

**Municipality/Organization: Town of Andover**

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**EPA NPDES Permit Number: MAR041178**

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**MassDEP Transmittal Number: W-041021**

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**Annual Report Number**

**& Reporting Period: No. 10: May 1, 2012-April 30, 2013**

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## **NPDES PII Small MS4 General Permit Annual Report**

### **Part I. General Information**

Contact Person: Reginald Stapczynski

Title: Town Manager

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#### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: *Reginald S. Stapczynski*

Printed Name: Reginald Stapczynski

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Title: Town Manager

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Date: 4/30/2013

## **Part II. Self-Assessment**

The Town of Andover has completed the required self-assessment of the annual compliance review for the Phase II Stormwater Program. In accordance with the NPDES Phase II Stormwater requirements, the following topics were evaluated for the completion of the Annual Report:

1. Compliance with the Phase II Permit Conditions
2. Appropriateness of the Selected BMPs
3. Progress Towards Achieving the Program's Measurable Goals
4. Results of Any Information that has been Collected and Analyzed
5. Activities for the Next Reporting Cycle
6. Changes in Identified BMPs or Measurable Goals

The Town has determined that our municipality is in compliance with all permit conditions.

**Part III. Summary of Minimum Control Measures**

**1. Public Education and Outreach**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Term</b>
1A	Develop Stormwater Section of Town Website	Dept. of Public Works/Engineering Dept., Water Dept, and Town Website Manager(s)	Measure number of hits over permit term.	The “Stormwater Management” section of the Town’s website was maintained and updated as necessary. Information on stormwater and illicit discharges, as well as links to other stormwater websites was provided. There were approximately 2,000 visitors to the stormwater section during this reporting period.	Continue to track website hits and update with pertinent information and links.
Revised					
1B	Distribute Brochures and Fact Sheets to Businesses and Residents	Department of Public Works/Engineering Dept., and Water Dept.	Number of articles and copies of materials.	A section on stormwater management was published in the “Recycling and Trash Collection Guide for Residents”, which was made available to the public via the Town website, email, and additional copies were made available for pickup at various public buildings during Permit Year 10. The publication discussed the Town’s Stormwater Management Program and IDDE program and provided contact information. Stormwater management information was included in the annual Consumer Confidence Report (i.e., Water Quality Report) that was distributed to 14,288 homes and businesses in Town. Copies of the report were also available at the Town Offices, library and water treatment plant.	Continue mailings as in years past to residents, businesses, and institutions. Continue providing informational brochures and materials for pickup at public locations. Continue to update and direct interested residents to the Stormwater Management section of the Town website.
Revised					
<i>(continued on next page)</i>					

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Term
1B				<p><i>(continued)</i></p> <p>Information on hazardous waste disposal events was also included as outlined under BMP 6Y. The Town participated as a sponsor of the 2012 Greenscapes Massachusetts Program which provides residents with environmentally friendly yard care and landscaping information and services. A link to Greenscapes.org was posted to the website, providing information on stormwater lawn care and water conservation. Andover posted flyers advertising Greenscapes sponsored workshop, “Riverside Garden Makeover: From Nothing to Native Paradise”, held on October 18, 2012, at Town offices and the public library, and on the Town website. A workshop titled “Greenscapes 101” open to Andover residents was held on April 23, 2013 at the library. Copies of the Greenscapes Program “Guide to Greenscaping” were placed at Town Hall, the public library, the water treatment plant, and at Andover Historical Society’s weekly farmer’s market beginning July 14, 2012.</p> <p><i>(continued on next page)</i></p>	

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1B				<p><i>(continued)</i></p> <p>Copies of Pet Waste Rack Cards were received from Greenscapes North Shore and distributed to local veterinary offices, as well as to the Town Clerk for inclusion in dog license renewals. Information about picking up after your pets was posted on the Andover Patch blog and the Town of Andover DPW Facebook page.</p>	
1C	Submit Advertisements/Articles on Stormwater Protection for Local Newspaper	Department of Public Works/Engineering Dept., and Water Dept.	Clippings of articles and advertisements printed in local newspaper.	Three Greenscapes North Shore Program blogs were released for posting on local e-newspapers. Additionally, a short newspaper article on summer lawn care and water conservation entitled “Greenscapes North Shore: On summer lawns, benign neglect is best” was published in the Andover Townsman on July 26, 2012. A second article titled “Heavy Rains Affect Local Water Quality” was published in the Andover Patch electronic newspaper on October 30, 2012. Three Greenscapes workshops were advertised on the Town’s cable-TV channel, on the DPW’s Facebook page, and on the blog on the Andover Patch e-newspaper.	Continue to inform residents of upcoming activities in conjunction with Minimum Measures 1 and 2 by publishing articles in the newspaper. Continue to issue press releases and articles in the Andover Townsman and/or Eagle Tribune to publicize the Greenscapes program and other town programs as they become available.
Revised					

