be successful and meet all the measurable goals, Town employees, businesses, and the general public must be informed of the hazards associated with illegal discharges and improper disposal of waste and also an allowable non-storm water discharge identified as significant contributors of pollutants. Outreach and training will be performed in conjunction with the Public Education and Outreach Program and the Pollution Prevention and Good Housekeeping Program. Under these programs, efforts have been coordinated with NRICD and existing training requirements for Town employees.

In addition, Smithfield will continue to work with NRICD to maintain and extend education and outreach programs through local schools, civic groups, public and private organizations. These programs will be directed toward teaching citizens about the importance of controlling point and non-point discharges of storm water to protect water quality.

4.3.5 Program Evaluation

BMP 4F – Develop procedures to evaluate the BMPs and the measurable goals of the Illicit Discharge Detection and Elimination Program. (Should the IDDE Ordinance be created first?)

Measurable goal – Develop procedures to evaluate the program by the end of year 2.

BMPs and measurable goals of the Illicit Discharge Detection and Elimination Program are based on the requirements of RIDEM and EPA, the evaluation of existing local policies and regulations, inventory and analysis of the existing natural and built environments of the Town, and the local issues raised by the Smithfield Storm Water

Management Committee. Evaluation of BMPs and measurable goals will be performed in a timely fashion to be submitted with RIDEM reporting requirements.

The fundamental goal of this plan is improved water quality thorough implementation of storm water controls. Therefore the program will be evaluated in terms of its effectiveness at reducing loads of contaminants to surface waters through the municipal separate storm sewer system.

5.0 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL PROGRAM

5.1 Why is this program important?

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

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

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

5.2 Requirements

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

5.3 Construction Site Runoff Control Program

5.3.1 Erosion and Sediment Control Ordinance

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

Measurable goal – Update any necessary components of the existing Erosion and Sediment Control ordinance to meet Phase II requirements by end of year 1.

The Town of Smithfield has an Erosion and Sediment Control ordinance in place. As part of the Construction Site Runoff Control Program, the ordinance was reviewed to ensure that it adequately addresses the requirements of the Phase II Final Rule and is in compliance with the proposed Storm Sewer Use ordinance. The ordinance contains provisions for site plan review, periodic and final inspections and receipt of information from the public. A soil erosion permit is required for projects that disturb one-half acre or more, *making it stricter* than the one-acre requirement of the Phase II Final Rule.

5.3.2 Site Plan Review for Construction Plans

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

BMP 5B – Review site plans prior to construction to ensure inclusion of erosion and sediment controls and post-construction controls in compliance with local ordinances and *Rhode Island Erosion and Sediment Control Handbook*. The Town of Smithfield may require plan review of smaller sites.

Measurable goal – Continue to review all site plans subject to Town ordinance.

BMP 5C – Continue training or coordinate with existing training efforts to educate plan reviewers in erosion and sediment control best management practices and requirements.

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

In order for the Town to issue a permit under the Erosion and Sediment Control Ordinance, the applicant must first file an application with the Town Engineer to determine whether the project is applicable or non-applicable to the ordinance. If the project is applicable, a soil erosion plan must be submitted, reviewed, and approved by

the Town's Soil Erosion Committee and the Town's Engineer's Office. The plan must contain sufficient information about the proposed activities and land parcel(s) as well as clearly demonstrate how performance principles, or BMPs, are met. Performance principles include the following:

- Re-grading of natural drainage characteristics and topography.
- The grading minimizes the slopes created.
- Any increase in storm water runoff must be controlled on-site by the use of detention ponds or basins, seepage areas, subsurface drains, porous paving or similar techniques.
- The original boundaries, alignment and slope of watercourse within the project area must be preserved to the greatest extent possible.
- Drainage facilities must be installed as early as possible during construction.
- Filling adjacent to watercourses must be protected from erosion with the use of hay bales, silt fence, vegetative stabilization, or similar measures.
- Temporary vegetation and/or mulching can be used to protect bare areas and stockpiles from erosion during construction.
- Permanent vegetation must be in place immediately following fine grading.
- Existing trees and other vegetation must be retained whenever possible.
- Areas damaged during construction must be resodded, reseeded, or otherwise restored.
- Zero Increase in Runoff is enforced. Storm runoff after the completion of work must be equal to runoff prior to work beginning.
- A licensed engineer shall perform drainage calculations.
- Applicants may be required to post a performance bond prior to the approval of an erosion sediment control plan.

Additionally, the latest edition of the *Rhode Island Erosion and Sediment Control Handbook* must be used as a reference in determining BMPs for the suitability and adequacy of erosion and sedimentation control plans. This site plan review process also meets the requirements of the Phase II Final Rule. The Town is able to ensure that appropriate BMPs are in place and that the construction site is in compliance with other provisions of the ordinance. The site plan review process established by the Town also aids the tracking, recordkeeping and reporting purposes.

5.3.3 Inspection of Construction Sites

Once construction commences, BMPs must be in place and the Town's enforcement activities begin. To ensure that the BMPs are properly installed, the Town is required to develop procedures for site inspection and enforcement of control measures to deter infractions. Currently, inspections are conducted by the Town Engineer's Office, the Department of Public Works, the Smithfield Water Supply Board, or the Smithfield Sewer Authority's consultant, Camp Dresser & McKee Inc. Procedures include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water

quality. Inspections give the Town an opportunity to provide additional guidance and education, issue warnings, or assess penalties.

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

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

In addition to a site plan review process the Erosion and Sediment Control ordinance incorporates periodic and final inspections. Periodic inspections by the Town are required in the ordinance and a permanent file must be maintained of all inspections. Upon completion of work, the developer or owner must notify the Town that all grading, drainage, erosion, sediment control measures, devices, storm water management devices, vegetations and ground cover planting has been completed in conformance with the approved soil erosion and sedimentation control plan. The Town will make a final inspection prior to the issuance of Certificate of Occupancy (C.O.) by the Building Official.

If the work-in-progress or completed project does not meet the terms of the approved erosion and sedimentation control plan, a written notice from the Town will be issued and C.O. will not be issued. A performance bond may be required and penalties for failure to comply with the notice are outlined in the Erosion and Sediment Control Ordinance.

