Municipality/Organization: **City of Cambridge**

EPA NPDES Permit Number: **MAR041076**

MaDEP Transmittal Number: **W-040464**

Annual Report Number & Reporting Period: **No. 4: March 06-March 07**

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

Contact Person: Lisa Peterson Title: Commissioner, Dept. of Public Works

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Certification:

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

Signature: Robert W. Healy

Printed Name: Robert W. Healy

Title: City Manager

Date: May 1, 2007

P. . II. Self-Assessment

The City of Cambridge has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions.

P. . III. Summary of Minimum Control Measures (MCM)

MCM #1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
1.a Revised	Develop Educational and Outreach Material for Residents and Businesses	Commissioner/DPW	(i)Develop 3 brochures or fact sheets **(completed under year 1 activities)** - Continue the development of relevant materials. **Expanded BMP element in Year 3**	Fact Sheets for Healthy Household Habits for Clean Water (HHHCW) were developed which included information on Watersheds, Lawn and Garden, Landscaping, Pet Care, Auto Care, Waste Disposal and the Stormwater Hotline. A Rain Garden information sheet was also developed to supplement this information. The HHHCW information was not yet published in languages other than English. A copy of this information is provided in Appendix 1.	Translate the Healthy Household Habits information into the top 4 languages (other than English) spoken in Cambridge households.
		Commissioner/DPW	(ii) Post information on the web	A Stormwater Management web page was developed as part of the DPW web site during program year 1. It can be viewed at http://www.cambridgema.gov/~TheWorks/stormwater/index.html. The Revised Stormwater Management Plan and copies of Year 1 – 3 Annual Reports and the March 27 presentation were added to this web site this month. In addition, during Year 4 an internal City web page was created on the City's Intranet (Common Ground) for municipal employees with information on Stormwater Management/Municipal Good Housekeeping. This includes information on BMPs, Inspection Manual and forms. A copy of theses web pages are provided in Appendix I. Additional water quality information and activities are posted through the DPW homepage, Engineering homepage, Sewer homepage and City of Cambridge homepage throughout the year. Information on watersheds and specific BMPs was not added this year.	This site will continue to be updated and expanded to include information on watersheds and best management practices.

Revised		Commissioner/DPW	(iii) Distribute materials **Expanded BMP element in Year 3**	Healthy Household Habits for Clean Water was published in the Spring/Summer 2006 edition of *CityView*, a publication of the City of Cambridge. *CityView* is mailed to every household in Cambridge actively receiving mail. In addition, copies of *CityView* are available at various municipal buildings. A copy is provided in Appendix 1.	Distribute information on Stormwater /Watersheds to every household actively receiving mail in Cambridge.
Revised		Commissioner/DPW	(iv) Assess local/regional mass media marketing campaigns **Revised in Year 3– new BMP element**	DPW initiated discussions with Think Blue MA to collaborate on a watershed/stormwater management exhibit to be held at the 1st Annual Cambridge Science Festival on April 21 2007. In addition, DPW has worked with our cable station CITY TV-8 to periodically air the Think Again Think Blue PSA starting the week of February 19 2007.	Participate in the Cambridge Science Festival with Think Blue MA. Evaluate future collaborations opportunities.
1.b	Develop Outreach Materials/Activities for Children	Commissioner/DPW	(i) Begin school outreach in Cambridgeport	School outreach activities were undertaken in Cambridgeport in Year 2. During Year 4 (May 8, 2006) DPW gave a presentation to a 2nd grade class at the Shady Hill School on watersheds and how to protect our local waterways. Copies of the presentation boards are provided in Appendix 1. In addition, DPW and the Conservation Commission Director met with the Cambridge Rindge and Latin Environmental Action Club on April 13, 2006 to discuss stormwater management and conservation volunteer opportunities.	Additional outreach activities to schoolchildren in the Charles watershed will be explored.
		Commissioner/DPW	(ii) Begin School Outreach in Alewife	Not required in Year 4.	Outreach activities for school children will be developed as construction projects get underway. Construction has been delayed due to permitting issues and is hoped to begin in 2008.

