



May 1, 2013

Margie Brenner  
U.S Environmental Protection Agency  
5 Post Office Square – OEP06-01  
Boston, MA 02109-3912

RE: NPDES Phase II Small MS4 General Permit  
DCR Permit Year 10 Annual Report

Dear Ms. Brenner:

Please find enclosed DCR's NPDES Phase II Permit Year 10 Annual Report. The annual report summarizes DCR's activities during Permit Year 10 (April 2012-March 2013) towards meeting the measurable goals outlined in our Notice of Intent (NOI). DCR received authorization to discharge under the general permit on December 4, 2007.

Please feel free to contact me at (617) 626-1340 if you have any questions or require further information.

Sincerely,  
Department of Conservation and Recreation

Robert Lowell  
Environmental Section Chief

Enclosures: NPDES Phase II Small MS4 General Permit Annual Report – Year 10

CC: Fred Civian  
DEP  
One Winter Street  
Boston, MA 02108





**Department of Conservation and Recreation  
(DCR)**

**NPDES Storm Water Management Program**

**Permit Year 10 Annual Report**

**For Coverage Under**

**National Pollutant Discharge Elimination System (NPDES)**

**General Permit for Storm Water Discharges from Small Municipal  
Separate Storm Sewer Systems (MS4s)**

**Department of Conservation and Recreation**

**251 Causeway Street**

**Suite 600**

**Boston, MA 02114-2104**

**Submittal: May 1, 2013**



*Department of Conservation and Recreation  
NPDES Storm Water Management Program  
Permit Year 10 Annual Report*

**Municipality/Organization:** Department of Conservation and Recreation

**EPA NPDES Permit Number:** MAR043001

**MaDEP Transmittal Number:**

**Annual Report Number  
& Reporting Period:** No. 10: April 2012 – March 2013

## **Department of Conservation and Recreation NPDES PII Small MS4 General Permit Annual Report**

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

**Contact Person:** Robert Lowell **Title:** Environmental Section Chief

**Telephone #:** (617) 626-1340 **Email:** Robert.Lowell@state.ma.us

**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:**

**Printed Name:** Edward M. Lambert, Jr.

**Title:** Commissioner

**Date:**

5/7/13



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

The Department of Conservation and Recreation (DCR) has completed the required self-assessment and has determined that we are in compliance with all permit conditions, except as noted in the following tables. DCR received authorization to discharge under the general permit from EPA on November 8, 2007 and from DEP on November 21, 2007. DCR understands that coverage under the MS4 is continued until a specified time after the new permits that are currently in draft format are issued by EPA.

DCR continues to work hard to implement a comprehensive storm water program with limited fiscal and labor resources. DCR storm water management efforts are supported by operating and capital appropriations that remained the same from FY12 to FY13 (July 2012 – June 2013) at \$3.87 million. As a water quality demonstration project, DCR completed restoration Blair Pond in Cambridge, part of headwaters of Alewife Brook and Mystic River watersheds. DCR expects to utilize all available funds and to implement practices to reduce pollution in runoff from parks and parkways. The Governor's FY14 budget provisions for DCR are currently proposed at \$3.9 million.



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

The Department of Conservation and Recreation owns and operates many different types of facilities and parkways which are covered by the NPDES Phase II General Permit. In order to accurately reflect the programs DCR has accomplished, both state-wide and for specific facilities, this annual report has been divided into separate tables. Table 1 describes the control measures which are not site specific. Tables 2 through 7 describes site or facility type specific BMPs that are being implemented specifically at water supply/ reservoirs, state forests, state parks, beaches, construction sites or parkways.

A few of the BMPs included in DCR's Storm Water Management Plan (SWMP) are for facilities outside of the urbanized area. Therefore, the facilities addressed by these BMPs are not listed in the site specific tables. We continue to include these BMPs in Table 1 to demonstrate the many diverse programs being implemented by the DCR to raise awareness of storm water and water quality issues in the general public. We have noted these BMPs as facilities that are "outside of the urbanized area" in the table below.

**Table 1: State-wide Best Management Practices (BMPs)**

#### **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>                                                                                                                                                                                                                                     | <b>Planned Activities – April 2013 to March 2014</b>                                                                                           |
|-----------------|--------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-1             | DCR Storm Water Web Page | External Affairs/IT Dept. (SJ Port)  | Develop web page and publish storm water related publications (inc. SWMP and NOI), information and links on web page. | <i>Goal Met</i> – The following documents were posted on DCR's web site for public access and review: <ul style="list-style-type: none"><li>Permit Year 9 Annual Report</li><li>DCR Daily Street Sweeping Schedules for 2012 and 2013 has been posted on the website.</li></ul> | Continue to update as necessary. Post a copy of Permit Year 10 Annual Report.<br><br>Post Authorization to Discharge letters from EPA and DEP. |



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| BMP ID # | BMP Description                                      | Responsible Dept./Person Name | Measurable Goal(s)                                                                                                                                                                                           | Progress on Goal(s) – Permit Year 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Planned Activities – April 2013 to March 2014                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-5      | Mobile Water Quality Education Seminars (statewide)  | Operations (Curt Rudge)       | Provide storm water/ water quality education educational events at a minimum of nine different locations. These events would be in addition to the facility/ program specific BMPs also listed in this SWMP. | <p><i>Goal Met</i> – DCR offered state-wide Public Education Events including water quality, storm water education (includes forestry practices, healthy ecosystems, water quality, children's programs) at many DCR facilities statewide at least once.</p> <ul style="list-style-type: none"> <li>• Belle Isle Marsh</li> <li>• Robertson State Park</li> <li>• Leominster State Forest</li> <li>• Mt. Holyoke Range State Park</li> <li>• D.A.R. State Forest</li> <li>• Selser School, Chicopee</li> <li>• Chicopee State Park (2012)</li> </ul> | <p>Provide educational events at a minimum of nine different locations during the year. Environmental education programs planned in the North Region parks and reservations include:</p> <ul style="list-style-type: none"> <li>• DCR Coastal Awareness Environmental Education Program on DCR coastal properties;</li> <li>• numerous clean-up days at beaches, marshes and ponds;</li> <li>• canoe trips,</li> <li>• birding trips;</li> <li>• beach activities such as tidepool explorations.</li> </ul> |
| 1-6      | Charles River Conservancy Volunteer Clean Up Program | Operations (Jack Murray)      | Continue to partner with Conservancy on Charles River Clean Up Program                                                                                                                                       | <p>Goal Met - DCR assisted with and coordinated support for this year's Clean Up Day held on 4/21/12. More than 4,874 volunteers participated. Nearly 26 tons of trash were removed including tires, TVs, computer monitors, lobster pots, and a diamond ring found by a boy scout volunteer. Some state-wide locations include:</p> <ul style="list-style-type: none"> <li>• Boston Harbor Islands</li> <li>• Middlesex Fells</li> <li>• Wollaston Beach Reservation</li> </ul>                                                                     | <p>DCR continues to assist with this Clean Up Day, which is scheduled for April 27, 2013.</p> <p>DCR coordinates volunteers on Park Serve Day held in April at numerous locations statewide. Some 2013 locations include:</p> <p>Alewife Reservation</p> <p>Blackstone River State Park</p> <p>DAR State Forest</p>                                                                                                                                                                                         |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Planned Activities – April 2013 to March 2014</b> |
|-----------------|-------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 1-7             | Charles River Reservation School Program                                | Operations (Curt Rudge)              | Provide 1 storm water/ water quality related educational program each year.                                                                    | Environmental education through the Charles River Reservation School Program was cancelled as of June 2007 due to inadequate staffing. There has continued to be a lack of funding for staffing these programs.                                                                                                                                                                                                                                                                                 | No planned activities.                               |
| 1-8             | Camp Nihan                                                              | Operations (Curt Rudge)              | Provide 1 storm water/ water quality related educational program each year.                                                                    | Environmental education programs at Camp Nihan were cancelled as of June 2007 due to inadequate staffing. There has continued to be a lack of funding for staffing these programs.                                                                                                                                                                                                                                                                                                              | No planned activities.                               |
| 1-9             | Quabbin Educational Programs ( <i>outside of the urbanized area</i> )   | Water Resources (Ann Carroll)        | Continue to provide multi-session watershed related education programs on an annual basis to two schools in the Quabbin Reservoir watershed.   | Interpretive Services staff conducted educational programs for student and adult participants. In addition, tours were led for a number of local, regional, and even international groups on a variety of watershed-related topics. Staff also served on the Steering Committee for the Massachusetts Envirothon, and as DCR liaison with the Swift River Valley Historical Society, Friends of Quabbin, Valley Environmental Education Collaborative and the Student Conservation Association. | Continue activities.                                 |
| 1-10            | Wachusett Educational Programs ( <i>outside of the urbanized area</i> ) | Water Resources (Ann Carroll)        | Continue to provide multi-session watershed related education programs on an annual basis to two schools in the Wachusett Reservoir watershed. | Staff continued to implement the Wachusett Watershed Education Program in five communities: Holden, Boylston, West Boylston, Princeton, and Rutland, with the expansion to additional schools in Holden and Rutland.                                                                                                                                                                                                                                                                            | Continue activities.                                 |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                  |
|-----------------|-------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-11            | Project WET                                                 | Water Resources (Ann Carroll)        | Maintain sponsorship of state water education for teachers program.                                                                         | Program WET was cancelled as of summer 2007. There has continued to be a lack of funding for staffing these programs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No planned activities.                                                                                                                                |
| 1-12            | "DownStream" Newsletter                                     | Water Resources (Ann Carroll)        | Continue to develop and disseminate newsletter regarding issues relevant to Wachusett Reservoir/ Quabbin Reservoir watersheds twice a year. | <i>Goal Met</i> - DCR published and circulated this newsletter. The Spring 2012 issue included discussions on Land Acquisition in management of watershed lands and facts about the reservoirs. The Fall 2012 issue focuses on Stormwater Management and pollution prevention and protection against the spiny water flea, another invasive species affecting our waters. Copies of the newsletters can be found at <a href="http://www.mass.gov/dcr/water/Supply/watershed/dwmfactsheets.htm">http://www.mass.gov/dcr/water/Supply/watershed/dwmfactsheets.htm</a> and as Appendix A of this report. The newsletter is sent to members of the Friends of the Watershed (Wachusett, Quabbin and Ware River) Group. | Publish newsletters in May and November 2013. Place newsletters on web page.                                                                          |
| 1-13            | Massachusetts Drinking Water Education Partnership (MADWEP) | Recreation (Gary Briere)             | Maintain membership.                                                                                                                        | <i>Goal Met</i> – DCR is an active member of MADWEP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Maintain membership.                                                                                                                                  |
| 1-14            | Low Impact Development Project                              | Water Resources (Anne Carroll)       | Pursue the inclusion of public education component within the planning, permitting and implementation of one LID project a year.            | DCR implemented rain gardens along Nonantum Road in conjunction with MassDOT upgrades.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Demonstration of permeable pavement option at Soldiers Field Road Herter Lot 1. Project would eliminate direct stormwater discharge to Charles River. |