## 2. Public Involvement and Participation

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Term</b>
2A	Establish a Pesticide Reduction Task Force (PRTF)	Committee of Town Staff, League of Women Voters, and Residents	Copies of mailers, meeting minutes, list of attendees.	During past permit years, the Pesticide Reduction Task Force was joined with the Fish Brook Watershed Advisory Committee (FBWAC). The FBWAC created a Pesticide Use Policy that was adopted by the Town for use in the watershed to help protect water quality. During Permit Year 8, the FBWAC issued its final report as outlined in BMP 2E, and has since disbanded. The Pesticide Use Policy remains in effect and is available from the Health Department and on the Town website.	Continue to enforce the Pesticide Use Policy under existing regulatory methods. Provide education to residents and businesses about proper pesticide usage and potential water quality impacts under BMP 1B.
Revised	Reduce Pesticide Usage in the Fish Brook Watershed	Town Departments and Residents	Implement a Pesticide Use Policy		
2B	Establish a Stormwater Telephone Hotline	Department of Public Works/Engineering Dept, Water Dept., and Town Website Manager(s)	Record number of phone calls to hotline, copies of articles.	Six (6) calls were received and logged as part of the Stormwater Call Directory as outlined in BMP 4B, set up through the DPW Engineering Division and advertised on the Town website. The majority of calls pertained to sinkholes and possible clogged or broken drain pipes. Each location was investigated and documented in the complaint log as part of the process. The log includes investigation findings, actions taken, and follow-up actions.	Continue to receive calls made to the Stormwater Call Directory and take corrective actions. Continue to document the complaint in the log including investigation findings, actions taken, and follow-up actions.
Revised	Establish a Stormwater Call Directory		Record number of calls to each Department		

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Term</b>
2C	Establish Classroom Education/Field Trip Program	Department of Public Works/Engineering Dept. Water Dept., and Education Department	Field Trip Curriculum, # of field trips organized each year.	Personal tours are no longer offered due to security issues; however a virtual tour of the Town's water treatment plant is available to schools and other interested parties through the Town's website.	Continue to visit classrooms and encourage utilization of the Virtual Tour. Encourage class projects and activities related to stormwater issues.
Revised			Virtual tour available on the website		
2D	Install Storm Drain Markers or Stencils	Department of Public Works/Engineering Dept, Water Dept., and Volunteers	50% of storm drains marked by year 5 with door hangers placed in associated neighborhoods.	A goal of marking 50% of storm drains was met in year 5. Through collaboration between Town employees and other volunteers, an additional 1,713 markers were installed at catch basins during Permit Year 9, completing town-wide coverage. In Permit Year 10, markers were installed at 7 new catch basins that were constructed/installed on Summer Street, Salem Street, and Jenkins Road.	Continue marking storm drains throughout the watersheds as new development occurs and refresh markers as needed through the use of Town personnel and volunteers. Additional marking and door hanger distribution will be performed as volunteers and materials become available in the future.
Revised			100% of storm drains marked, with door hangers placed in associated neighborhoods.		
2E	Work With Watershed Organizations to Incorporate Stormwater Information into Their Programs	Department of Public Works/Engineering Dept, Water Dept., and Conservation Commission	Document quarterly meeting topics. Agenda, meeting notes, and attendance sheets.	Members of Andover met to review the Fish Brook Watershed Advisory Committee (FBWAC) report, completed in June 2010, and several items concerning stormwater quality were discussed for implementation. The Town has partnered with the Greenscapes North Shore Coalition, which is currently coordinated by the Salem Sound Coastwatch, the Ipswich River Watershed Association, and Eight Towns and the Bay watershed	Continue working with local watershed groups and residents to discuss stormwater concerns. Encourage additional projects to improve water quality. The amended Fish Brook Watershed Bylaw is now in effect and is enforced by applicable town departments. Continue to implement items identified in the final FBWAC report as feasible.
Revised					

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2E				<p><i>(continued)</i></p> <p>organizations. The Town also participated as a sponsor community for the 2012 Greenscapes program as outlined in BMP 1B. The Greenscapes North Shore Program hosted one workshop called “Slow the Flow” on March 16, 2013 and one called “Organic Lawn Care” on April 8, 2013. A workshop entitled “Greenscapes 101” open to Andover residents was held on April 23, 2013 at the library as outlined in BMP 1B. The Conservation Director has partnered with the Shawsheen River Watershed Association (SRWA) to locate outfalls with excessive sediment flow. Watershed association volunteers actively check river outfalls and work to pinpoint areas not in compliance for further investigation by Conservation staff. As part of this project, the Brickstone Square property completed a \$1,000,000 renovation project during previous permitting years to protect the Shawsheen River from sediment-laden parking lot runoff. The project installed Stormceptor permanent sedimentation controls designed to remove sand and grit. The Andover Recycling Committee also sponsored a rain barrel program to provide rain barrels at reduce costs to residents.</p>	

### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Term
3A	Develop Primary Town Storm Drain System Map	Department of Public Works/Engineering Dept., Consultant	90% of system mapped on GIS.	90% of the drainage system was mapped during Permit Year 1 using existing plans. Through subsequent mapping efforts, 99.8% of the drainage system has now been mapped. Additional outfalls were mapped as outlined in BMP 3B.	Continue to map newly installed or located structures as necessary.
Revised					
3B	Complete Storm Drain System Map	Department of Public Works/Engineering Dept., Consultant	Outfalls map completed.	An additional 75 outfalls were identified on various plans and records; 71 private, 1 state and 3 that are Town owned.. Two (2) new Town outfalls were field located, inspected, and mapped with GPS coordinates during this Permit Year. Four (4) other outfalls remain buried and could not be fully inspected. The GIS base map was updated to reflect all newly located outfalls. Additional stormwater infrastructure, mostly private, has been added through research of existing records and through field inspections with GPS equipment during Permit Year 10 as follows: 67,148 l.f. of pipe; 266 catch basins; 280 manholes; 14 grit/oil separators; and 26 inlets.	Continue verifying the location of the drainage system as mapped under BMP 3A and incorporate changes as funds, manpower, and equipment are available. The Town will also update the GIS map as new drainage systems and new roads and developments are constructed. Excavation and flushing will likely be required to find remaining outfalls.
Revised					
3C	Develop Illicit Discharge Prohibition Ordinance	Planning Board, Board of Health, and Selectmen	Obtain authorization to control inputs to the municipal drainage system.	Illicit Discharge Rules and Regulations were adopted by the Board of Health on July 9, 2007. Enforcement is ongoing.	Continue to enforce the Illicit Discharge Rules and Regulations.
Revised					

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3D	Develop Illicit Discharge Detection and Elimination Plan and Implement Activities	Department of Public Works/Engineering Dept., Water Dept., Board of Health, and Consultant	All outfalls examined. Sources traced and results documented within one year of discovery.	An IDDE plan was established in Permit Year 1 and continues to be used during IDDE investigations. Two (2) additional outfalls were found and inspected, however neither exhibited dry weather flows nor evidence of illicit discharges. Four (4) outfalls remain to be located and inspected, however all are buried and require excavation. Follow up on possible illicit discharges at 8 previously identified outfalls continued. An investigation was conducted to determine the cause of high bacteria counts at OUT-71 behind 87 Haverhill Street. Rooter Man was hired to use a jet truck and camera system in the drain and sewer along the branch that historically has high bacteria counts. A cross contamination was discovered between a leaking sewer main on Carlisle Street and a previously unknown underdrain that ties into a DMH on Carlisle Street, which ultimately flows into OUT-71. The underdrain was plugged and disconnected. There was also discovered at least one hole in the invert to SMH-1185 which may contribute to the cross contamination. Rooter Man was hired to jet-flush the drain line from OUT-71 up to	Continue work on locating the remaining 4 outfalls and inspecting for signs of illicit discharges as funding is available. Funding and manpower is limited at this time for further major repairs or reconstruction. Continue follow up on suspect outfall locations identified during previous permit years as necessary and obtain necessary funding. Evaluate connections for future dye testing or additional inspection. Requirements of the new permit will determine when this BMP will be completed.
Revised				(continued on next page)	

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3D				<p><i>(continued)</i></p> <p>Haverhill Street and then in a southwest direction to where it turns up towards Carlisle Street. A contractor was hired in June 2012 to replace the sewer main with PVC. This was one of a series of steps to identify and eliminate any illicit discharge contributing to OUT-71. After each step another round of testing is conducted and if illicit discharge is detected further steps are taken. Another potentially similar situation was identified contributing to OUT-71. The sewer underdrain detected in Sutherland Street (related to OUT-71 at 87 Haverhill Street) was found running and tied blindly into a drain on Sterling Street. Letters were mailed to homeowners on Sutherland Street seeking permission to dye test their house. Dye tests revealed no illicit discharge for properties who responded. The underdrain was rerouted to a new DMH and plugged inside the MH. While constructing a new DMH at Sterling/Southerland Streets, the need to flush the 15” drain line in Sterling Street was observed. The line could need both flushing and time for bacteria to vacate the system.</p> <p><i>(continued on next page)</i></p>	

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3D				<p><i>(continued)</i></p> <p>The 15” drain should be cleaned and additional samples collected to determine if the underdrain was the source of the illicit discharge. A contractor was hired to replace all clay drain and sewer pipes with PVC/HDPE on a portion of William St. upstream of OUT-521 located behind 34 Martingale Lane. Some water system work was needed to facilitate the new drain, and additional drain work was done upon observing the poor condition of existing catch basins and associated lines. Follow-up sampling at this outfall has shown no further presence of an illicit discharge. Samples collected from Lincoln Street, associated with OUT-604 on Mary Lou Lane, indicated high levels of bacteria and fluoride. The water main was found to be leaking and entering the drain system and an animal was found living in the culvert. The water main was repaired on December 13, 2012 and the animal was no longer observed. Subsequent sampling showed no bacteria or fluoride. A contractor, Bateson, was hired to excavate behind DMH-150 (near 74 Haverhill St) to eliminate connection</p> <p><i>(continued on next page)</i></p>	

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3D				<p><i>(continued)</i></p> <p>of sewer underdrain coming from Carlisle St entering drainage system. Line was destroyed for a length of 5' starting roughly 2' outside of DMH-150 and plugged on both ends.</p> <p>OUT-103 near 236 Haggetts Pond Road was evaluated, and high bacteria counts were encountered. Additional parameters were below acceptable limits, and monitoring will continue.</p> <p>OUT-689 near Foster Circle was sampled and found to exhibit high bacteria counts. Follow-up inspections showed periodic dry weather flows with somewhat elevated bacteria concentrations. Follow-up will continue.</p> <p>Previous hits of detergent and ammonia at Whittier Court OUT-780 were previously traced to improper disposal of wash water. Follow-up sampling performed twice during Permit Year 10 showed no elevated levels, and the source appears to have been eliminated.</p> <p>Close-out inspections in the vicinity of OUT-690 near 113 Chestnut Street did not reveal dry weather flows, and previous dye testing did not indicate the presence of an illicit discharge. Follow-up is now complete on this outfall.</p> <p><i>(continued on next page)</i></p>	