BMP 5E – Continue to refer non-compliant construction site operators to the State when necessary.

Measurable goal – Review current procedures that refer non-compliant construction site operators to the State when all local enforcement efforts fail by the end of year 2.

The Town currently has procedures to address non-compliant construction site operators. During regular inspections of construction sites, the Town Engineer will issue violations to the site operator if they are not in compliance with their sediment and erosion control plan required by the Town's ordinance or other violation. The Town first attempts to work with the site operator to meet compliance, but if the violation is not corrected within 30 days, the Town Engineer will issue a stop-work order. If the site operator continues to ignore these efforts, a referral in writing will be made to RIDEM discussing the specific violations observed at the construction site and measures the Town has taken in an attempt to get the site operator to correct them.

5.3.4 Receipt of Information from the Public

The final requirement of the Phase II Final Rule for the Construction Site Control Program is the development of procedures for the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities.

This provision is intended to further reinforce the public participation component of the Phase II SWMP and to recognize the crucial role the public has in identifying instances of noncompliance.

The Town is required to consider the information submitted, and may not need to follow-up and respond to every complaint or concern. Although some form of enforcement action or reply is not required, the Town is required to demonstrate acknowledgement and consideration of the information submitted. A simple tracking process in which submitted public information, both written and verbal, is recorded and then given to the construction site inspector for possible follow-up will suffice.

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

6.0 POST-CONSTRUCTION STORM WATER MANAGEMENT PROGRAM

6.1 Why is this program important?

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

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

6.2 Requirements

The Phase II program requires the Town of Smithfield to develop, implement, and enforce a program to reduce pollutants in post-construction runoff. New development and redevelopment projects that result in the land disturbance of greater than or equal to one acre, including projects less than once acre that are part of a larger common plan of development or sale are required to comply with the Post-Construction Storm Water Management Program. The Town is required to develop and implement strategies that include a combination of structural and/or non-structural BMPs. Structural BMPs can be storage or detention practices that control water volume and settle out particulates, infiltration practices that facilitate the percolation of runoff through the soil to groundwater, and vegetative practices, which utilize landscaping features that use optimal design and good soil conditions to enhance pollutant removal. Non-structural BMPs include local planning and procedures that promote improved water quality (comprehensive plan or zoning) and site-based local controls that include buffer strip preservation, riparian zone preservation, minimization of land disturbances and impervious surfaces, and maximization of open space.

Additionally, the Phase II program requires an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects.

Under the Post-Construction Storm Water Management Program, the Town should ensure adequate long-term operation and maintenance of the BMPs as well as develop and implement strategies to reduce overall runoff volume.

6.3 Post-Construction Storm Water Management Program

6.3.1 Ordinance Requiring Post-Construction Storm Water Management

BMP 6A – Require through an ordinance the installation and proper maintenance of post-construction runoff controls for projects disturbing one acre of land or more in compliance with state and local laws. The Town may require post development storm water controls for smaller sites.

Measurable goal – Develop and implement structural and non-structural strategies that meet the needs of the Town to reduce substantial impacts of post-construction runoff by the end of year one.

Measurable goal – Incorporate the implementation of post-construction runoff controls into the Storm Sewer Ordinance by the end of year 2.

Measurable goal – Continue to inspection of BMPs for 100% of all construction projects that disturb ½ acre of land or more.

Measurable goal – Institute controls on all new impervious surfaces associated with new development and redevelopment projects by the end of year 3.

Measurable goal – Require privately owned structural BMPs to adhere to maintenance schedules via the Storm Sewer Ordinance developed through the SWMPP.

Through the existing Erosion and Sediment Control Ordinance and the Land Development and Subdivision Regulations, Smithfield requires that all new construction incorporate BMPs for all permanent drainage structures after construction. The Land Development and Subdivision Regulations require BMPs as described in the *Rhode Island Storm Water Design and Installation Standards* Manual for all new developments that involve subdivisions or development of undeveloped land. These must be designed by a licensed engineer and must be reviewed and approved by the Planning Board as a condition of approval.

The Erosion and Sediment Control Ordinance applies to all proposed developments projects disturbing a half acre or more. The Town Engineer must review and approve soil erosion and sedimentation controls prior to forwarding recommended approval to the Soil Erosion Committee and before land clearing activities can commence. As a matter of policy, the Town Engineer has been requiring post construction BMPs for projects reviewed under the soil erosion ordinance. This requirement will be clarified and codified into the Storm Sewer Ordinance (discussion in Section 4.3.2 of the Illicit Discharge Detection and Elimination Program).

In conjunction with the Storm Sewer Ordinance developed through this program, post-storm water management will be incorporated to ensure that BMPs are an integral part of proposed development and redevelopment projects. Maintenance schedules of privately owned structural BMPs will be adhered to via the ordinance.

6.3.2 A Plan to Address Post-Construction Runoff

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

Measurable goal – Develop and adopt a plan by the end of year 5.(I think we may already be doing this, but there is no written plan in effect.)

As noted above, the subdivision review process requires BMPs as a condition for site plan approval and the Erosion and Sediment Control Ordinance requires best management practices as a matter of policy. Both of these programs include plan review, construction inspection, and post-construction components.

The Town is in the process of evaluating approaches to require the maintenance and inspection of BMPs to be provided at no cost to the Town for all major land developments, defined by the Land Development and Subdivision Review Regulations as a residential subdivision greater than five units or lots, a residential subdivision of five or less units or lots that requires waivers or modifications as specified in the regulations, or a nonresidential subdivision. Inspection and maintenance may take place through a Homeowner's Association, cooperative agreements, or by assessing a fee from all the property owners in the development with the proceeds to be used to hire a contractor to provide the necessary maintenance and inspection services. While alternatively, the Town could agree to accept these fees and provide inspection and maintenance services, it is preferable, however, for major developments to contract private maintenance services. Alternatively, the Town is also looking at the possibility of developing a stormwater district in which residence and businesses will be levied a tax based upon amount of impervious area.

The Town will continue to evaluate alternatives, develop a plan, and adopt it to implement post-construction inspection and maintenance for all developments by the end of year 5.