1.c	Develop a Stormwater Web Page	Commissioner/DPW	(i) Develop a stormwater web page	A stormwater web page was developed during Year 1 and can be viewed at http://www.cambridgema.gov/~TheWorks/stormwater/index.html Also refer to 1.a (ii) above.	This site will continue to be updated and expanded
		Commissioner/DPW	(ii) Update stormwater web page	See 1.a. (ii) above.	See 1.c. (i) above.
1.d	Create a Catch Basin Curb Marker Program	Commissioner/DPW	(i) Install catch basin curb marker/plaques	DPW installed catch basin curb markers during sidewalk reconstruction projects and our remedial reconstruction projects. A total of 88 have been installed: 88 in the Charles and 0 in the Alewife watersheds (see Appendix 1).	Continue to install catch basin curb markers during construction projects.
1.e	Reduce Stormwater Pollution from Automobiles	Assistant City Manager for Community Development/CDD	(i) Sponsor an event to promote alternative forms of transportation	The Community Development Department sponsored and participated in many activities promoting alternative forms of transportation during the May 2006 Go Green Month events. Activities included alternative forms of transportation information tables at all major squares in Cambridge, giveaways to cyclists and pedestrians, participation in local bike week events/tours. A listing of Go Green Month events is provided in Appendix I.	Alternative forms of transportation will be promoted through activities and events.

MCM #1. Additional Information

- Cambridge CDD has monitored approximately 32 entities under the Parking and Transportation Demand Management (PTDM) Ordinance to reduce motor vehicle trips associated with increased parking and reviewed 11 new PTDM special permit plans.

- The City continues to provide a comprehensive City Employee Commuter Benefits to all of its employees. These benefits include subsidized T passes, a free shuttle service, and an internal car pool matching service. The City also supports bicycle use and walking through the respective city programs and provides an internal web site that provides information on other regional ride matching and sharing programs. EPA New England recognized the City of Cambridge as one of the Best Workplaces for Commuters. See article in the Fall/Winter 2007 edition of *CityView* attached in Appendix 1.

- The City produces biannually a publication entitled "*CityView*" and distributes it to every household in the City (over 48,000). The Fall/Winter 2007 issue included an article about the shoreline improvements at Little Fresh Pond. A copy of *CityView* is

available in Appendix 1.

- The Cambridge Public Health Department (CPHD) launched a new program for small businesses in Cambridge an effort to improve compliance with hazardous waste removal laws and practices in Year 2. In Year 4 this program helped secure a DEP grant for the Cambridge Rindge and Latin High School to create sustainable chemical management systems and to clear out stockpiled chemicals.

- DPW participated in the Cambridge Home & Energy Fair at the Cambridge Rindge and Latin School on February 10, 2007 and presented information on residential stormwater management (healthy household habits) in 2 workshops.

MCM #2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
2.a	Participate in Public Meetings on Water Quality and Quantity	Commissioner/DPW	(i) Participate in/sponsor a public meeting on water quality/quantity and/or the stormwater management plan	DPW participated in City Council Ordinance Committee public meeting on environmental and infrastructure issues with regard to the Concord/Alewife proposed zoning amendment on June 13, 2006. Issues on water quality/quantity in the Concord-Alewife area were discussed. A copy of the Committee's report is provided in Appendix 2. A public meeting to discuss the changes and status of the NPDES Phase II Permit was held on March 28, 2007. Information on this meeting is provided in Appendix 2.	Public meeting will be hosted by DPW regarding the status of the stormwater management program and/or stormwater issues.
		Commissioner/DPW	(ii) Advertise meeting through various sources	The above meeting was advertised on the city's web site and on cable television. In addition the NPDES meeting was posted in the Cambridge Chronicle and notices sent out via e-mail.	Meeting will be publicly advertised in local newspapers, through the web site and/or other means.
2.b	Support Volunteer Efforts	Commissioner/DPW	(i) Provide clean-up assistance for one event annually	The City provided support to the Friends of Alewife Reservation for a large clean up at Alewife on April 27, 2006. The City also worked with the Central Square Business Association on its 2nd Annual Central Square Spruce Up on May 19, 2006. A copy of the press release is attached in Appendix 2.	Support/assistance will be provided for one clean-up event.

		Commissioner/DPW	(ii) Support educational efforts of local watershed groups as opportunities arise through talks and /or support of grant applications	The City supported the efforts of the Town of Belmont Conservation Commission's DEP 604(b) grant application. A copy is attached in Appendix 2.	DPW will continue to provide support to local watershed associations as opportunities permit.
		Commissioner/DPW	(iii) Seek permission to post links to local watershed groups' web sites	Links were posted to MyRWA and CRWA during Year 1. No new watershed links have been added this year.	As the stormwater management web page is expanded and updated additional links and resources will be added
2.c	Sponsor Recycling of Hazardous and Solid Waste	Commissioner/DPW	(i) Hold 4 Household Hazardous Waste Collection (HHW) days annually		
Revised		Commissioner/DPW	Hold 3 Household Hazardous Waste Collection days annually **(Revised in Year 1)**	Three Household Hazardous Waste collection days were held this permit year on April 22, June 24 and October 21, 2006. DPW has determined that the reduction in the amount of collection days has not resulted in a reduction in the amount of materials collected. See Appendix 2 for a summary of recycling tonnage from Drop-off center, curbside and HHW collections.	HHW collection will be held on April 21, June 23, and October 13, 2007.