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3D				<p><i>(continued)</i></p> <p>Follow-up evaluations on a previously repaired sewer service in the vicinity of OUT-1013 near 11 Lupine Road still found elevated bacteria sampling, however other water quality indicators were below standards. Monitoring will be ongoing.</p>	
3E	Incorporate Information on Illicit Discharges into Public Education and Outreach Topics	Department of Public Works/ Engineering Dept., Water Dept., and Board of Health	Copies of materials.	General information on illicit discharges is posted on the Stormwater Management section of the Town website as outlined in BMP 1A. A link to an interactive “Illicit Discharge Interactive Demonstration” was also included. A section on IDDE was published in the “Recycling and Trash Collection Guide for Residents” from July 2012 through the end of this reporting period. The guide was made available to residents via the Town website and for pickup as outlined in BMP 1B. Stormwater management information was included in the annual Consumer Confidence Report (i.e., Water Quality Report) that was distributed to 14,288 homes and businesses in Town. Copies of the report were also available at the Town Offices, library and water treatment plant.	Continue incorporating information on illicit discharge into public education and outreach topics.
Revised					

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3F	Setup and Advertise a Hotline for Illicit Discharges	Department of Public Works/ Engineering Dept., and Board of Health	Log of complaints and actions taken.	3 calls were received involving illicit discharges during Permit Year 10. One of the calls was in response to a possible discharge of chlorinated swimming pool water from the YMCA, and the second concerned a potential wastewater release from a residence. The Town discussed the need to dechlorinate swimming pool water before discharging to the storm sewer system, and follow-up at the private residence did not indicate any evidence of an illicit discharge. A third called related to a failed septic system was investigated, and the residence connected to the sewer system. A link on the Health Division website was also set up for reporting illicit discharges.	Continue to receive complaints and take corrective actions based on calls to the Stormwater Call Directory outlined in BMP 2B. Continue to document the complaint in the log including investigation findings, actions taken, and follow-up actions.
Revised	Establish a Procedure to Receive Calls				

#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Term
4A Revised	Develop Erosion Control Bylaw	Planning Board and Selectmen	Bylaw at Town meeting by year 3.	The Stormwater Management & Erosion Control Bylaw was adopted at the 2008 Annual Town Meeting. The Planning Board adopted the accompanying Stormwater Management Rules and Regulations in February of 2009. Enforcement is ongoing.	Continue to enforce the Stormwater Management & Erosion Control Bylaw and accompanying Stormwater Management Rules and Regulations.
4B Revised	Establish a Procedure for the Receipt of Information Submitted by the Public	Planning Board and Department of Public Works/ Engineering Dept.	Record number of phone calls, copies of articles.	Six (6) calls were received and logged as part of the Stormwater Call Directory as outlined in BMP 2B, set up through the DPW Engineering Division and advertised on the Town website. The majority of calls pertained to sinkholes and possible clogged or broken drain pipes. Three additional calls concerned illicit discharges as outlined in BMP 3F. Each location was investigated and documented in the complaint log as part of the process. The log includes investigation findings, actions taken, and follow-up actions.	Continue to receive calls made to the Stormwater Call Directory and take corrective actions. Continue to document the complaint in the log including investigation findings, actions taken, and follow-up actions.
4C Revised	Develop Guidance for Erosion Controls & Conduct Inspections	Planning Board, Dept of Public Works/ Eng Dept., Conservation Commission, & Consultant	Inspection checklist and documented inspections.	The Stormwater Management & Erosion Control Regulations implemented during Permit Year 5 provide specific guidelines of erosion controls and inspections along with annual reporting.	Continue to abide by the design standards set forth in the Stormwater Management & Erosion Control Regulations when managing erosion controls.

## 5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Term
5A	Develop BMP Bylaws	Planning Board	Bylaw at Town meeting by year 3.	The Stormwater Management & Erosion Control Bylaw was adopted at the 2008 Annual Town Meeting. The Planning Board adopted the accompanying Stormwater Management Rules and Regulations in February of 2009. Enforcement is ongoing.	Continue to enforce the Stormwater Management & Erosion Control Bylaw and accompanying Stormwater Management Rules and Regulations.
Revised					
5B	Develop and Implement Inspection Program	Planning Board, Department of Public Works/ Engineering Dept., Conservation Commission, Selectmen and Consultant	Copies of maintenance reports received annually, plus records of inspections completed and results.	The Conservation Commission required that post-construction development projects conform to conservation standards for stormwater control annual inspection and maintenance before a Certificate of Compliance is issued. Projects must also conform to state standards as required. For every Homeowners' Association (HOA) documented, a comprehensive file has been assembled to track HOA BMP inspections and maintenance. The Conservation Commission requires that construction projects submit an Operation and Maintenance Plan for final approval. The Conservation Commission has also instituted a program of periodic inspections conducted by outside independent engineers of ongoing constructing projects. Inspections are terminated when work is completed and the site is	Continue to document annual maintenance and inspection of HOA BMPs. Follow-up meetings and reminder letters to the Homeowners' Associations will be necessary on a yearly basis to ensure that the drainage areas are being inspected and maintained and Operation and Maintenance Plans are being followed.
Revised				(continued on next page)	