6.3.3 Referral of New Storm Water Discharges from Industrial Activities

BMP 6C – Storm water discharges of industrial activities will be covered by the proper permits.

Measurable goal – Develop procedures for referral of new discharges of storm water associated with industrial activities to RIDEM by year 3.

By the end of year 3, the town will develop procedures to notify RIDEM when new discharges of storm water associated with industrial activities are discover. These procedures will include strategies to identify new activities that require permitting and notifying RIDEM.

6.3.4 Identifying Existing Structural BMPs

BMP 6D – Identify all existing structural BMPs – both public and private.

Measurable goal – Develop procedures to identify public and private structural BMPs by the end of year 1. This was completed in year 3, for at least all Town owned / maintained.

One of the required measurable goals of the MS4 General Permit is to identify existing structural BMPs. This goal is combined with others in the SWMPP, including mapping of all the outfalls in Town (BMP 4A) and identifying all municipally owned structural BMPs (BMP 7A). This goal is to develop a program that will maintain listings of all structural BMPs, both public and private, in the Town of Smithfield by the end of year 1. This program includes field verification conducted for BMP 4A and reviewing past site plans submitted to the Town Engineer's office for review under the Sediment and Erosion Control Ordinance and Land Development and Subdivision Regulations as well as documentation in the Town Engineer's Office. A spreadsheet will be maintained of these BMPs that outlines their location and description.

I would prefer this to read only Town maintained basins for say year 3 and private by year 5.

7.0 POLLUTION PREVENTION AND GOOD HOUSEKEEPING PROGRAM

7.1 Why is this program important?

Pollution prevention and good housekeeping allow a Town to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that:

- Collects on streets, parking lots, open spaces, vehicle maintenance and storage areas which is then discharged into local waterways
- Results from actions, such as environmentally damaging land development and flood management practices, or poor maintenance of storm sewer systems.

While this measure is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the Town, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

7.2 Requirements

The Phase II Program lists two major requirements. First, Smithfield must develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing polluted runoff from municipal operations into the storm sewer system. Second, Smithfield must include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm sewer system maintenance.

7.3 Pollution Prevention and Good Housekeeping Program

The primary goal of the program is to develop and implement a municipal Operation and Maintenance (O&M) Plan that addresses pollution prevention and good housekeeping procedures for the following activities when carried out by the Town:

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

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

management or administer programs that impact storm water. It also serves as the basis for employee training.

The Police, Fire, Public Works, and Recreation Departments with extended efforts from the Conservation Commission currently manage Town properties. With the exception of the Public Works facilities, most of the larger parcels of Town property are maintained by the Recreation Department.

7.4 Operation and Maintenance Plan

The O&M Plan contains a description of the required maintenance activities and procedures as it relates to existing municipal operations and programs. A list of responsible departments, personnel for each activity, and a schedule of activities, including maintenance, inspections, and reporting will be supplementary to the O&M Plan. Interviews with staff of various departments were undertaken to gain an understanding of how municipal operations are implemented.

BMP 7A – Develop procedures for updating existing documentation of municipally-owned structural BMPs.

Measurable goal – Develop procedures for updating existing documentation and the storm sewer map with additional elements by the end of year 1.

In order for the O&M Plan to be effective, municipally-owned structural BMPs will be identified. In conjunction with BMP 4A and BMP 6D, existing outfalls have been located and incorporated into the Town's GIS and the Town has logs of catch basins and detention basins (detention basin log for Town basins just developed this past summer). Site plans of proposed and completed development and redevelopment projects are also available. Identification of storm water system elements will be done in conjunction with investigation and tracing of illicit discharges during dry weather surveys discussed in Section 4.3.3. Any additional information available on local plat maps and subdivision plans will also be incorporated into the mapping system. As new components of the storm sewer system are constructed as a result of development and redevelopment projects, they will also be added to the storm sewer map. Updates will be submitted to RIDEM during annual reporting.

BMP 7B – Revise existing maintenance activities and procedures to include new BMPs that reduce pollutants in storm water.

Measurable goal – Develop a revised Operation and Maintenance Plan by the end of year 1.

7.4.1 Parks and Open Space

Municipal maintenance practices at parks and other open spaces (e.g. golf courses, picnic areas, recreational facilities, rights-of-way, landscaped areas in parking lots, plazas, etc.)

can include fertilizer, herbicide, and pesticide application, vegetation maintenance and disposal, and trash management. To ensure these activities do not negatively impact storm water runoff, pollution prevention and good housekeeping procedures are incorporated into existing municipal operations for maintaining parks and other open spaces.

BMP 7C – Implement park and open space maintenance pollution prevention and good housekeeping practices.

Measurable goal – Implement all pollution prevention and good housekeeping practices for park and open space maintenance at all park areas and other open spaces maintained by the Town by the end of permit year 5.

7.4.1.1 Pesticide, Herbicide, and Fertilizer Management

For landscaping purposes, the Town through its Recreation and School Departments makes limited use of pesticides, herbicides, and fertilizers for the maintenance of recreation facilities and the grounds of public buildings such as Town Hall and the public schools (I am not sure this is accurate – we seem to use large quantities of fertilizers at Deerfield Park). For mosquito disease control, the Public Works Department treats catch basins several times a year with licensed personnel. The Town encourages personnel to partake in available training programs regarding pesticide, herbicide, and fertilizer management. The Town also contracts with a private licensed company, *Allen Seed*, to establish and maintain turf on some Town owned recreational sites. See Appendix K for licensed applicators.

7.4.1.2 Landscaping Waste Disposal

Landscaping waste consists of leafy and woody debris from clipping, cutting, mowing, and other maintenance activities. These materials can accumulate in the storm sewer system and/or discharge into receiving waters. To ensure that these waste materials do not enter the storm drainage system, the Town collects these materials from all Town properties and from private residences. Materials for private collection must be recycle-bagged or placed in a barrel and all brush must be cut and tied into bundles less than 4' long. Collected materials are delivered to Smithfield Peat, a privately run, RIDEM-licensed composting facility located at 295 George Washington Highway in Smithfield. The composting facility processes these materials into humus and other organic materials, which are then marketed and sold privately.