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| <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>                                                                                                                                                                                                                                                                                                                            | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                                                    |
|-----------------|-----------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-15            | DCR Storm Water Training Workshop                   | Engineering (Mike Misslin)                 | Provide ½ day training program to address storm water management regulation, policies and procedures relevant to DCR staff. | <i>Measurable Goal Previously Completed.</i>                                                                                                                                                                                                                                                                                                                           | Working on implementing Storm Water Handbook Training to staff members.                                                                                                                                                                                                                                                                                 |
| 1-16            | Ipswich River Demonstration Projects                | Director of Water Resources (Anne Carroll) | Continue to include public education and outreach in the projects funded through the EPA Watershed Grant, as appropriate.   | <i>Goal Met –</i><br><br>The <b>Whipple Annex Green Roof</b> results report was published and posted to the website along with a fact sheet, and DCR held a formal presentation to review the results.<br><br><b>Weather Based Irrigation Demonstration project</b> - Analysis of savings and a report was produced April 2, 2009, and has been posted to the website. | DCR and the USGS have published a pre- and post-construction groundwater data assessment report for the <b>Silver Lake Permeable Pavement</b> and the <b>Silver Lake Rain gardens</b> Demonstration Projects. The report, a circular, and a fact sheet have been posted on the DCR website. Aside from system maintenance, no further work is proposed. |
| 1-17            | Partner with Center for Urban Environmental Studies | Chief Engineer (Michael Misslin)           | Partner with Northeastern University to assist development of new pollution control methods for storm water.                | <i>Goal Partially Met</i> – DCR developed Notice to Partner with Northeastern and National Science Foundation in Permit Year 5. No additional work occurred during this permit year.                                                                                                                                                                                   | No activities are planned.                                                                                                                                                                                                                                                                                                                              |

Additional Practices:

- The Stillwater Farm Educational Site continues regularly scheduled open hours seasonally. The building is open to the public four days a week from Memorial Day through Labor Day.



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## 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>                                                                                                              | <b>Planned Activities – April 2013 to March 2014</b>                                                                                    |
|-----------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 2-1             | Formalize Partnerships with CLF and CRWA                                                                        | General Counsel (Douglas Rice)       | Continue to work with CLF and CRWA and abide by Memo of Understanding (MOU)                                                                                      | <i>Goal Met</i> - DCR provided CLF/CRWA with the final report summarizing the actions taken to meet the criteria outlined in the MOU.                    | No activities are planned.                                                                                                              |
| 2-2             | UMass/DCR Program to monitor WQ in target areas of Wachusett Reservoir ( <i>outside of the urbanized area</i> ) | Water Resources (Ann Carroll)        | Continue program with UMass.                                                                                                                                     | <i>Goal Met</i> - Program is ongoing. Current focus is development of hydro-dynamic model of Stillwater Basin section of reservoir and invasive species. | Subject will be developed for summer 2013 study.                                                                                        |
| 2-3             | Public NPDES Meetings to Discuss Annual Report                                                                  | Engineering (Mike Misslin)           | Hold one meeting at three locations each year for internal staff, interested parties and public. Track and record comments received.                             | <i>Goal Not Met</i>                                                                                                                                      | Once the new MS4 watershed based permits are issued DCR will follow public meeting requirements outlined in those permits.              |
| 2-4             | Partnership and Friends Database                                                                                | External Affairs (SJ Port)           | Send an annual letter regarding storm water/ NPDES issues to the watershed advocacy groups included in their Partnership and Friends database.                   | <i>Goal Met</i> - Database has over 346 contacts. Use database to send notification of annual report review.                                             | Send annual email regarding storm water/ NPDES issues once issued. Maintain database. Send email regarding new MS4 permits once issued. |
| 2-5             | Storm Water Related Concerns/ Feedback Reported on DCR Web Site                                                 | External Affairs (SJ Port)           | Continue to maintain staffing to forward concerns/ feedback to appropriate department and track response to concerns submitted by the public via DCR's web site. | <i>Goal Met</i> - Web site is active. DCR Commissioner has implemented concern/feedback letter tracking and response system.                             | Continue program.                                                                                                                       |