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5B				<p><i>(continued)</i></p> <p>stabilized. Annual inspection reports for 7 sites were received by the Planning Board for Permit Year 10. The Engineering Department received four additional annual inspection reports during Permit Year 10 for 10 Connector Road, Birmingham Estates Shanded Circle and Merrimack College Dorms. Brickstone Square work has been completed as outlined in BMP 2E.</p>	
5C	Develop BMP Design Standards	Planning Board, Dept of Public Works/ Eng Dept., Conservation Commission, & Consultant	Copy of draft bylaws.	Design standards consistent with the Stormwater Management Handbook were adopted as part of the Stormwater Management & Erosion Control Regulations, adopted in February 2009. No additional work took place during Permit Year 10.	Continue to abide by the design standards in the Stormwater Management Handbook for all BMP designs.
Revised					

## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Term
6A	Sweep Streets in Town	Department of Public Works/Highway Division	Priority plan of sweeping based on water quality impact.	All streets are swept in Town at least annually. Streets in the downtown area are swept approximately twice a week from May through October.	Continue implementing the current street sweeping program.
Revised					
6B	Clean Catch Basins	Department of Public Works/Highway Division and Consultant	Records of cleaning, inspections and maintenance.	Catch basins are cleaned approximately every other year, with high priority catch basins cleaned more frequently. Limited resources reduced the number of catch basin cleanings performed, however a total of 1,800 catch basins were cleaned during Permit Year 10. Remaining catch basins will be cleaned when resources are available.	Continue to clean all catch basins in Town approximately every two years, pending available resources and funding. Continue to identify problem areas and modify cleaning frequency as needed.
Revised					
6C	Develop and Implement an Inspection and Maintenance Plan	Department of Public Works/Highway Division, Plant and Facilities Dept., Water/Sewer Dept.	Written policy. Records of inspections and maintenance.	Inspections and maintenance are performed and procedures are modified as necessary. Stormwater structures are inspected as part of routine operations as time and budget constraints allow. A standard oil/water separator inspection and maintenance checklist was developed and utilized during inspection and cleaning operations. All Plant and Facilities oil/water separators were inspected during Permit Year 10. Structures that required cleaning were maintained as needed. One (1) oil/water separator on River Street,	Continue to perform inspection and maintenance of BMPs and catch basins. Modify maintenance frequency as necessary.
Revised				(continued on next page)	

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6C				<i>(continued)</i>  and three (3) on West Hollow were inspected, with maintenance performed as needed. Three (3) additional proprietary BMPs located at West Middle School and Andover High School were added to the Town's inventory for future tracking and maintenance.	
6D	Berm Sand/Salt Pile and Evaluate Options for Protection	Department of Public Works/ Highway Division	Records of modifications, including photos.	A storage shed was constructed in Permit Year 1 to store the sand/salt pile away from stormwater runoff. No further action was performed during Permit Year 10.	Continue utilizing the shed for storage of all salt and sand materials.
Revised					
6E	Store Paving Tools and Equipment Indoors	Department of Public Works/Highway Division	Designated indoor storage area. Record of Memo.	All paving tools and equipment are now stored indoors in designated areas.	Continue to store all tools and equipment indoors in designated areas.
Revised					
6F	Rinse Marking Paint Buckets to the Sanitary Sewer System and Store Buckets Indoors	Department of Public Works/Highway Division	Designated indoor storage area. Record of Memo.	All marking paint buckets are rinsed to the sanitary sewer system and stored indoors.	Continue to rinse all marking paint buckets to the sanitary sewer system and store indoors.
Revised					
6G	Implement BMPs to Reduce Sediments Entering the Drainage System	Department of Public Works/Highway Division	Records of sweeping and inspection records.	The paved roadway and catch basins at the DPW Yard were swept and cleaned frequently, particularly during high usage times. Catch basins cleaned on a schedule and as needed/able as outlined in BMP 6B.	Continue to sweep the paved roadway and clean the catch basins at the DPW Yard on a frequent basis.
Revised					