7.4.1.3 Trash Management

Open spaces such as parks, sports fields, and picnic areas receive many visitors and can collect a large amount of litter and other debris. The Town maintains trash receptacles at most public parks and recreational sites. Personnel from the Recreation Department empty these receptacles. The collected waste is deposited into a 30 cubic yard roll-off container maintained by the Department of Public Works at the DPW garage. This

container is emptied as needed by the Town's contracted solid waste hauler and the contents are taken to the Central Landfill in Johnston, RI.

7.4.2 Fleet and Building Maintenance

Vehicle Washing

Wash-water from vehicle/equipment cleaning can contain oils and greases, suspended soils, heavy metals, organics, and other pollutants from detergents.

BMP 7D – Implement publicly owned vehicle and equipment washing pollution prevention and good housekeeping practices.

Measurable goal – Conduct all vehicle and equipment washing in a designed wash area that meets the required criteria established by RIDEM by the end of year 5.

The Town has a recently installed and currently operates a RIDEM-approved vehicle wash facility at the DPW garage. The facility is located outdoors on pavement. It is equipped with a drainage system that routes wash water through an oil and grease separator and then to the Town's POTW. This facility provides for washing of Town vehicles in a controlled setting and prevents wash-water from entering the storm drainage system. Regular inspection and maintenance of this facility will ensure that it continues to function properly.

Motor Oil and Filter Recycling

The DPW operates and maintains an oil igloo for recycling used motor oil. This service is for town residents at no cost. Residents may recycle up to five gallons of oil per visit. Approximately 600 persons per year use the igloo with 3,000 gallons of oil recycled. Starting in 2003, the department is providing oil filter recycling. Regular inspection and maintenance of the igloo will ensure that it continues to function properly.

BMP 7E – Expand motor oil and filter recycling program.

Measurable goal – Increase awareness of program through advertisements in the *Observer*, the governmental cable TV station, the Town of Smithfield website, and possibly through the distribution of flyers in either, water, sewer, or tax bills by the end of year 1.

Vehicle Fueling

The DPW facility currently has BMPs incorporated into the fueling station that limit pollutants into storm water runoff and contain potential pollutants. They include a canopy over the fueling pumps and the raised elevation of the station itself. Regular inspection and maintenance of the facility will ensure that it continues to function properly.

Hazardous Materials Storage

Hazardous materials and petroleum products are stored in proper containment within the DPW facility. Material safety data sheets are available to all personnel and procedures are in place for spill prevention and containment.

7.4.3 New Construction and Land Disturbance

Public construction projects are required to follow the same requirements and procedures as private construction projects under the Erosion and Sediment Control Ordinance and the proposed Storm Sewer Ordinance. The Town currently implements BMPs in all its development projects to minimize impacts on water quality.

BMP 7F – Incorporate water quality protection devices and practices into new development projects and existing development, if appropriate.

Measurable goal – Review existing procedures for selection of BMPs for new development projects to ensure that water quality impacts are not occurring by year 1.

Measurable goal – Review existing development owned by the Town to assess the feasibility of incorporating additional water quality protection devices or practices by year 4.

7.4.4 Storm Water System Maintenance

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

BMP 7G – Implement catch basin cleaning and storm water system maintenance pollution prevention and good housekeeping practices.

Measurable goal – Review existing procedures for catch basin cleaning by end of year 1.

Measurable goal – Develop procedures to identify and report known discharges causing scouring or excessive sedimentation at outfall pipes by end of year 1.

Measurable goal – Design and construction of new elements of the Town's storm water system and repairs to the existing elements will be assessed for potential water quality impacts by end of year 1.

Measurable goal – Inspect and maintain catch basins and other storm water system facilities, as needed, based on a schedule described in the O&M Plan by the end of year 5.

Measurable goal – Develop a plan to bid out maintenance and inspection of the storm water system to local contractors by year 5.

Measurable goal – Develop procedures for maintenance activities, schedules and long-term inspection procedures for controls to reduce floatables by year 3.

Measurable goal – Review existing removal of waste and its disposal by the Town to ensure that proper procedures are being implemented by year 1.

Identifying, Locating and Describing the Storm Water System

Procedures will be established in year 1 to identify, locate and describe the structural BMPs of the Town's storm water system. During the development of the SWMPP, all outfalls were identified using GPS, characterized and number, as described in section 4.3.1. Along with the new list of outfalls, known catch basins and detention basins will be assembled and merged into a master listing. Site plans from previously approved land development activities will be used to identify further BMPs and field verification will occur as needed. This master list of the storm water system will be updated regularly as new development projects are completed and field confirmation of existing elements is performed. New elements to the system during each reporting period will be provided to DEM

Inspection and Maintenance Activities

These measurable goals for maintenance and inspection of the storm water system will be met in conjunction with the Illicit Discharge Elimination Program (Section 4.0). As noted above, the Town has a storm water system maintenance program that includes a catch basin cleaning vehicle and a two-person crew to operate that vehicle. These crews operate between XX and XX. During these routine field activities, catch basins, detention basins, outfalls and other components of the system will be cleaned and inspected. A checklist and map will be provided to the DPW to summarize daily work activities performed in the field. This list will include the identification of potential illicit discharges, excessive scouring and sedimentation, and damage to the storm water system components. Refer to Section 4.3.3 for specific characteristics that will crews will use to identify a potential discharge. If problems are noted, the crew will immediately notify the DPW Director and the Town Engineer, at which time, steps will be taken to correct the problem. This may include tracing and characterizing a potential illicit discharge or

maintaining a damaged outfall. A log of these follow-up activities will be maintained in the Town Engineer's Office.

Storm sewers are only addressed when a problem occurs via a complaint received, at which time the Sewer Department is notified. The Sewer Department has a Vactor truck that can be used for both cleaning and unplugging clogged storm drains. The Sewer Department will notify the Town Engineer's Office when these problems have been corrected.(The Sewer Department lends this truck to the DPW upon request. They do not send operators out with this vehicle for storm sewer work)

The number of BMPs in the Town is steadily increasing and meeting the demand to clean all components annually is predicted to be a strain on the DPW staff. Therefore, a plan will be developed that will bid out these activities to local contractors. Funding for this plan is anticipated to come from fees applied to developers and possibly a line item in the Town's budget, if necessary. (Where did this come from?)