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| <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>                                                                                                                                                                                                                                                               | <b>Planned Activities – April 2013 to March 2014</b>                                                                      |
|-----------------|------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 2-6             | DCR Stewardship Council                        | External Affairs (SJ Port)           | Continue to participate. Raise storm water issues, as appropriate. Present summary of annual report to council. | <i>Goal Met</i> - DCR attends monthly and is an active participant.                                                                                                                                                                                                                                       | Continue participation. Present summary of Annual Report for Permit Year 9.                                               |
| 2-7             | Massachusetts Water Resource Commission (MWRC) | Water Resources (Ann Carroll)        | Continue to be involved in program and provide technical and staff support to MWRC.                             | <i>Goal Met</i> - DCR attends monthly and is an active participant.                                                                                                                                                                                                                                       | Continue participation.                                                                                                   |
| 2-8             | Lakes and Ponds Program                        | Water Resources (Ann Carroll)        | Continue to sponsor program.                                                                                    | <i>Goal Met</i> - DCR continues to sponsor this program. Examples of LID installations and demonstration projects for the Ipswich River watershed are available through <a href="http://www.mass.gov/dcr/waterSupply/lakepond/lakepond.htm">http://www.mass.gov/dcr/waterSupply/lakepond/lakepond.htm</a> | Continue sponsorship.                                                                                                     |
| 2-9             | Think Blue Campaign                            | Engineering (Mike Misslin)           | Explore a partnership with Think Blue. Provide update on program and schedule in annual reports.                | <i>Goal Not Met</i> – Think Blue has experienced budget and staffing issues and therefore no progress this year.                                                                                                                                                                                          | Once the new MS4 watershed based permits are issued DCR will follow public meeting requirements outlined in those permits |
| 2-10            | Partnership with MyRWA                         | Engineering (Mike Misslin)           | Explore a partnership with MyRWA. Include a summary of collaborative activities in annual reports.              | <i>Goal Met</i> – DCR staff has volunteered to be on MyRWA Science sub-committee and shared drainage information with MyRWA.                                                                                                                                                                              | Further define partnerships and implement water quality monitoring program.                                               |



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### 3. Illicit Discharge Detection and Elimination

| BMP ID # | BMP Description            | Responsible Dept./ Person Name | Measurable Goal(s)                                                                                                                                                      | Progress on Goal(s) – Permit Year 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Planned Activities – April 2013 to March 2014                                                                                                                                                                                                                                                                                                                    |
|----------|----------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-1      | Drainage Outfall Inventory | Engineering (Mike Misslin)     | Locate all known outfalls owned and operated by DCR within urbanized areas. Explore possibility of providing inventory for public review and include “Contact Us” Link. | <p><i>Goal Met</i> - DCR located all known outfalls owned and operated by DCR within urbanized areas by the end of Permit Year 5. The drainage outfall information was gathered from either scanned construction drawings or field surveys. During this past permit year, DCR has continued to add to and update the stormwater infrastructure database by verifying and updating the database during illicit discharge detection field work and catch basin cleaning and maintenance efforts.</p> <p>DCR has used the database to support maintenance activities, quickly understand the scope of potential drainage failures, and facilitate work related to adjacent municipalities.</p> <p>DCR has shared drainage information on infrastructure that was handed over to MassDOT.</p> | <p>DCR will continue to verify the location and condition of outfalls located from paper maps during illicit discharge detection field tasks.</p> <p>DCR will continue to use the “Contact Us” link as the primary method for the public to request drainage system mapping information. The information will be provided to the public in a timely fashion.</p> |



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| <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>                                                                                                                                                                     | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                    |
|-----------------|------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-2             | Drainage Inventory Specification   | Chief Engineer (Michael Misslin/AECOM) | DCR will develop and implement a Drainage Inventory Specification which will require submission of drainage infrastructure information from construction and redevelopment projects to add to the infrastructure database. | <i>Goal Met</i> - Drainage specifications have been included in revised contract language and standard contract documents for newly issued contracts. DCR received as-built plans for the Mt. Greylock project. | All new construction projects will continue to include the Drainage Inventory Specification. Incorporate as-built information from Mt. Greylock in to drainage mapping. |
| 3-3             | Illicit Drainage Connection Policy | General Counsel (Douglas Rice)         | DCR is preparing a policy prohibiting illicit discharges to the DCR storm water system. The Policy will be finalized and issued during Fall 2006. Develop formal agreement with Attorney General's office.                 | <i>Goal Partially Met</i> - DCR has executed a drainage connection policy and MOU with Boston Water and Sewer Commission.<br>.                                                                                  | Receive approval for proposed drainage connection policy state-wide.                                                                                                    |



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| <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>                                                                                                                                                                                                                                                                                                                                                               | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------|-----------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-4             | Drainage Infrastructure Inventory | Chief Engineer<br>(Michael Misslin)   | Identify DCR's roadway, parkway and boulevard drainage infrastructure and add to GIS Drainage Outfall Inventory/ database. | <p>Goal Met - At the end of 2008, DCR's consultant had mapped drainage information for each of the urbanized area DCR properties. The drainage information was gathered from either scanned construction drawings or field surveys.</p> <p>DCR has continued to update the drainage inventory during its catch basin cleaning, maintenance, and illicit discharge detection efforts this permit year.</p> | <p>The infrastructure database is a dynamic work in progress. Updates are made to the database when new construction takes place. Corrections to the database will be made as areas are visited during the illicit discharge investigation and during catch basin cleaning and maintenance efforts.</p> <p>DCR's infrastructure database is now linked to inspection, maintenance and illicit discharge investigation records, providing consolidated records of the features and all work performed on the feature over the years. In addition, DCR will add features identified during maintenance work that were missed from the infrastructure database. DCR will update the database when construction activities alter drainage infrastructure.</p> |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                                                    |
|-----------------|-------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-5             | Illicit Connection Sampling Program | Engineering (Mike Misslin )           | Continue to prioritize and review known potential illicit connections. Once DCR, or its consultant, completes large portions of the drainage infrastructure inventory (BMP 3-4), DCR will develop a priority area list and focus on those systems. DCR will summarize the systems reviewed, the outcome of the reviews and any proposed follow up work in each annual report. The annual report will also include the priority areas list for the next permit year. | <p><i>Goal Met</i> - DCR's consultant performed the third year of a five-year rotating illicit discharge inspection program. The urban stormwater system was split spatially into five regions to facilitate inspections.</p> <p>All regions contain approximately 20% of DCR's system and all contain areas of special concern including public beaches impaired waters, etc. Over this past permit year, areas that primarily drained to the Merrimack and Mystic Rivers were inspected for illicit discharges. This region encompasses several state parks that drain to Merrimack River and major roads such as Revere Beach Parkway and Mystic Valley Parkway.</p> <p>On-site sample analysis was employed to get real-time results to help identify potential sources of illicit flows.</p> <p><i>(continued on next page)</i></p> | <p>DCR will inspect 20% of their stormwater system within the urbanized area during the summer and fall of 2013. DCR will continue to update the drainage inventory and identify needs for maintenance and cleaning as part of this field effort.</p> <p>DCR will follow up on 7 cases of suspect illicit connections from Permit Year 9 inventory.</p> |



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|-----------------|------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 3-5<br>(cont'd) |                        |                                                                  |                                                                              | <p>Over Permit Year 9, 1,704 stormwater features were inspected on 23.2 miles of DCR property. Sixteen cases of dry weather flow were identified with seven suspected of illicit connections. A copy of the report is included as Appendix B.</p> <p>The drainage inventory was used to systematically locate stormwater features and trace sources of illicit connections. During the inspections, field crew updated the drainage inventory when data was inaccurate.</p> |                                                                                  |
| 3-6             | Drainage Tie-In Policy | General Counsel/ Chief Engineer (Douglas Rice / Michael Misslin) | Develop a SOP regarding drainage tie-ins from private entities to DCR's MS4. | <i>Goal Met</i> – DCR utilizes their access permit program to “permit” drainage tie-ins when requested or when un-permitted connections are identified in the field. Twelve (12) connections or investigations were permitted in Permit Year 9. See Appendix C.                                                                                                                                                                                                             | Continue to review requested drainage connections through access permit program. |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                          |
|-----------------|--------------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-7             | Develop Storm Water Control Agreements with Other MS4s | General Counsel (Douglas Rice)        | DCR will implement a program to work cooperatively with operators of interconnected MS4s in the instance where storm water discharges impact either system. DCR will develop control agreements with the discharging municipality. | <i>Goal Partially Met</i> –DCR has identified interconnections with municipal systems during the infrastructure mapping. MOU in place with Boston Water & Sewer Commission.                                                                                                                                                                                                                                                                                                                                                  | If interconnections with town MS4s are identified related to illicit discharges, DCR will work collaboratively with the town to identify a solution and remove the discharge. |
| 3-8             | Illegal Dumping                                        | Operations (Curt Rudge)               | Continue training of rangers regarding illegal dumping and work with law enforcement when necessary.                                                                                                                               | <i>Goal Met</i> – DCR picks up and appropriately disposed of waste abandoned on the side of road on an on-going basis. DCR also properly disposed of materials from maintenance yards in Stoneham, Cambridge, and Milton.<br><br>DCR managed and disposed of approximately 50,000 cu.yds. of leaf compost left at the Morton Street compost site by a contractor. DCR managed the material and reduced compost stockpiles to acceptable amounts. DCR involved the AGO to bring a complaint against the offending contractor. | A solid waste dumping investigation is on-going at the Bradley Palmer State Forest and Hop brook Flood Control facility in Northboro.                                         |

Additional practices outside the urbanized area:

- EQ staff continued with water quality sampling efforts to characterize storm events. Staff completed a report of options for addressing or eliminating the 50 direct discharges to the Reservoir. This report will be used to discuss implementation with MassDOT and Massachusetts Water Resources Authority. Will talk to staff continuing to work with municipalities to discuss connections.