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6H	Bring Floor Drain System at the Water/Sewer Building into Compliance	Department of Public Works/Engineering Dept.	As-built sketches.	Floor drain was brought into compliance in Permit Year 1.	No further action is required.
Revised					
6I	Bring Floor Drain System at the Vehicle Maintenance Building into Compliance	Department of Public Works/Engineering Dept.	As-built sketches.	Floor drain was brought into compliance in Permit Year 1.	No further action is required.
Revised					
6J	Wash Vehicles in Accordance with DEP Regulations	Department of Public Works/Highway Division	Record of Memo.	Vehicles are washed indoors to floor drains that discharge into an oil/water separator and the sanitary sewer system.	Continue washing vehicles indoors.
Revised					
6K	Implement Stormwater BMPs at the Fueling Station	Plant and Facilities Dept. and Consultant	Repair Records. Better housekeeping for small spills. As-built sketches or plans. Record of memo.	A fully stocked spill kit and disposal containers are maintained onsite to clean up future leaks. Any waste will be disposed of properly.	Continue to keep fully stocked spill kit and disposal container on-site to clean up any future leaks and to dispose of wastes properly.
Revised					
6L	Develop an Inspection and Maintenance Program for the Liquid Calcium Chloride (CaCl) ASTs.	Department of Public Works/Highway Division	Inspection and Maintenance Plan. As-built sketches or action taken. Record of memo.	An inspection and maintenance plan and procedures for handling large leaks and spills was completed in Permit Year 2. The equipment is maintained as needed and no incidents occurred during Permit Year 10. Calcium Chloride tanks are inspected weekly and maintained as needed.	Continue with the current inspection and maintenance program consistent with previous years.
Revised					

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Term</b>
6M	Implement BMPs at the Ledge Road Landfill	Department of Public Works	Complete landfill cap.	A Comprehensive Site Assessment (CSA) and semi-annual groundwater & air sampling was performed during Permit Year 6. Additional human health risk characterization, sediments and ecological risk assessment of arsenic, and bioavailability of arsenic in wetlands studies as requested by MassDEP were completed. Voters approved a \$7.34M construction bond during Permit Year 6. Consultant CDM Smith is in testing and pre-design investigation/remediation process of groundwater extraction and treatment system.	An extension of Town deadlines has been requested and is currently pending with MADEP. This BMP is ongoing and anticipated to continue through at least 2013.
Revised					
6N	Provide Additional Slope Stabilization at the Snow Dump and Storage Location	Department of Public Works/Engineering Dept. and Highway Division	As-built sketches or plans and photos.	Slope stabilization at the snow dump location was completed during Permit Year 1.	No additional work is needed.
Revised					
6O	Ensure Compliance for Floor Drains and Vehicle Washing Activities at the West Fire Station	Plant and Facilities Dept. and Fire Dept.	Sketches or inspection memos. Record of memo.	Continued washing vehicles indoors to prevent discharges to the Town's MS4.	Continue to prohibit outdoor vehicle washing and wash vehicles indoors.
Revised					

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Next Permit Term</b>
6P	Ensure Compliance for Floor Drains and Vehicle Washing Activities at the Ballardvale Fire Station	Plant and Facilities Dept. and Fire Dept.	Sketches or inspection memos. Record of memo.	Continued washing vehicles indoors to prevent discharges to the Town's MS4.	Continue to prohibit outdoor vehicle washing and wash vehicles indoors.
Revised					
6Q	Wash Vehicles at the Approved Vehicle Wash Area at the Police Station (Public Safety Building)	Plant and Facilities Dept. and Police Dept.	Record of memo.	Continued washing vehicles at approved wash areas. Outdoor vehicle washing is prohibited.	Continue to wash all vehicles indoors at approved vehicle wash areas.
Revised					
6R	Prohibit Vehicle Washing at the Cemetery Buildings	Plant and Facilities Dept. and Fire Dept.	Record of memo.	Continued washing vehicles at approved wash areas. Vehicle washing at the Cemetery Buildings is prohibited.	Continue washing vehicles at approved sites.
Revised					
6S	Rinse Marking Paint Buckets to the Sanitary Sewer System at the Park Shop	Plant and Facilities Dept. and School Dept.	Record of memo.	Continued rinsing all marking paint buckets to the sanitary sewer system.	Continue rinsing all marking paint buckets to the sanitary sewer system.
Revised					
6T	Ensure Compliance with SPCC Plans for the West, Shawsheen, and Bancroft Elementary Schools	Plant and Facilities Dept. and School Dept.	Record of inspections and activities in accordance with the plan.	Continued inspecting facilities in accordance with the SPCC Plans.	Continue inspecting facilities in accordance with the SPCC Plans. Update SPCC plans as required under applicable regulations.
Revised					

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Next Permit Term</b>
6U	Use IPM Program for Application of Pesticides in Town	Plant and Facilities Dept.	Copy of “Chapter 85 of the Acts of 2000”.	Continued Integrated Pest Management (IPM) Program for application of pesticides (herbicides and insecticides) and fertilizers on Town-owned lands. Abided by the rules contained in Commonwealth of Massachusetts Chapter 85 of the Acts of 2000 (an act protecting children and families from harmful pesticides). A previously developed mosquito control plan was followed and involved treating catch basins for larvae in the spring	Continue Integrated Pest Management (IPM) Program. Survey the mosquito population to identify potential virus outbreaks of West Nile or Eastern Equine Encephalitis. If a virus outbreak is threatening, the Town will spray for adult mosquitoes.
Revised					
6V	Use Licensed Applicators for Fertilizers and Pesticides in Town	Plant and Facilities Dept	Record quantities of fertilizers and pesticides purchased annually.	Continued to use licensed applicators to apply fertilizers and pesticides in Town.	Continue to use licensed applicators to apply fertilizers and pesticides in Town.
Revised					
6W	Store Road Salt Under Cover and Clean Loading Area	Department of Public Works/Highway Division	Minimize stormwater contact with salt.	Stored all road salt materials under cover at the DPW Facilities Plant and Yard and cleaned loading area on a regular basis.	Continue to store all road salt materials under cover at the DPW Facilities Plant and Yard and clean loading area on a regular basis.
Revised					