		Commissioner/DPW	(ii) Accept recycling materials at a drop off center on a regular basis	During 2006 DPW operated a recycling drop-off center at the DPW yard on Tuesdays and Thursdays from 4 – 7:30 p.m. and Saturdays form 9 a.m. – 4 p.m. Materials accepted include: books, clothing, electronic media (CD's, floppy disks, VHS tapes), plastic bags and unmarked stiff plastic containers, non-alkaline batteries (NiMH, NiCd, Hg, Li Ion, Pb Acid, AgO2), fluorescent bulbs, mercury containing devices (thermometers, thermostats, etc.), motor oil, and cell phones. Beginning November 2, 2006 scrap metal was accepted at the drop off center.	DPW will continue to operate a drop-off center for recycling materials by residents, small businesses and non-profit organizations with 50 employees or less
		Commissioner/DPW	(iii) Beginning in yr 2 provide information on illicit discharges and reporting	A pamphlet was developed in Year 2 and distributed at the Household Hazardous Waste collection events. This pamphlet discussed illegal dumping into catch basins and the importance of proper disposal of wastes. During Year 4 this Information was included in the Healthy Household Habits information discussed in BMP 1 above.	DPW will continue to provide information on illicit discharges and reporting at Household Hazardous Waste events and/or in its meetings and through print materials..

The following BMP was relocated from BMP 5.b and further revised in Year 3.

2.d	Participate in Watershed and Planning Efforts	Assistant City Manager for Community Development/CDD and Commissioner/ DPW	(i) Complete Phase I of Concord-Alewife study	Phase I was completed during Year 1. Information from this process can be viewed at http://www.cambridgema.gov/~CDD/commplan/zoning/concalew/index.html Phase II discussion of zoning recommendations began.	Not applicable in Year 3, Phase I completed. See MCM #5.b (ii) below.
		Assistant City Manager for Community Development/CDD and Commissioner/ DPW	(ii) Complete Phase II if authorized	This activity was completed in Year 3.	Not applicable in Year 5. Phase II is completed.
		Assistant City Manager for Community Development/CDD and Commissioner/ DPW	(iii) Forward study recommendations to the City Manager for consideration	The Planning Board submitted the Concord-Alewife rezoning petition to the City Council on April 25, 2005. This petition is based on the zoning recommendations of the Concord-Alewife Planning Study Committee. The petition was refilled by the City Council on February 21, 2006. The Concord-Alewife Rezoning (http://www.cambridgema.gov/CDD/cp/zng/concalew/concale_ord.pdf) and Design Guidelines (attached in Appendix 2) were adopted by the City Council on June 26, 2006. The changes have been incorporated into the Cambridge Zoning Ordinance and Zoning Map.	Not applicable in Year 5. Completed in Year 4.
		Commissioner/DPW	(iv) Discuss Concord-Alewife Stormwater Management strategies at a public meeting	DPW participated in a City Council Ordinance Committee meeting on environmental and infrastructure issues with regard to the Concord/Alewife proposed zoning amendment on June 13, 2006. Issues on water quality/quantity in the Concord-Alewife area were discussed. See BMP 2.a above for more information.	Not applicable in Year 5. Completed in Year 4.
		Commissioner/DPW	(v) Publish LID guidelines	Although not required in Year 4 DPW published the Concord-Alewife Stormwater Management Guidelines in May 2006. A copy of the Table of contents and Introduction is attached in Appendix 2, a full version can be found at: http://www.cambridgema.gov/TheWorks/stormwater/pdffiles/ConcordAlewifeStormwaterManagement.pdf	Not applicable in Year 5. Completed in Year 4.
		Commissioner/DPW	(vi) Place LID document on the Stormwater web site	Although not required in Year 4 the Concord-Alewife Stormwater Management Guidelines were placed on the Stormwater web site (see BMP 2.d.(v) above.	Not applicable in Year 5 completed in Year 4.