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**4. Construction Site Stormwater Runoff Control**

| <b>BMP ID #</b> | <b>BMP Description</b>                               | <b>Responsible Dept./Person</b>      | <b>Measurable Goal(s)</b>                                                                                                                                              | <b>Progress on Goal(s) – Permit Year 10</b>                                                                                                                                                               | <b>Planned Activities – April 2013 to March 2014</b>                                                                                           |
|-----------------|------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 4-2             | E&S/ NPDES Contract Bid Item and Special Provisions  | Engineering (Mike Misslin)           | Prepare contract bid item and special provisions. Include in all new contracts which disturb more than one acre. Bid item will include erosion control specifications. | <i>Goal Met</i> - Erosion and sedimentation control specifications are included in revised contract language and standard contract documents.                                                             | Continue to include Erosion and Sediment Control Specification in all new construction projects.                                               |
| 4-3             | Construction SWPPP Template                          | Engineering (Mike Misslin)           | DCR will develop a SWPPP Template for use by Contractors on DCR projects. Template will be placed on DCR website for download by contractors.                          | DCR is currently instructing consultants and in-house staff to use EPA's template for appropriate projects.                                                                                               | DCR will continue using EPA's template.                                                                                                        |
| 4-5             | On-going Construction Projects Web Page              | External Affairs/ IT Dept. (SJ Port) | DCR will maintain the construction related web page that includes information regarding on-going DCR construction projects.                                            | <i>Goal Partially Met</i> – The front page of DCR's web site highlights on-going design and construction projects. Information regarding projects that are subject to the Construction GP were not added. | DCR will add a link to EPA's eNOI web site for the public to use in accessing a list of DCR construction sites that exceed 1 acre disturbance. |
| 4-6             | Annual Erosion Prevention/ Sediment Control Training | Engineering (Mike Misslin)           | Provide annual training to DCR construction management staff. Report number of attendees, topics covered and dates of training in annual report.                       | <i>Goal Not Met</i> – Training was not performed this year due to staff shortage and agency priorities.                                                                                                   | Provide annual training, proposing to do this with Engineering this year.                                                                      |



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| <b>BMP ID #</b> | <b>BMP Description</b>                                  | <b>Responsible Dept./Person</b> | <b>Measurable Goal(s)</b>                                                                                                                   | <b>Progress on Goal(s) – Permit Year 10</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Planned Activities – April 2013 to March 2014</b>                                                                                             |
|-----------------|---------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 4-7             | Technical Assistance to ConComs                         | Water Resources (Ann Carroll)   | Continue to provide technical assistance and the staffing level necessary to provide timely responses.                                      | <p><i>Goal Met</i> - Technical assistance was provided to twelve (12) Conservation Commissions regarding projects within the Quabbin and Wachusett Reservoirs.</p> <p><i>Wachusett:</i> EQ continued to attend meetings of local boards and commissions and provide assistance to the volunteer boards. Technical Assistance funds were expended to provide trainings to watershed Planning Boards and Conservation Commissions. Three workshops were held on Riverfront and the Wetlands Protection Act, Review of Development Plans and on DEP revised Stormwater Regulations.</p> <p><i>Quabbin:</i> Staff continued to provide direct technical assistance to a number of watershed communities on zoning, planning and technical engineering issues. In addition, they continued work on development of model wetland bylaws, a permit checklist, and a USFS-funded guidebook on watershed forest management.</p> | Continue to provide assistance as requested by Conservation Commissions.                                                                         |
| 4-8             | Contract Bid Item and Special Provisions Enforceability | Engineering (Mike Misslin)      | Include notice, which defines the procedure to address storm water related problems identified at construction sites, in all new contracts. | <p><i>Goal Met</i> – Continued to require development of SWPPP and filing of NOI for construction sites which disturb more than one acre.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Continue to implement in all new projects which disturb more than one acre. Coordinate on contracts transferred to MassDOT, such as bridge work. |



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| <b>BMP ID #</b> | <b>BMP Description</b>                                                         | <b>Responsible Dept./Person</b> | <b>Measurable Goal(s)</b>                                                                                                                                                            | <b>Progress on Goal(s) – Permit Year 10</b>                                                                                                                                                              | <b>Planned Activities – April 2013 to March 2014</b>               |
|-----------------|--------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| 4-9             | Construction Runoff Enforcement from DCR and/or Offsite Construction Pollution | General Counsel (Douglas Rice)  | Refer offsite/ non-DCR construction projects that are causing construction related pollution on DCR property to Attorney General's office as necessary. Refer to EPA is appropriate. | <i>Goal Met</i> – No construction related pollution action was necessary this year.                                                                                                                      | Refer problems identified to AG or EPA. Document in annual report. |
| 4-10            | Utility/ Drainage Tie-In Permit                                                | Permitting (Christian Delaney)  | Continue to require all offsite projects which need to tie into a DCR MS4 to receive a permit under this program.                                                                    | <i>Goal Met</i> – Offsite projects are required to receive this permit before tying into a DCR MS4. Twelve (12) drainage connection or maintenance permits were issued in Permit Year 9. See Appendix C. | Require tie-ins to apply for a permit.                             |

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

| <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>                                                                                      | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                  |
|-----------------|-----------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5-1             | Compliance with MA DEP Stormwater Management Policy | Engineering (Mike Misslin)           | Apply Stormwater Management Policy Guidelines to all development/ redevelopment projects. | <i>Goal Met</i> - All new/ redevelopment projects were designed to incorporate the current stormwater best management practices. | All new/ redevelopment projects will be designed to incorporate the most current stormwater best management practices. Storm water discharges to tributaries to the Quabbin or Wachusett watersheds will be reviewed for applicable storm water policy and standards. |



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|-----------------|-------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 5-2             | DCR Storm Water Handbook      | Engineering (Mike Misslin)                   | Develop Handbook and issue department-wide and to Contractors. New projects will be designed in accordance with the Handbook.                                                        | <i>Goal Partially Met</i> - Storm Water Handbook has been updated to be consistent with the 2008 Massachusetts DEP Stormwater Policy. The Handbook is completed and was distributed to engineering and planning staff. | Conduct appropriate Handbook training sessions.                                           |
| 5-3             | Storm Water Handbook Training | Director of Human Resources (Penny O'Reilly) | Provide 2 seminars within 6 months of issuing handbook to train internal personnel and consultants. Provide annual seminars thereafter. Record # of attendees and dates of training. | <i>Goal Met</i> – No formal state-wide training session conducted.                                                                                                                                                     | Provide training on Stormwater Handbook at DCR Supervisors Academy to be held April 2014. |