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Next Permit Term</b>
6X	Use Low Salt Applications at Designated Areas	Department of Public Works/Highway Division	Use less salt within the Haggetts Pond watershed, as demonstrated with application rate.	Deicing practices modified during Permit Year 6 to reduce salt application within Haggetts Pond watershed were continued. Low salt applications are performed when able within the watershed. The Water Department and Health Department staff continue to work with the FBWAC, MassDOT, and lawmakers to relocate the MassDOT salt storage shed out of the Fish Brook subbasin in an effort to reduce sodium levels and preserve the quality of the subbasin. Design of the new shed and location is approaching 100% completion, and a septic system design is expected shortly. Construction is anticipated to begin during summer 2013. Coordination is ongoing.	Continue to use low salt applications in the Haggetts Pond watershed for water supply protection. Continue to meet with applicable agencies and departments on shed relocation.
Revised					
6Y	Ensure Proper Waste Disposal in Town for Hazardous and Special Wastes	Department of Public Works and Consultant	Document quantity of wastes collected annually.	Hazardous household wastes (HHW) and electronics waste were collected at annual drop-off events. A HHW collection event was held on May 19, 2012 while a collection event for cathode ray tubes, batteries, and electronics was held on June 2, 2012. A total of 14.76 tons of material were collected for safe disposal.	Continue to ensure proper waste disposal in Town for hazardous and special wastes as conducted in the past. A HHW event is currently scheduled for May 18, 2013, and an event for disposal of cathode ray tubes (CRTs), batteries, and electronic equipment is scheduled for June 1, 2013.
Revised					
6Z	Ensure Compliance for Snow Disposal in Town	Department of Public Works/Highway Division	Utilize designated snow disposal location.	Continued existing practices for snow disposal activities at the designated snow dump on High St.	Continue existing practices for snow disposal activities in Town to ensure surface water quality protection.
Revised					

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Next Permit Term</b>
6AA	Conduct Town Employee Stormwater Training	Town Manager, Department of Public Works, Plant and Facilities Dept., Police and Fire Dept. and Consultant	Attendance sheet and copy of program.	Training for Plant & Facilities employees was held on April 25, 2013 and for Highway Dept. on March 21, 2013 for good housekeeping practices. DPW employees also received training on erosion/sedimentation control at various work sites during DPW operations.	Conduct formal refresher training as in years past. Also conduct informal training at applicable work sites.
Revised					

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 10</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Term</b>
7A	Develop a Water Quality Strategy for 303d Waters	Town Engineer & Consultant	Summary of pollution prevention efforts, future needs, and responsible parties. Copy of surface water quality strategic plan.	The Town discussed developing a strategy to meet the TMDL considering existing actions under the Phase II stormwater management program and available resources during previous permit years. The next steps for developing a water quality strategy are pending the reissuance of the Phase II Permit. No additional progress occurred during Permit Year 10.	Once issued, review the Phase II Permit and develop an implementation strategy to meet the TMDL that considers the goals of the TMDL, available resources, actions currently being undertaken by Andover and actions by others under the MassDEP RIA Permit.
Revised					
7B	Implement BMPs from Water Quality Strategy	Town Engineer, Consultant, & Town Departments (to be determined)	Photographs, logs, and BMP descriptions for completed efforts and water quality improvements.	Progress on this BMP will follow the progress made on BMP 7A.	Progress on this BMP will follow the progress made on BMP 7A.
Revised					

## **7b. WLA Assessment**

A TMDL was completed for the entire Shawsheen River Basin for pathogens only. The following waterbodies were included in this TMDL and are listed on the 303d list as impaired due to pathogens:

- 1) Unnamed Tributary (8349105)- Also known as Pinnacle Brook- from a small wetland east of Route 93, Andover to the confluence with Meadow Brook in Tewksbury.
- 2) Unnamed Tributary (8349030)- Also known as Fosters Brook- from the outlet of Fosters Pond through River Street Pond to the confluence with the Shawsheen River at Lowell Junction Pond in Andover.
- 3) Rogers Brook from the Outlet of first unnamed pond to the confluence with the Shawsheen River in Andover.
- 4) Shawsheen River from the confluence with Spring Brook in Bedford to Central Street in Andover.
- 5) Shawsheen River from Central Street to the confluence with the Merrimack River in Lawrence.

The TMDL Report set a WLA for fecal coliform standard of 200 organisms/100 mL per outfall. The report also points out that outfalls from Roger's Brook will need an 89.5% reduction in coliform to reach the standard of 200 organisms/100mL at each outfall. To meet these standards the Report suggests the following measures, many of which are already included in Andover's Stormwater Management Plan:

- 1) Implement an illegal connection identification and removal program;
- 2) Collect additional monitoring data to isolate coliform sources;
- 3) Implement more intensive "good housekeeping" practices; and
- 4) Assess water quality in response to implementation activities.