		Commissioner/DPW	(vii) Execute the Environmental Joint Powers Agreement (EJPA)		
revised			Work with EOEA to advance the EJPA to a final document **(Revised in Year 1)**	The final EJPA was fully executed on March 4, 2005 and forwarded to EOEA. Completed.	This activity has been completed.
		Commissioner/DPW	(viii) ABC Flooding Board to meet 4 times annually	The ABC Flooding Board met approximately 6 times during Year 4 on April 18, May 16. June 13, September 12, November 14, 2006 and February 13, 2007. Discussion topics included Alewife chanel maintenance, proposed hydraulic changes in the upper watershed by the Town of Winchester and continue support of USGS Alewife gauge contract by each of the 3 communities.	The ABC Flooding Board will meet 4 times.
revised			**Schedule Revised in Year 1**		
		Commissioner/DPW	(ix) Finalize Tri-Community Working Group's *Progress Report*	This report was finalized in Year 3	Not applicable in Year 5. Completed in Year 3.
revised					
		Commissioner/DPW	(x) Place Tri-Community Working Group's *Progress Report* on web site	This report was placed on the web site in Year 4 see: http://www.cambridgema.gov/TheWorks/departments/engnr/pdfs/Tri-CommunityWorkingGroupReport.pdf	Not applicable in Year 5. Completed in Year 4.
revised					

MCM #2. Additional Information

- The Concord-Alewife Plan won the 2006 Outstanding Planning Award for Comprehensive Planning from the Massachusetts Chapter of the American Planning Association.

- DPW hosts an annual Vehicle Road Show. This year's event was held on May 23, 2006. The focus of the event was education of children and adults about the steps the City has taken to implement environmentally friendly practices including recycling, street sweeping, park/tree maintenance, drain cleaning, alternative fuel vehicles. Over 300 children and adults attended the event. (See Appendix 2)

MCM #3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
3.a	Update Stormwater Drainage System, Outfalls and Receiving Waters in GIS	Commissioner/DPW	(i) Map Fresh Pond outfalls	This map was updated in Year 4 (see Appendix 3). Completed.	Map the new drainage changes within Fresh Pond Reservation resulting from the completion of drainage improvements at Little Fresh pond and the NorthEast Sector upon the completion of these projects.
		Commissioner/DPW	(ii) Migrate existing GIS database to a new format	Completed in Year 3.	DPW staff will primarily be responsible to maintain the GIS database. As-built information will be added to keep the system up to date.
		Commissioner/DPW	(iii) Track private structural controls in a database	Private structural controls are tracked in a database (see Appendix 3). Approximately 100 projects underwent DPW site plan review (see Appendix 3).	We will continue to track private structural controls through our site plan review process.
		Commissioner/DPW	(iv) Catalogue record drawings	Cataloguing of record drawings was not necessary. The contract to update the GIS database included scanning record drawings and has been completed in Year 3. Over 3000 record drawing have been scanned and spatially linked to the database. A catalogue of updated information is available to query.	Record drawings and as-built information will continue to be added on an ongoing basis.
		Commissioner/DPW	(v) Train engineering staff on new GIS software	Not applicable in Year 4 this was completed in Year 3.	Completed.

		Commissioner/DPW	(vi) Begin updating GIS information with as-built/record drawings	DPW staff has been trained to edit the GIS database. As-built and record drawings are being updated on an ongoing basis.	Record drawings will be linked as they become available.
3.b	Detect and Eliminate Illicit Discharges	Commissioner/DPW	(i) Perform routine water quality sampling	Two (2) Water quality samples were taken at 13 outfalls on the Charles, four (4) samples at 8 outfalls on the Alewife. As part of the expanded sampling effort proposed in 3.b (iii) below 3 additional locations were sample once in the Alewife and 9 additional locations were sampled once in the Charles (see 3.b (iii) below). See Appendix 3 and Part IV of this report.	Water quality samples will continue in each watershed.
		Commissioner/DPW	(ii) Test one location in each watershed for oil and grease annually	.	One location in each watershed will be tested for oil and grease.
Revised			**(Revised for Year 2 only)**	Two (2) oil & grease samples were done during Year 4: one (1) samples in the Charles and one (1) in Alewife (see Appendix 3)	
		Commissioner/DPW	(iii) Perform additional water quality testing and field investigations as necessary	Additional water quality testing was performed to isolate the location of illicit discharges and to confirm their successful removal.	We will perform additional water quality testing and field investigations as necessary.