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|-----------------|--------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5-4             | BMP Long-Term Operation and Maintenance                                  | Operations / Engineering (John Murray/ Mike Misslin) | DCR has committed 1.9 million dollars annually to provide long-term maintenance of BMPs on the schedule indicated in the Maintenance Activity Schedule of the SWMP. | <i>Goal Met</i> - Long-term operation and maintenance was accomplished using contracts established for pavement resurfacing and deferred maintenance. DCR's storm water management efforts are supported by operating and capital appropriations that totaled approximately \$3.9 million in FY13 and expects to utilize all available funds to provide an appropriate level of service and to identify better practices to reduce pollution in runoff from roads and parkways. | DCR has requested \$4.1 million for long-term operation and maintenance of BMPs in FY14. Budget process/ deliberations are still in process.                                                                                                         |
| 5-5             | Low Impact Development Projects                                          | Water Resources (Anne Carroll)                       | Actively work on the planning, permitting and implementation of one Low Impact Development (LID) project each year.                                                 | Design LID project with MassDOT in Cambridge and Boston for drainage from reconstructed Longfellow Bridge. Conduct sampling and modeling of phosphorous concentrations in stormwater.<br><br>Infiltration swales constructed at Blair Pond parking lot and Morton Street compost site to treat parking lot runoff.                                                                                                                                                              | Design and permit an LID project with MassDOT in Cambridge and Boston for drainage from reconstructed Longfellow Bridge.<br><br>Permit and reconstruct Herter Parking Lot #1 with permeable pavement; eliminate discharge to Charles River from lot. |
| 5-6             | Walden Pond Stormwater Improvements ( <i>outside of urbanized area</i> ) | Engineering (Mike Misslin)                           | Complete design of storm water improvements and install.                                                                                                            | <i>Goal Met</i> – Project complete in Permit Year 5. Parking lot with pervious pavement was vacuum swept to maintain infiltration.                                                                                                                                                                                                                                                                                                                                              | Parking lots with pervious pavement will be cleaned using vacuum sweeping equipment.                                                                                                                                                                 |



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|-----------------|-------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| 5-7             | Post Construction Runoff Enforcement from Offsite Pollution | Engineering (Mike Misslin)           | Refer off site projects that runoff to DCR property to Attorney General's office as necessary. | <i>Goal Met</i> – No post construction runoff enforcement actions necessary this permit year. | Refer problems identified to AG or EPA. Document in annual report. |



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| BMP ID # | BMP Description                                                                                             | Responsible Dept./Person Name  | Measurable Goal(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Progress on Goal(s) – Permit Year 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Planned Activities – April 2013 to March 2014                                                                                                                                                                                                      |
|----------|-------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5-8      | Ipswich River EPA Targeted Watershed Grant – Low Impact Development (LID) Subdivision Demonstration Project | Water Resources (Anne Carroll) | <p>The DCR received a \$1.04 million grant from the Environmental Protection Agency’s Targeted Watershed program to demonstrate an integrated approach to addressing the problems facing the Ipswich River. This approach encompasses two strategies:</p> <ul style="list-style-type: none"> <li>• Low-Impact Development (LID) – landscaping and design techniques that capture stormwater and recharge it to groundwater</li> <li>• Water Conservation –</li> </ul> | <p>On June 9, 2009, more than 100 people participated in a full-day presentation and tour of the LID Subdivision (Project #1), the Green Roof (Project #2), and the Silver Lake LID parking lot and neighborhood demonstration projects (Projects #3 and 4).</p> <p>On November 4, 2009, DCR and the Ipswich River Watershed Association hosted a forum for Massachusetts legislators and staff to inform and educate them about the grant-funded projects, to share results from the five years of studies funded by the grant, and to stimulate discussion about issues affecting Massachusetts watersheds.</p> | <p>For up-to-date planned activities for all Ipswich River Targeted Watershed Grant projects, please visit <a href="http://www.mass.gov/dcr/waterSupply/ipswichRiver/index.htm">http://www.mass.gov/dcr/waterSupply/ipswichRiver/index.htm</a></p> |



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|-----------------|-------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 5-8a            | Ipswich River EPA Targeted Watershed Grant - Green Roof Demonstration Project | Water Resources (Anne Carroll)       | Monitor quality and quantity of runoff from the green roof at Whipple Annex and conventional roof at Ipswich Town Hall. Summarize results and include in annual report. | <p>The green roof demonstration site, Whipple Annex, is being redeveloped as affordable housing for seniors. Water quality samples collected from the green roof by USGS in 2008 were analyzed for a range of parameters, including conductivity, pH, nitrogen, phosphorus, metals, and total petroleum hydrocarbons.</p> <p>DCR presented the results to a legislative forum on November 4, 2009.</p> <p>The report has been prepared and a link to it can be found here <a href="http://pubs.usgs.gov/sir/2010/5007/">http://pubs.usgs.gov/sir/2010/5007/</a>.</p> | No additional activities planned.                    |



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|-----------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5-8b            | Ipswich River EPA Targeted Watershed Grant - Permeable Paving Demonstration Project | Water Resources (Anne Carroll)       | Continue groundwater quality sampling for one year upon completion of project construction. Summarize results in annual report. | <p>This project incorporated three LID practices (permeable paving materials, bioretention cells, and vegetated water quality swales) designed to reduce runoff volume, improve water quality, and enhance groundwater recharge. There have been no beach closures, due to fecal bacteria, starting in 2006 and continuing until 2009. However, there was one closure due to a cyanobacteria bloom.</p> <p>USGS installed seven wells in the parking lot to provide data on groundwater levels and groundwater quality. USGS monitored preconstruction conditions quarterly and after a few large storms. Following construction, USGS began monitoring groundwater levels and collecting samples monthly. Sampling is designed to detect any changes in groundwater quality associated with recharge from the parking lot.</p> | <p>USGS has published a report of pre- and post- construction groundwater data, and a link to the report is posted on their website at</p> <p><a href="http://www.mass.gov/dcr/watersupply/ipswichriver/progress.htm">http://www.mass.gov/dcr/watersupply/ipswichriver/progress.htm</a></p> |



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|-----------------|-----------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5-8c            | Ipswich River EPA Targeted Watershed Grant - LID at Silver Lake | Water Resources (Anne Carroll)       | Perform sampling of stormwater volumes and water quality for one year upon completion of project construction. Summarize results versus pre-construction in Year 5 annual report. | <p>This project incorporates several LID techniques to replace the conventional stormwater collection system in two streets draining to Silver Lake. Stormwater flow paths were disconnected from the piped drainage system by directing stormwater to rain gardens and porous pavers. Eleven rain gardens are located in the roadway rights-of-way. The roadway edges in three areas along Silver Lake Avenue were resurfaced with porous pavers with underlying infiltration beds.</p> <p>Sampling for changes in water quality and discharge quantity continued for 15 months, post-construction, concluding in October 2007.</p> | <p>USGS has published a report of pre- and post- construction groundwater data, and a link to the report is posted on their website at</p> <p><a href="http://www.mass.gov/dcr/watersupply/ipswichriver/progress.htm">http://www.mass.gov/dcr/watersupply/ipswichriver/progress.htm</a></p> |



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|-----------------|-------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 5-8d            | Ipswich River EPA Targeted Watershed Grant - Rainwater Harvesting | Water Resources (Anne Carroll)       | Continue data collection of outdoor water use or each participating household with rainwater harvesting systems through the irrigation seasons of 2007 and 2008. Compare use with historic records and summarize in annual report. Install large underground system. | <p>This project funded installation of roughly 40 rainwater harvesting systems in residential settings. The systems consist of a storage tank, a pressure pump to aid in water distribution, a spigot for a hose, and a water meter to measure flow. Three sizes of storage tanks were installed.</p> <p>A large-capacity (8,000-gallon) underground storage vault was installed at the Boutwell Elementary School in Wilmington in April 2007, to supply water for irrigating the adjacent ball field.</p> <p>The water meter attached to each rainwater harvesting system provided data on the volume of rainwater pumped from the storage tanks for outdoor use. In addition, Wilmington Water Department records on each residential participant's domestic water use were analyzed to compare domestic water demand before and after installation of the rainwater harvesting system.</p> <p><i>(continued on next page)</i></p> | Additionally, a paper has been accepted but not yet published by the Journal of American Water Resources Association. |