New Operations

New components to the Town's storm water system are regulated by the Soil Erosion Control Ordinance and the Land Development and Subdivision Regulations. These municipal policies require 0% net increase in runoff velocity from proposed construction and post-construction BMPs. Additionally, new elements to the system constructed by the Town include new technologies that will improve water quality such as four-bay detention basins, deep sump catch basins and oil/water separators. These activities will continue to be an integral part of the SWMPP.

Reduce Floatables

The Town will develop strategies to reduce floatables in the storm water system that will include maintenance activities and schedules and long-term inspection. Areas will be identified during regular inspections and maintenance of the storm water system where floatables are most prevalent and are an issue. Strategies will be implements, such as storm sewer grates, increased number of litter receptacles, public awareness campaign, or other technique. Once devices and/or strategies are in place, maintenance and inspection procedures will be developed. This will be contingent on the type of technique employed. This will be conducted along with BMP 7C.

7.4.5 Road, Highway, and Parking Lot Maintenance

Maintaining roads, highways, and parking lots for public safety purposes can generate pollutants that enter the storm drainage system, particularly those related to deicing and snow removal.

BMP 7H – Implement deicing and snow removal pollution prevention and good housekeeping practices for roads, highways, and parking lots.

Measurable goal – Implement required procedures on all roads, highways, and parking lots by the end of year 5.

The Town uses about 1,000 tons of salt and 4,000 tons of sand for snow and ice control on public roads and parking lots per year. The sand is stored in stockpiles at the DPW site where it is contained by sediment barriers to prevent its introduction into storm water runoff. The salt is stored in a Town owned salt storage facility recently constructed to prevent exposure of the sodium chloride and sediments to storm water. Regular inspection and maintenance of salt storage facility will ensure that it continues to function properly.

BMP 7I – Regular street sweeping program.

Measurable goal – Review Town's existing street sweeping program to ensure that all streets and roads within the regulated area are swept annually by the end of year 1.

The Town has street sweeping equipment and conducts sweeping from approximately March 20th through Memorial Day each year. The sweeping equipment includes two sweepers and two trucks that are used to transport sweeping debris. The work is routed to clean all Town owned streets and parking lots that require sweeping at least once, and sometimes more than once, each season. Street and parking lot sweepings are stockpiled at the DPW site and used, in accordance with RIDEM guidance as bedding material and fill in public projects. Sweepings are typically used as sub-base under pavement where this material is protected from contact with rainwater and runoff. Truckloads of sweepings are brought to Deerfield Park where they are stockpiled.

BMP 7J – Minimize erosion of road shoulders and roadside ditches.

Measurable goal – Incorporate procedures that require the stabilization of road shoulders and roadside ditches into existing system inspection and maintenance by year 1.

During routine inspections, if excessive scouring of road shoulders or roadside ditches is identified, then the DPW and Town Engineer will be notified. Crews will be sent out to the site. The Town currently uses seeding, sodding and riprap to stabilize road shoulders and roadside ditches. Activities done to repair the damaged area will be reported to the Town Engineer, who will maintain such records.

7.5 Training and Implementation

Smithfield provides training opportunities for all personnel involved with storm water management activities. Training is provided for Department of Public Works and Recreation Department personnel on demand and by prior arrangement through the Town's Human Resources program to ensure that all employees are adequately trained to fulfill their job responsibilities. Employees are also eligible to participate in public and private educational training programs through the Town's training reimbursement

program. The Town Engineer's Office and other municipal employees also participate in many training activities.

In addition, Smithfield participates in many local and statewide training events each year. The Town is a participant in the Rhode Island Technology Transfer Center (RI T2) and DPW personnel sit on the T2 Center Advisory Board. The Rhode Island Technology Transfer Center, established in 1991, is a cooperative effort of the Federal Highway Administration, Rhode Island Department of Administration and the Rhode Island Department of Transportation. The Center receives guidance and program direction from an Advisory Committee representing local communities and state government. The Rhode Island Technology Transfer Center is one of 57 Centers established by the Federal Highway Administration Local Technical Assistance Program. In addition, the Town participates in training opportunities offered by their municipal insurer, *The Trust*.

Smithfield is committed to ensuring that employees with storm water management responsibilities receive training to ensure that they can fulfill their responsibilities and improve their performance for the protection of water quality. The Town's goal is to provide training to all employees needing it and/or requesting it throughout and after the five-year planning period.

7.6 Record Keeping

The Town will continue to keep records of all maintenance and inspection activities and training associated with the O&M Plan in the Town Engineer's Office along with the SWMPP. These records will be used to prepare annual reporting requirements to RIDEM and will be available to the public during business hours.

8.0 EVALUATION AND ASSESSEMENT REPORTING

8.1 Why is this important?

The purpose of evaluation and assessment is to determine whether Smithfield is meeting the requirements of the minimum control measures. Smithfield should evaluate program compliance, the appropriateness of their identified BMPs, and progress towards meeting their measurable goals.

Recordkeeping is performed for two primary purposes. First, recordkeeping is conducted in order to track and more effectively manage the day-to-day activities of the SWMP. This could include keeping track of activities and staff time for cost accounting purposes, and tracking inspections, incidents or responses for post follow-up. Second, recordkeeping is conducted to collect data on program performance that is reported to RIDEM or the public, primarily on the progress in meeting measurable goals.

8.2 Requirements

Specific reporting conditions apply to small MS4s. Periodic reporting is required on the status and effectiveness of the program. Smithfield must submit a report annually during the first permit term (a 5-year period) and then in years 2 and 4 only thereafter, unless RIDEM requests more frequent reporting. RIDEM guidance documents state that reports must include the following elements:

- The status of compliance with permit conditions, including an assessment of appropriateness of the selected BMPs and progress toward achieving the selected measurable goals for each minimum control measure
- Results of any information collected and analyzed, including monitoring data, if any, during the reporting period
- A summary of the storm water activities planned for the next reporting cycle
- A change in any identified BMP or measurable goal for any minimum control measure
- Notice that the Town is relying on another government entity or organization to satisfy some of the permit obligations (if applicable).