Andover's Phase II program addresses general water quality concerns associated with 303d waters through the implementation of BMPs under the six minimum measures for Phase II. The approach for addressing impaired waters will be updated based on the new permit.

The proposed 2012 303d list (list of impaired waters) outlines several waterbodies in Andover that are classified as Category 5, meaning waters in need of a TMDL:

1. Brackett Pond: segment ID MA92004; impaired for turbidity
2. Collins Pond: segment ID MA92010; impaired for excess algal growth and turbidity
3. Frye Pond: segment ID MA92023; impaired for excess algal growth
4. Salem Pond: segment ID MA92057; impaired for turbidity
5. Fish Brook: segment ID MA84A-40; impaired for Chloride and E. coli
6. Haggets Pond: segment ID MA84022; impaired for mercury in fish tissue

7. Bellardvale Impoundment: segment ID MA83011; impaired for mercury in fish tissue, aquatic plants (macrophytes) and non-native aquatic plants
8. Fosters Pond: segment ID MA83005; impaired for non-native aquatic plants, mercury in fish tissue and dissolved oxygen
9. Hussey Pond: segment ID MA83009; impaired for excess algal growth
10. Poms Pond: segment ID MA83014; impaired for mercury in fish tissue and non-native aquatic plants
11. Rabbit Pond: segment ID MA83015; impaired for turbidity

Once TMDLs are developed for any of the above waterbodies, Section 7 of the annual reports will be updated to reflect changes associated with each TMDL.

**Part IV. Summary of Information Collected and Analyzed**

Copies of all educational materials, newspaper articles, and memos distributed have been kept on file. Meeting memos, phone logs, and website hits have also been kept on file. Locations and physical descriptions of approximately 1,067 outfalls have been gathered since Permit Year 1. All outfalls, along with catch basins, manholes, pipes and stormwater BMPs are incorporated into a GIS-based map. To date 99.8% of the system has been mapped. During outfall inspections, each Town owned outfall was inspected for potential dry weather flows. 10 illicit discharges have been detected since Permit Year 1. Detailed records of all illicit discharges and follow-up actions are maintained by the DPW. BMP inspections and maintenance activities are tracked and documented.

**Part V. Program Outputs & Accomplishments (OPTIONAL)**

**Programmatic**

Stormwater management position created/staffed	(y/n)	No
Annual program budget/expenditures	(\$)	

**Education, Involvement, and Training**

Estimated number of residents reached by education program(s)	(# or %)	95%
Stormwater management committee established	(y/n)	
Stream teams established or supported	(# or y/n)	
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	

Household Hazardous Waste Collection Days (including collection events for cathode ray tubes (CRTs), batteries, and electronic equipment)		
▪ days sponsored	(#)	<b>1</b>
▪ community participation	(%)	
▪ material collected	(tons or gal)	<b>14.76 tons</b>
School curricula implemented	(y/n)	<b>yes</b>

**Legal/Regulatory**

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination				<b>X</b>
▪ Erosion & Sediment Control				<b>X</b>
▪ Post-Development Stormwater Management				<b>X</b>
Accompanying Regulation Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination				<b>X</b>
▪ Erosion & Sediment Control				<b>X</b>
▪ Post-Development Stormwater Management				<b>X</b>

**Mapping and Illicit Discharges**

Outfall mapping complete	(%)	<b>99.8%</b>
Estimated or actual number of outfalls	(#)	<b>1,067</b>
System-Wide mapping complete	(%)	<b>99.8%</b>
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	

Outfalls inspected/screened	(# or %)	<b>1063</b>
Illicit discharges identified	(#)	<b>10 since Permit Year 1</b>
Illicit connections removed	(#) (est. gpd)	<b>9 since Permit Year 1</b>
% of population on sewer	(%)	<b>55%</b>
% of population on septic systems	(%)	<b>45%</b>

### Construction

Number of construction starts (>1-acre)	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	
Site inspections completed	(# or %)	
Tickets/Stop work orders issued	(# or %)	
Fines collected	(# and \$)	
Complaints/concerns received from public	(#)	

### Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	
Site inspections completed	(# or %)	
Estimated volume of stormwater recharged	(gpy)	

### Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	<b>Once every 2 years</b>
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	<b>Once every 2 years</b>
Total number of structures cleaned	(#)	<b>1,800</b>
Storm drain cleaned	(lf or mi.)	

Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		
Cost of screenings disposal	(\$)	

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	<b>1/year</b>
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	<b>1/year</b>
Qty. of sand/debris collected by sweeping	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	
Cost of sweepings disposal	(\$)	
Vacuum street sweepers purchased/leased	(#)	
Vacuum street sweepers specified in contracts	(y/n)	

Reduction in application on public land of: (“N/A” = never used; “100%” = elimination)		
▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	

Anti-/De-Icing products and ratios	% NaCl % CaCl <sub>2</sub> % MgCl <sub>2</sub> % CMA % Kac % KCl % Sand	
Pre-wetting techniques utilized	(y/n)	
Manual control spreaders used	(y/n)	
Automatic or Zero-velocity spreaders used	(y/n)	
Estimated net reduction in typical year salt application	(lbs. or %)	
Salt pile(s) covered in storage shed(s)	(y/n)	<b>Yes</b>
Storage shed(s) in design or under construction	(y/n)	<b>No</b>