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|------------------|-------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 5-8d<br>(cont'd) |                                                             |                                      |                                                                                                                                 | Rainwater was used for outdoor purposes by all participants. Survey results indicate that, in general, the rainwater that participants used replaced the use of domestic water. Results presented by DCR and Tufts University at the WaterEC, the International Water Efficiency Conference on April 1, 2009.                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                         |
| 5-8e             | Ipswich River EPA Targeted Watershed Grant - LID Ball Field | Water Resources (Anne Carroll)       | Begin data collection of water use and continuous soil moisture retention on field in 2007 and continue through summer of 2008. | <p>A portion of a municipal athletic field complex, located adjacent to the river at Ipswich River Park and totaling eight acres, was redeveloped to maximize infiltration and minimize irrigation requirements and application of fertilizer and pesticides.</p> <p>The town monitored the soil moisture of the amended field and the control fields; and the volumes of water used on each of the four fields in the complex. The watering needs of the amended field were much less compared to the conventionally treated fields.</p> <p>Results presented by DCR and Tufts University at the WaterEC, the International Water Efficiency Conference on April 1, 2009.</p> | A paper has been accepted but not yet published by the Journal of American Water Resources Association. |



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|-----------------|-----------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 5-8f            | Ipswich River EPA Targeted Watershed Grant - Weather Based Irrigation | Water Resources (Anne Carroll)       | Compile and analyze post-installation water use records for the 25 weather-based irrigation controllers through summer 2008. Summarize in annual report. | <p>During Permit Year 5 a total of 25 weather-based irrigation controller switches were installed on both residential properties and municipal athletic fields in five communities. These devices contain devices used to deliver the optimum amount of water needed by the landscape.</p> <p>Data on water use was recorded using readings from individual water meters dedicated to the irrigation system. These readings were compared to water use at control sites using conventional irrigation technologies and to records on pre-installation water use of project participants.</p> <p>Results presented by DCR and Tufts University at the WaterEC, the International Water Efficiency Conference on April 1, 2009.</p> | Additionally, a paper has been accepted but not yet published by the Journal of American Water Resources Association. |



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**5. Additional**

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|-----------------|--------------------------------------------------|-----------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | Breakheart Reservation Pond Improvements Project | Planning & Engineering (Mike Misslin)                     |                           | DCR's consultant performed site visits, survey and hydrologic analysis of the Breakheart Reservation's pond system (two ponds). During the analysis, DCR discovered that the two ponds are held by poor condition dams. DCR stormwater personnel met with DCR dam personnel to discuss the issues at both ponds and possible improvements. | DCR will continue discussions with DCR dam personnel to fund and implement necessary action at the Breakheart Reservation dams/pond to reduce beach erosion and improve the condition of the dams. It is on a priority list and will be addressed as the priority is reached. They are not high hazard dams. |
|                 | Mt. Greylock                                     | Engineering (Mike Misslin)                                |                           | DCR is in the process of designing a lodge/conference center and camp ground at Mt. Greylock. 220 catch basins were installed in compliance with historic parkway guidelines.<br><br>As-built plans were provided to DCR and included in the drainage infrastructure database.                                                             | Clean all catch basins and cross culverts on mountain road.                                                                                                                                                                                                                                                  |
|                 | Mt. Wachusett (out of UA)                        | Engineering (Mike Misslin)<br>Environmental Quality staff |                           | DCR used construction controls during utility installation at this facility.<br><br>DCR Engineering removed sediments from vernal pool and stormwater structures on Administration Road, Mt. Wachusett                                                                                                                                     | DCR is working to rebuild the roadway, historic walls and replace the fire tower. The project will include construction controls.                                                                                                                                                                            |



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|-----------------|----------------------------------|--------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
|                 | Improvements to drainage system. |                                      |                           | Plans for a new stormwater treatment system for the area in front of the Quabbin administration building were largely completed, but the project is now on hold pending the availability of funding and staff time. However, a number of other drainage improvements (replaced culverts, drainage ditch and catch basin maintenance) were achieved during the year. Staff worked closely with local and state officials in monitoring and enforcing stormwater regulations and design requirements at a large residential subdivision in Rutland. They also worked with DEP in reviewing several NPDES General Construction Permit applications. |                                                      |



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**6. Pollution Prevention and Good Housekeeping**

| <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>                                                                                                                                                                                                                                                                                                 | <b>Planned Activities – April 2013 to March 2014</b>                                                                     |
|-----------------|------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 6-1             | Vehicle Washing Policy       | Operations (Jack Murray)                                 | Maintain practice of washing vehicles at off-site locations into state-wide written policy and implement. Identify off-site commercial (snow plow equipment) vehicle washing facility. | <i>Goal Met</i> - Policy implemented in Winter 06-07 for smaller cars and trucks. Pursued locating off-site commercial (snow plow equipment) vehicle washing facility but were not successful.                                                                                                                                              | DCR is still working with MassDOT to identify off-site commercial (snow plow equipment) vehicle washing facility/vendor. |
| 6-2             | Floor Drain Policy           | Engineering (Mike Misslin)                               | Maintain plan for floor drain use and servicing.                                                                                                                                       | <i>Goal Met</i> - Plan is maintained, staffed and funded under Clean State Initiative.                                                                                                                                                                                                                                                      | Maintain plan.                                                                                                           |
| 6-3             | CB Cleaning Policy           | Chief Engineer/ Operations (Michael Misslin/John Murray) | DCR will develop a written plan for regular catch basin cleaning to be implemented in DCR's fiscal year 2006 and thereafter.                                                           | <i>Goal Met</i> - Policy finalized and implemented statewide.                                                                                                                                                                                                                                                                               | Continue to implement policy.                                                                                            |
| 6-4             | CB Inspection/ Repair Policy | Stormwater (Rob Lowell)                                  | DCR will develop an agency wide policy for implementing a schedule for inspecting catch basins and prioritizing repairs of catch basins and implement.                                 | <i>Goal Met</i> – Policy finalized. Priority catch basins identified during 2011-2012 were repaired in the same fiscal year and often within two weeks. Program was moved to the Stormwater Group in DCR for faster repair tied to reporting.<br><br>April 2012 through March 2013 1087 ft. of drainage pipe and 235 catch basins repaired. | Continue to implement policy.                                                                                            |



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| <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>                                                                                                                                                                                                                                                                                                                                                       | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                |
|-----------------|------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-5             | Street Sweeping Policy | Operations (Jack Murray)             | Create and implement agency-wide policy on all roads, parkways and parking lots.                                                                                                                        | <i>Goal Met</i> – Policy has been finalized and implemented.<br><br>From September through November DCR and contractors swept Mass Parks and parkways monthly in accordance with DCR's Maintenance Activity Schedule. DCR added parking lots along the Charles and Mystic Rivers. A total of approximately 4,075 cubic yards of street sweeping were removed from DCR roads and parkways in 2012. | Continue to implement policy.<br><br>DCR;s sweeping contractor – National Watermain Cleaning Company - uses high performance regenerative sweepers. |
| 6-6             | IPM Policy             | Water Resources (Ann Carroll)        | Create and implement agency-wide policy.                                                                                                                                                                | <i>Goal Partially Met</i> - Create draft plan for internal review. Test studies being performed.                                                                                                                                                                                                                                                                                                  | Continue to develop policy.                                                                                                                         |
| 6-7             | VMP Training           | Engineering (Mike Misslin)           | Provide training on DCR Vegetation Management Plan (VMP) to internal maintenance staff once every two years. Provide training, if required, for seasonal workers without prior experience on off years. | <i>Goal Met</i> – DCR follows VMPs provided by municipalities to the extent possible.                                                                                                                                                                                                                                                                                                             | Continue to provide training for seasonal workers. Training will include review of VMPs prior to seasonal brush cutting.                            |