If, upon evaluation of the program, improved controls are identified as necessary, the Town should revise their mix of BMPs to provide for a more effective program. Such a change, and an explanation of the change, must be noted in a report to RIDEM. All records must be kept for at least 3 years. Records, including a copy of the SWMP, must be made accessible to the public at reasonable times during regular business hours.

8.3 Evaluation

The SWMP shall be evaluated based on the schedules established in each minimum control measure. A summary of BMPs and measurable goals is provided in Appendix L. The Director of Public Works and the Town Engineer shall be responsible for evaluation.

If schedules are not being met, the Director and Town Engineer shall provide an explanation and an amended schedule. Additionally, if any storm water control measures have been implemented, evaluation will be done to determine if they are effective and/or if additional measures are necessary.

The Director and Town Engineer shall also evaluate the appropriateness of the selected BMP and the efforts made toward achieving its measurable goal. If it is necessary to change the SWMP, it shall be done in writing in accordance with the following provisions established by RIDEM:

- Adding, but not subtracting or replacing, components, controls, or requirements to the SWMP may be made at any time upon written notification to RIDEM.
- Replacing an ineffective or infeasible BMP with an alternative BMP may be requested at any time. Modification requests must include an analysis of why the BMP is ineffective or not feasible, expectations of the effectiveness of the replacement BMP, and an analysis of how the replacement BMP is expected to achieve the goals of the BMP to be replaced.

8.4 Recordkeeping

The Town shall keep records of all information gathered and evaluated during the reporting period. This will include a description of sampling and testing activities, results reported, and actions taken in response to those results. The Department of Public Works will be responsible for maintaining all records required under each minimum control measure for a period of five years. Records shall be made available to the public along with the SWMP during business hours. Records shall be submitted to the Director of RIDEM only when specifically requested.

8.5 Assessment Reporting

The Director of Public Works and the Town Engineer shall prepare and submit an annual report for each year after the permit is issued by March 10th. RIDEM requires specific information pertaining to the activities of the previous year to be included in the report, as listed in Part IV.G.2. of the RIPDES General Permit for regulated small MS4s:

- A self-assessment review of compliance with permit conditions.
- Assessment of appropriateness of selected BMPs.
- Assessment of the progress towards achieving 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 (all types of data).
- Discussion of activities to be carried out during the next reporting cycle.
- 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 and 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 RIDEM.
- 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 RIDEM.
- 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 RIDEM.
- Summary of the number of site inspections conducted for proper operation and maintenance of post construction structural BMPs, inspections that have resulted in enforcement actions, and violations that have been resolved.
- Reference to any reliance on another entity for achieving any measurable goal (if applicable).

9.0 STORM WATER ABATEMENT OPPORTUNITIES

9.1 Requirements

Smithfield is required to identify opportunities and recommend actions to abate negative storm water impacts on water quality on an approved TMDL or other water quality determination approved by RIDEM. Land areas contributing to discharges that violate water quality standards or are significant contributors of pollutants to Town and State waters must be identified in the SWMP and their specific impacts.

To track the progress of meeting the TDML provisions for the sites identified as abatement opportunities, the Town shall provide the following information to RIDEM:

- Identification of the discharges in a tabular summary that includes a description of the discharges, location of discharges (latitude and longitude), size and type of conveyance, and any discharge data such as flow data or water quality monitoring data.
- A description of the TMDL provisions specific to the discharge
- A description of BMPs that have been implemented or will be implemented to address the provisions and pollutants of concern. The BMPs shall be tailored to the pollutants of concern and findings of the TMDL. The Town shall assess the six minimum control measures established in the SWMP and describe how they will address the specific discharge. The rationale shall include receiving waters, water quality classifications, and any other relevant information.

If additional structural storm water controls or measures are necessary to meet the provisions, Smithfield will prepare a Scope of Work for each site, describing the process and rationale that will be used to select BMPs and measurable goals to meet TDML provisions. The Scope of Work shall include:

- How all remaining discharges within the contributing area not identified in the approved TDML will be identified and assessed
- How the drainage or sub-catchment area(s) from the discharge identified in the approved TDML will be determined
- The process that will be used to identify interconnections within the storm sewer system and how Smithfield will work cooperatively with other towns, if necessary
- As appropriate, identify any structural BMPs that address the pollutants of concern, areas to site potential BMPs, permitting requirements or restrictions, potential costs, preliminary and final engineering requirements, or the steps taken to determine this information if not known

Once approved by RIDEM, the Scope of Work will be considered as part of the Smithfield SWMP and subject to evaluation, record keeping, and reporting requirements discussed in Section 8.

9.2 Storm Water Abatement Opportunities in Smithfield

The following is a description of storm water abatement opportunities identified by the Committee during the development of the SWMP (Figure 11). Within the first year of the SWMP, these opportunities will be prioritized and scopes of work will be developed and submitted to RIDEM for abatement activities.

9.2.1 Town Properties

BMP 9A – Reduce the amount of pollutants introduced into storm water from municipal operations.

Measurable goal – Identify and prioritize storm water abatement opportunities by end of year 1.

Measurable goal – Develop necessary Scopes of Work for abatement opportunities starting in year 3.

Measurable goal – Implement Scopes of Work by year 4.

Smithfield Department of Public Works

The Department of Public Works site includes a large surface area used for storage of materials and equipment. The Town has submitted an application for an EPA grant to implement a riparian buffer project on the DPW site. The riparian buffer will provide a vegetated zone to mitigate the impacts of runoff from the Department of Public Works Facility into a degraded wetland behind the facility. In addition, the DPW has been implementing plans for improved site controls and evaluating other opportunities to improve stormwater management on the site.

Smithfield Landfill

The Smithfield Town Landfill has been closed and is no longer used to dispose of solid waste. However, parts of the site have not been capped in accordance with all applicable State and Federal requirements. This is a potential site to implement storm water BMPs.