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| <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>                                                                                                                                                                                                                                                               | <b>Planned Activities – April 2013 to March 2014</b>          |
|-----------------|------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 6-9             | EMS                                | Engineering (Mike Misslin)                           | Continue to provide first response for emergency management situations such as spills and/ or coordinate with Mass. State Police, as appropriate. Continue to provide annual training in spill response coordinated with DEP, MWRA, emergency responders and other local responders. | <i>Goal Met</i> - DCR coordinates responses with Mass State Police, Coast Guard and DEP as necessary.<br><br>In March 2012 DCR responded to an oil spill at the Lovejoy Wharf caused by a contractor demolishing a building. DCR hired a LSP to oversee the clean-up from Boston Harbor and DCR property. | Continue to coordinate responses and provide annual training. |
| 6-10            | Waste Disposal                     | Engineering / Operations (Mike Misslin/ Jack Murray) | DCR will continue to properly dispose of waste.                                                                                                                                                                                                                                      | <i>Goal Met</i> - DCR has budgeted for disposal of catch basin and street sweeping wastes. Spent \$230K on waste disposal.                                                                                                                                                                                | Continue to properly dispose of waste and include in budgets. |
| 6-11            | Beneficial Use Determination (BUD) | Engineering (Mike Misslin)                           | DCR will work to determine a beneficial use determination (BUD) for catch basin residuals.                                                                                                                                                                                           | <i>Goal Partially Met</i> – DCR is seeking a contractor to manage DCR compost and street sweepings. DCR will issue an RFR for site services with BUD for street sweeping management.                                                                                                                      | Continue to use facility with BUD for street sweepings.       |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|-----------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-14            | CB Repair/ Discharge Pipe Cleaning Needs Assessment | Engineering (Mike Misslin)           | Perform an annual state wide assessment of the condition and cleaning requirements of visible proximate DCR lateral piping and catch basin repair needs. Pilot project in 2005. Agency wide program in 2006. Annual reports will summarize piping requiring cleaning and catch basin to be repaired and report on progress. | <p><i>Goal Met</i> - Over the spring and summer, DCR continued to systematically clean catch basins and water jet the associated outlet drain pipes using private contractors overseen daily by DCR staff. From September through December, 1,653 catch basins were cleaned and water jetted and their locations recorded using GPS. (See individual tables for locations)</p> <p>DCR spent \$0.65 M to clean and repair catch basins.</p> | <p>DCR will continue to systematically clean catch basins and water jet the associated outlet drain pipes, as determined necessary, using private contractors overseen daily by DCR staff.</p> <p>DCR anticipates dedicating more budget (\$1.6 M) and level of effort this year for catch basin cleaning and repair.</p> <p>DCR will investigate additional areas where drainage infrastructure has been identified as obstructed or broken during statewide CB cleaning activities. Use CCTV and/or magnetic probes to identify necessary repairs or remedy. Areas will include:</p> <ul style="list-style-type: none"><li>▪ Storrow Drive/ Esplanade</li><li>▪ Charlesgate</li><li>▪ Truman Highway</li><li>▪ Riverway</li><li>▪ Mystic Valley Parkway</li><li>▪ Jamaica Way</li><li>▪ West Roxbury Parkway</li><li>▪ Morrissey Boulevard</li><li>▪ Blue Hills Parkway</li></ul> |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                               | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                              |
|------------------|-----------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-14<br>(cont'd) |                             |                                                     |                                                                                                                                                                                                                  | DCR repaired catch basins at: <ul style="list-style-type: none"><li>▪ Morrissey Boulevard</li><li>▪ Day Boulevard</li><li>▪ McGrath Highway</li><li>▪ Embankment Road</li><li>▪ Memorial Drive</li><li>▪ Soldiers Field Road</li><li>▪ Storrow Drive</li></ul>                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                   |
| 6-17             | Maintenance Tracking System | Engineering/ Operations (Mike Misslin/ Jack Murray) | Develop a maintenance tracking system. Add storm water infrastructure information inventoried in BMP 3-4. Include inspection/ maintenance schedule and create reports of BMPs that are “scheduled” for cleaning. | DCR’s consultant has developed a global positioning system (GPS) program to work with DCR’s GPS operating systems and the existing geospatial stormwater infrastructure database to record maintenance activities. DCR employees have been trained in recording and processing data using the new system. The consultant has organized previous DCR maintenance records into a database linked to the stormwater infrastructure database. | DCR’s consultant will continue to work with DCR’s maintenance team to track maintenance needs and actions.<br><br>DCR plans on updating their data collection equipment to better work with the growing infrastructure and tracking database and continue to use the GPS program to efficiently track inspections and activities. |



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| BMP ID # | BMP Description               | Responsible Dept./Person Name | Measurable Goal(s)                                                                     | Progress on Goal(s) – Permit Year 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Planned Activities – April 2013 to March 2014                                                                                                                                                                                                                                                                                                                                                                                   |
|----------|-------------------------------|-------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-18     | Maintenance Activity Schedule | Operations (Jack Murray)      | Maintain infrastructure and roadways in compliance with maintenance activity schedule. | <p><i>Goal Met –</i></p> <p><b>Street Sweeping:</b> To insure adequate street sweeping frequency, DCR entered into a renewable contract in 2011 with a street sweeping contractor to clean certain DCR parkways and roads. The contract provides for sweeping roadways that discharge to impaired receiving waters using mechanical and vacuum sweeping equipment at least four times per year, and monthly in areas where cars are allowed to park. Car parking in these areas has restricted access to the curb line thereby reducing the effectiveness of street cleaning. The program is outlined on DCR's web site at <a href="http://www.mass.gov/dcr/sweep.htm">http://www.mass.gov/dcr/sweep.htm</a></p> <p>DCR no longer performs maintenance on the seven roads transferred to MassDOT, though it retained O&amp;M operations on Columbia Rd east of I-93.</p> <p>The DCR street sweeper fleet (six sweeper units) received maintenance periodically during the year and were operated as necessary by DCR to keep parking lots and roadways parkways as clean and trash free as possible. <i>(continued on next page)</i></p> | <p>Continue to comply with maintenance activity schedule.</p> <p><b>Street Sweeping:</b> Continue to provide and fund contract for sweeping roadways that discharge to impaired receiving waters using mechanical and vacuum sweeping equipment at least four times per year, and monthly in areas where cars are allowed to park. DCR requires high performance regeneration air sweepers for 2013-2014 sweeping services.</p> |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Planned Activities – April 2013 to March 2014</b> |
|------------------|-------------------------------|--------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 6-18<br>(cont'd) | Maintenance Activity Schedule |                                      |                           | <p>Full size street sweepers and smaller vacuum units are used by Division of Urban Parks and Recreation (DUPR.) mostly on beach parkways and parking lots to keep these seasonal facilities as clean and trash free as possible.</p> <p>Beach sand screener/sanitizers were operated on a daily basis at Revere Beach, Nantasket Beach, Wollaston Beach, Nahant Beach and other high use beach areas to reduce contaminants in the beach sand (cigarette butts, plastic bottles, etc.) that threaten surface water quality and to improve beach experiences for visitors. These beach maintenance services are performed by staff that also operates street sweepers when not operating beach sanitizers. DUPR district managers have the responsibility to prioritize and schedule these tasks.</p> <p>DCR also composted algae pulled from select beaches this last year.</p> <p><i>(continued on next page)</i></p> |                                                      |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|-------------------------------|--------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-18<br>(cont'd) | Maintenance Activity Schedule |                                      |                           | <p><b>Leaf Removal:</b> To improve seasonal leaf removal DCR purchased three (3) high efficiency leaf loader machines to assist removal of leaves and debris from urban parkways. This new equipment enables DCR to better clean those roads lined with oaks and other trees that drop their leaves late in the season and often cannot be removed effectively before winter conditions prevent their removal. DCR removed leaves ahead of streets being swept.</p> <p><b>Catch Basins:</b> DCR continued to systematically clean catch basins and water jet the associated outlet drain pipes using private contractors and DCR equipment overseen daily by DCR staff. DCR repaired its vacuum truck and used it to service catch basins with private contractors supplementing those services. Cleaning and maintenance of catch basins is recorded using portable GPS-enabled computers.</p> | <p><b>Leaf Removal:</b> DCR will continue to remove leaves ahead of streets being swept.</p> <p><b>Catch Basins:</b> DCR will continue to systematically clean catch basins and water jet the associated outlet drain pipes, as determined necessary, using private contractors overseen daily by DCR staff. DCR anticipates a greater budget commitment (\$800K) and level of effort FY14 when compared to FY13.</p> |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                    |
|------------------|-------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-18<br>(cont'd) | Maintenance Activity Schedule |                                      |                                                                                                                                                  | <p><b>Material Storage Yard Maintenance:</b> MassDOT has taken over the deicing and snow operations for all DCR roads. Four urban parks do store street sweeping and catch basin cleaning on-site. The accumulation areas are marked off for collection to reduce illegal dumping.</p> <p><b>Fleet Maintenance:</b> DCR fleet manager (Joe Suppa) oversees the compliance with fleet maintenance.</p> <p>Individual facilities are reviewed in Table 2-7 of this report.</p> | <p><b>Material Storage Yard Maintenance:</b> Not applicable.</p> <p><b>Fleet Maintenance:</b> Fleet manager will review fleet maintenance schedule.</p> |
| 6-19             | Winter Storm Plan             | Operations (Jack Murray)             | Continue to maintain a responsible winter storm program and provide sufficient funding.                                                          | <i>Goal Met</i> – DCR continued to maintain a winter storm program, where DCR retains responsibility (e.g. sidewalks, parking lots, certain bike paths, etc.). MassDOT has responsibility for snow and ice control on most other DCR roads and parkways.                                                                                                                                                                                                                     | Continue to maintain winter storm program where DCR retains responsibility.                                                                             |
| 6-20             | Pet Waste Management          | Operations (Jack Murray)             | Continue pet waste management program. Continue to train DCR park rangers to monitor this program. Coordinate with law enforcement if necessary. | <p><i>Goal Met</i> – “Mutt Mitt” Dog Waste Collection Stations were maintained at locations including:</p> <ul style="list-style-type: none"> <li>▪ Charles Reservation</li> </ul> <p>DCR revised the pet waste management map.</p>                                                                                                                                                                                                                                          | Maintain pet waste management program. Install additional new collection station at Blair Pond.                                                         |



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| <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>                                           | <b>Planned Activities – April 2013 to March 2014</b> |
|-----------------|------------------------|--------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------|
| 6-21            | Pool Discharge SOP     | Engineering (Mike Misslin)           | Update and re-issue SOP. Provide training to pool staff. | <i>Goal Met</i> – DCR updated and re-issued SOP including de-chlorinating procedures. | Provide training to pool staff, as necessary.        |

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

| <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>                                                                                                                                                                                                                                                                                                                                     | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                        |
|-----------------|-----------------------------------|------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7-1             | Wetland Protection Act Compliance | Operations/ Engineering (Jack Murray / Mike Misslin) | Continue compliance with WPA.                  | <i>Goal Met</i> - Wetlands Protection Act is actively enforced at all DCR properties including those not located within urbanized areas. DCR has staff specifically dedicated to WPA compliance in Wachusett and Quabbin Reservoir watersheds. DCR received multiple Orders of Condition in Boston, Cambridge, Newton, Milton and Somerville for work within wetland resources. | Continue compliance.<br><br>DCR will be filing for Order of Conditions for work within wetland resources in: <ul style="list-style-type: none"><li>• Boston</li><li>• Milton</li><li>• Somerville</li></ul> |
| 7-2             | 401 Water Quality Certification   | Operations/ Engineering (Jack Murray / Mike Misslin) | Continue compliance with 401 WQ Certification. | <i>Goal Met</i>                                                                                                                                                                                                                                                                                                                                                                 | Continue compliance.                                                                                                                                                                                        |



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| <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>                                                                                                                                        | <b>Planned Activities – April 2013 to March 2014</b>                                                           |
|-----------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 7-3             | Cultural Resources Review                                                                       | Chief Archeologist<br>(Ellen Berkland)                               | Continue to review potential impact to historic properties during conceptual design stage.                                                                                                                                                                                                                          | <i>Goal Met</i> - DCR reviews all projects for potential impact to historic properties during design phase.                                                                        | Continue reviews and use subcontractors as necessary.                                                          |
| 7-4             | Chicopee Basin, French Basin, Mill River Basin, Northern Blackstone and Connecticut River TMDLs | Water Resources/<br>Chief Forester<br>(Ann Carroll/<br>Peter Church) | These TMDL Reports recommended that during timber harvesting practices DCR shall check that an approved forest cutting plan and BMPs for erosion are followed. DCR will provide a summary table of timber harvesting activities, the date forest cutting plan was approved and proposed BMPs in each annual report. | <i>Goal Partially Met</i> – No timber sales were conducted in the Northern Blackstone Basin.                                                                                       | Provide summary report in annual report.                                                                       |
| 7-5             | Connecticut Basin TMDL - Train Conservation Commission on Timber Harvest BMPs                   | Chief Forester<br>(Peter Church)                                     | Present short seminar for each Conservation Commission.                                                                                                                                                                                                                                                             | <i>Goal Met</i> – No timber sales were conducted in the Connecticut River basin.                                                                                                   | Provide summary report in annual report.                                                                       |
| 7-6             | Permit Year TMDL Summary                                                                        | Engineering<br>(Mike Misslin)                                        | Include summary of TMDL reports approved by EPA during the previous permit year which include recommendations for actions by DCR in annual report.                                                                                                                                                                  | <i>Goal Met</i> – Section 7b of this annual report includes a summary of the current Final TMDLs and those that include implementation recommendations which impact DCR (Table 8). | Continue to be involved in the development of draft TMDLs and implement recommendations summarized in Table 8. |



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| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Planned Activities – April 2013 to March 2014</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|---------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7-7             | Priority Resource Area Review Program | Planning (Joe Orfant)                | Implement a program to review the outfalls identified in the outfall inventory which discharge to one or more of the resources outlined in Part V and IX of the permit. | <p><i>Goal Partially Met</i> – DCR has updated the receiving water body table (Appendix C of the March 2008 SWMP) to reflect the outfalls identified in the drainage inventory. The table summarizes the number of outfalls by sub-basin number and identifies the impaired waterbody included in the sub-basin. This analysis showed priority areas distributed throughout the state. From this list, DCR has developed a 5-year illicit discharge inspections rotation that groups areas spatially for ease of program operations. DCR focused its illicit discharge program this year on areas adjacent to the Charles River which is impaired with a TMDL.</p> <p><b>Blair Pond Improvements</b> -DCR identified the need for improvements to Blair Pond to improve hydrologic function and aesthetics of the pond. Blair Pond receives water from Clay Pit Pond in Belmont which is listed on the Massachusetts 303d list as Category 5 for Pesticides and discharges to Alewife Brook which is Category 5 Impaired.</p> <p>DCR completed dredging and disposal of contaminated sediments and constructed a new</p> | <p>DCR will continue the illicit discharge inspection program performing inspections on the third one-fifth of the system. This upcoming program will include systems that discharge to several impaired waters including the Charles River.</p> <p>DCR will continue to address failing stormwater systems and outfalls to reduce flooding, erosion, rutting and sedimentation. When possible, DCR will include structural stormwater Best Management Practices (BMPs) to improve the quality of water being discharged.</p> <p><b>Blair Pond Improvements</b> – DCR will bid and the project with anticipated construction date of Fall 2011.</p> |



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|-----------------|---------------------------------------|--------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 7-7<br>(cont'd) | Priority Resource Area Review Program |                                      |                           | pond lobe to serve as a fore-bay to collect sediments in incoming water. These improvements increased water depths in the pond, improved water quality, and will enable DCR to more easily maintain and remove future sediment deposits. |                                                      |



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**Table 2: Parkway Best Management Practices**



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**Table 3: State Park Facilities Best Management Practices**



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**Table 4: Beach Facilities Best Management Practices**



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**Table 5: Water Supply/ Reservoir Facilities Best Management Practices**



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**Table 6: State Forest Facilities Best Management Practices**



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**Table 7: Construction Sites Best Management Practices**



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**7b. WLA Assessment**

TMDL reports were reviewed for discussion of implementation activities which may impact or directly mention DCR's facility or roadways and are summarized in Table 8. DCR will continue to review compliance with these recommended activities. Table 8 summarizes the final TMDLs approved as of March 31, 2011 and the implementation recommendations which impact DCR facilities.



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**Table 8: TMDL Summary**



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

No additional information collected and/or analyzed. [PW1]

**Part V. Program Outputs & Accomplishments**

All programs and accomplishments are summarized in the appropriate tables.



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**Appendix A:**

**Down Stream Newsletters**



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**Appendix B:**

**Potential Illicit Discharge Detection and Elimination Report** [PW2]



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**Appendix C:**

**Utility/ Drainage Tie-In Permits**<sup>[PW3]</sup>