Smithfield High School Complex

The parking lots and open fields of Smithfield High School and adjacent schools are not presently provided with stormwater management or BMPs. These areas will be examined to determine if opportunities exist to incorporate BMPs to reduce runoff.

Insert

Figure 11: Stormwater Abatement Opportunities.

9.2.2 Private Properties

Smithfield Peat

Leaf and yard waste from residential properties and publicly owned properties is collected by the Town and brought to Smithfield Peat located off George Washington Highway and Douglas Pike. There the waste is composted and made into humus, a product marketed as soil conditioner. The Town has benefited greatly from its partnership with Smithfield Peat as this partnership has enabled the Town to remove leaf and yard waste from throughout the community. This, in turn, has reduced the potential for contamination of stormwater with leaf and yard waste from residential and publicly owned properties. At present, there are only limited BMPs in operation on the Smithfield Peat site. The Town will attempt to expand its relationship with Smithfield Peat by evaluating opportunities for stormwater management on the site. Smithfield Peat is also adjacent to a state owned salt barn at which there may also be stormwater abatement opportunities. The Town will explore the potential for a public/private partnership with Smithfield Peat, the State Department of Transportation and the Town to develop abatement opportunities on these properties.

Surface Excavation Sites

There are several surface mining operations in the Town that do not appear, at present, to have incorporated BMPs into their site development. The Town will work with the owners of these facilities, especially the two largest, Mountaindale Quarry and Sand Trace, to encourage them to incorporate BMPs on their properties. The Town Engineer's Office is developing a proposal for stormwater management from the runoff associated with Sand Trace, an active gravel pit. Runoff from Wionkhiege Hill carries sand and debris from Sand Trace to a point where it accumulates at the bottom of the hill on Mann School Road at Stillwater Reservoir. The Town would like to develop BMPs such as a settling basin adjacent to the road, between the road and the reservoir to allow settlement of sand from the runoff before it enters the reservoir.

Lan Rex

Lan Rex is an Industrial Subdivision off Farnum Pike and currently has no stormwater management system on site. The Town will explore opportunities to incorporate BMPs that will treat runoff before it enters Stillwater Reservoir. (We are regrading and paving a majority of Lan Rex which includes berms to direct the runoff into catch basins which will reduce the amount of sediment from entering the Stillwater Reservoir.)

9.2.3 Old Mill Sites

The Town would like to target three old mill sites: Lister Mill, Benny's Warehouse, and West Greenville Mill. Because the Mills were built prior to current standards for stormwater management, none of the mills provide BMPs. Runoff from parking lots and other impervious surfaces surrounding the Mills; therefore, the runoff generally goes

untreated and is discharged directly to surface water bodies. Lister Mill is an abandoned mill located the intersection of Thurber Boulevard and Stillwater Road in Stillwater. Benny's Warehouse is a mill in Esmond along the Woonasquatucket River. The Town will explore the potential to work with mill owners to develop BMPs that will improve the quality of stormwater discharged to the river and/or to the Town drainage system, from the mill sites.

9.2.4 Greenville Center

Greenville Center one of the most densely developed parts of the Town. Greenville is an older commercial center where most of the development pre-dates modern stormwater management standards. As a result, most of the development incorporates parking lots that drain to the street with little or no stormwater treatment provided. The Town would like to investigate storm water abatement opportunities in Greenville Center. Areas of particular concern are parking lot runoff and roadway runoff. The Town will also pursue working with the State Department of Transportation to consider joint projects that will address runoff from Routes 44 and 116 through Greenville Center.

9.2.5 Local Farms

There are several agricultural and livestock farms in Town that could be approached to incorporate stormwater management BMPs. Generally, older farms do not incorporate stormwater management measures. Animal waste, organic material, fertilizers, and pesticides used on crops can be carried with stormwater into wetlands, brooks, and other water bodies. The Town would like to work with local farmers to encourage them to adopt stormwater management measures and reduce the potential for stormwater contamination from agricultural practices.

9.2.6 State-Owned Properties

The Town would like to develop partnerships with the State to address their properties within the town; including the Rhode Island Department of Transportation, which has responsibility for the extensive network of State owned and State maintained roads in Town and also the Rhode Island Airport Corporation, which is responsible for North Central State Airport. These two sources are potentially very large contributors of stormwater runoff pollutant loads to surface waters in the community. At present, neither has approached the Town regarding the development of Stormwater Management Plans. The Town looks forward to working with these State entities to assist them in fulfilling their Phase II stormwater management obligations.

10.0 COSTS AND FINANCING MECHANISMS

10.1 SWMP Costs

Many of the BMPs discussed in the SWMP are already incorporated into department budgets and funded by the Town. They include, but are not limited to:

- Soil and erosion control
- Inspection and maintenance of storm sewer systems
- Workforce training
- Program evaluation
- Site plan review
- Construction site inspections
- Receiving information from the public
- Landscaping waste disposal
- Trash management
- Town vehicle and equipment washing activities
- Appropriate storage of salt and sand for deicing
- Street sweeping practices
- Recordkeeping procedures

Because the Town's fiscal year 2003 budget is not broken down incrementally, the specific costs associated are not identifiable. These activities are included in the budgets of the Public Works, Recreation, Town Engineering Office, and Planning departments. The Town will continue to fund these activities from these budgets over the next five years (see 10.2.3 below).

10.2 Financing Mechanisms

10.2.1 Federal Funding

Water Quality Cooperative Agreements

Grants are available from EPA to municipalities under Section 104(b)(3) of the Clean Water Act to promote the prevention, reduction and elimination of pollution to water bodies. EPA Water Quality Cooperative Agreements provide grants to states, interstate agencies, municipalities, Indian tribes, and other nonprofit institutions to work with stakeholders and interested citizens to:

- Identify watersheds with the most critical water quality problems
- Work together to focus resources and implement effective strategies to solve these problems

Priority consideration is given to implementing the Clean Water Action Plan and projects covering watersheds, and activities addressing stormwater, combined sewer overflows,

mining, on-site systems, and animal feeding operations. These funds can be used to focus on innovative demonstration and special projects. Among the efforts eligible for funding are research, investigations, experiments, training, environmental technology demonstrations, surveys, and studies related to the causes, effects, extent, and prevention of pollution. These activities or projects could fall under one of the following funding categories:

- Institutional Coordination
- NPDES Permits
- Environmental Management Systems (EMS)
- Monitoring and Assessment
- Program Measures and Environmental Indicators
- Public Participation/Outreach

Five-Star Restoration Program

Smithfield has already submitted an application to the EPA-supported Five-Star Restoration Program for the Mountaindale Wetland Restoration Project and can be utilized for future projects. This grant program supports community-based wetland and riparian restoration projects that have a strong on-the-ground habitat restoration component providing long-term ecological, educational, and/or socioeconomic benefits to people and their community.

Environmental Education Grants Program

With the assistance from the Town, NRICD can continue its education efforts in Smithfield by applying for EPA Environmental Education Grants. These grants provide financial support for project's design, demonstrate, or disseminate environmental education practices, methods, or techniques. Projects must focus on one of the following:

- Improving environmental education teaching skills
- Educating teachers, students, or the public about human health problems
- Building state, local, or tribal government capacity to develop environmental education programs
- Educating communities through community-based organizations
- Educating the public through print, broadcast, or other media

10.2.2 State Funding

Rhode Island State Revolving Fund

The Rhode Island State Revolving Fund (SRF) provides long-term, low-interest loans to local governments for water pollution abatement projects that contribute to the removal, curtailment, or mitigation of pollution of State and local waters. Once the Town has identified specific BMP projects to be pursued, the Town may apply for SRF financial assistance. Proposed projects must be consistent with the State's goals, policies, and

objectives in the State Guide Plan and consistent with specific sections of the federal Clean Water Act. See Appendix M for the requirements of the SRF Facilities Planning Checklist.

10.2.3 Local Funding

As stated above, there are four departments that currently contribute to stormwater management: Public Works, Recreation, Engineering Office, and Planning departments. Their budgets for the 2003 Fiscal Year are:

Department of Public Works	$2,616,901
Recreation Department	309,413
Engineering Office	190,488
Planning Department	91,996

The budgets of these departments will continue to support stormwater management efforts. The Town also has in its budget a Miscellaneous item ($5,729,711) that is used to cover contingencies and expenses that are not included in the department budgets. Some of these funds may also be used to contribute towards the implementation of the SWMP.

10.2.4 Public-Private Partnerships

Public-private partnerships allow the private sector to be involved in public sector activities, such as investments in capital facilities to reduce the burden on public budgets. Partnerships can also be used to pay for capital and/or operating costs, when neither the public or private entity could afford to fund the project alone, such as the private ownership and operation of public facilities.

Smithfield currently participates in several public-private partnerships. The Town collects yard waste from residential and town-owned properties and brings it to Smithfield Peat, a composting facility off George Washington Highway and Douglas Pike. NRICD manages several education efforts in the community. The Woonasquatucket River Watershed Council, the Smithfield Land Trust and the Smithfield Conservation Commission work with local departments on many conservation projects. These partnerships will continue to support conservation and stormwater management efforts.

Future endeavors may also be linked with stormwater abatement opportunities discussed in Section 9 with local farms, privately owned mill sites, sand and gravel operations, and property owners of future developments in Town.

10.2.5 Taxes

Property Taxes

Revenue from property taxes can be used to fund nonpoint pollution control programs at a local level. For example, Smithfield landowners can be charged an annual Nonpoint source pollution control tax based on property size and land use. Alternatively, owners with onsite sewage systems, livestock, and other non-point sources could be assessed a surcharge if land uses are not managed to reduce non-point source pollution in accordance with the requirements of this Stormwater Management Plan.

Real Estate Taxes

Real estate transfer taxes are assessed as a percentage of property values when property is sold. These taxes are imposed on property buyers, sellers, or both. The Town of Smithfield could raise funds through real estate taxes to help purchase environmentally sensitive land or to support resource conservation programs.

Tax Incentives and Disincentives

Tax incentives often take the form of tax credits, deductions, or rebates. A tax credit for the use of low-flow plumbing fixtures, for example, can encourage water efficiency. Because of the desire to save money, disincentives often take the form of fees, taxes, or price increases.

10.2.6 Fees

Stormwater Utility Fees

Stormwater utility fees are imposed on property owners to pay for stormwater management. The Town could charge these fees based on the amount of runoff generated from the property, the amount of impervious area on the property, or the assessed value of the property.

Impact Fees

Impact fees transfer the costs of infrastructure services (roads, sewers, stormwater treatment, etc.) needed for private development directly to developers or property owners. Impact fees are usually collected in one lump sum at the beginning of the project. Impact fees are imposed to fund the installation and maintenance of stormwater management facilities on newly developed sites. All owners of onsite sewage disposal systems of new developments could pay a basic fee for inspections and administration costs and have the option to pay an additional amount for additional services. Fees paid by homeowners could finance operation and maintenance costs.

The Town is in the process of evaluating approaches to require the maintenance and inspection of BMPs to be provided at no cost to the Town for all major land developments, defined by the Land Development and Subdivision Review Regulations as a residential subdivision greater than five units or lots, a residential subdivision of five or less units or lots that requires waivers or modifications as specified in the regulations, or a nonresidential subdivision. Inspection and maintenance may take place through a Homeowner's Association, cooperative agreements, or by assessing a fee from all the property owners in the development with the proceeds to be used to hire a contractor to provide the necessary maintenance and inspection services. While alternatively, the Town could agree to accept these fees and provide inspection and maintenance services, it is preferable; however, for major developments to contract private maintenance services.

Inspection Fees

Inspection fees are charged to cover the costs of making sure that development plans are properly implemented. The Town could use these fees to defray the costs of erosion and sediment control, septic system siting and installation inspections, and stormwater treatment facility operation and maintenance.

Capacity Credits

Capacity credits are a form of financing in which private interests, usually developers, purchase future capacity in a public facility such as a stormwater treatment facility. Applicants are guaranteed future access to the excess capacity of the particular facility. Where project construction hinges on adequate funding, capacity credits can contribute to project completion.

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