Rev.			**Revised in Year 3** Expand Water Quality testing in both watersheds	The following additional outfalls in the Charles watershed were tested: Lechmere Canal, South Massachusetts Avenue, Amesbury St., Pearl St., Cemetery (Range 23), Cemetery (Shady Hill Rd), North Point, Amesbury St., and Pleasant Street. Additional Alewife outfalls tested include: Matignon Road, and 2 locations for Drainage Area 45 along CambridgePark Drive (see Appendix 3).	All known Cambridge Outfalls will be sampled in the Charles and Alewife watersheds.
		Commissioner/DPW	(iv) Identify and remove illicit discharges	Illicit discharges/connections were removed at: • 8 Grant Street • 16 Grant Street • 17 Grant Street • 50 Church Street	We will continue to monitor for and remove illicit discharges.
		Commissioner/DPW	(v) Perform water quality sampling at a Fresh Pond outfall annually	Four (4) water quality samples were taken at Little Fresh Pond (see Appendix 3 and Part IV of this report).	A water quality sample will be taken at Fresh Pond
		Commissioner/DPW	(vi) Purchase sampling equipment as recommended by EPA's Lower Charles IDDE Protocol	Sampling equipment was purchased in Year 4.	Not applicable in Year 5. Supplies will be purchased as needed.
		Commissioner/DPW	(vii) Investigate Sparks Street drainage area	Investigation of the Sparks Street drainage area using the EPA IDDE Protocol was begun in the Summer of 2006. Approximately 15% of this investigation is complete. Weather and other delays have slowed this investigation and it is continuing into Year 5. See drainage area map attached in Appendix 3.	Complete investigation into the Sparks Street drainage area.

		Commissioner/DPW	(viii) Investigate Lechmere Canal drainage area.	Not applicable in Year 4	Investigate Lechmere Canal drainage area using the EPA IDDE Protocol measures.
		Commissioner/DPW	(ix) Separate Common Manholes.	Common Manhole Contract #6 will separate 12 CMHs in the Alewife area. This contract is fully designed and will be bid during the next program year. 8 CMHs were separated as part of the Cambridgeport Roadways project in the Charles watershed on Sidney Street (5) and Waverly Street (3).	The number of Common Manholes separated in separated drainage areas will be counted. 12 CMHs are currently scheduled for separation during Year 5.
New		Commissioner/DPW	**(X) Perform wet weather water quality sampling at 2 outfalls annually**	Not applicable in Year 4, this is a new BMP.	Cambridge will begin a wet weather sampling program by sampling 2 outfalls this year in catchment areas not influenced by common manholes.
3.c	Conduct Illicit Discharge Education Program	Commissioner/DPW	(i) Advertise illicit discharge hotline number and information on illicit discharges	Hotline information was included in the *CityView* article on Healthy Household Habits discussed in 1.a above and in the associated fact sheet information.	The Stormwater Hotline number for illicit discharges will be incorporated in additional public information. Also refer to MCM #1 and 2 above and #6 below for additional information.
3.d	Develop Regulations Prohibiting Illegal Dumping of Non-Stormwater into the MS4	Commissioner/DPW	(i) Develop a working draft	Completed in Year 1.	Complete (refer to MCMs #3.d (ii) and (iii) below for more information)
		Commissioner/DPW	(ii) Provide opportunity for peer and legal review of draft	Draft Regulations were revised based on Law Department's comments.	A final redraft will be resubmitted to the Law Dept. for further review prior to being submitted to city council.

		Commissioner/DPW	(iii) Revise draft as necessary	Draft Regulations were developed, reviewed and redrafted by staff.	Redraft as necessary based upon City Manager and City Council input.
		Commissioner/DPW	(iv) Present regulations/ordinance to City Council for consideration for adoption	The revised regulations were not presented to the City Manager, City Council or the community for comment. We were unable to complete the draft to the extent necessary due to the unprecedented need to divert resources to address other legal stormwater issues within the Alewife.	Regulations will be presented to the City Manager and City Council for consideration.

MCM #3. Additional Information

- DPW Sewer Division staff attended 3 meetings sponsored by the Cambridge License Commission regarding Mandatory Meeting of All Alcoholic Clubs and VFWs on October 16, 17 and 18, 2006. These meetings were an opportunity to discuss the problems associated with improper handling and illicit disposal of Fats, Oils and Grease (FOG) and its impact on stormwater and sanitary conveyances systems. A copy of the presentation and handout information on grease trap maintenance is attached in Appendix 3.

- In addition to Cambridge DPW sampling data we receive copies of sampling data undertaken by volunteers, which are reviewed and supplement our investigations into illicit connection identification. Sampling results during wet and dry weather were received from Roger Frymire for the following dates: 6-15-06 (wet), 6-21-06 (hot spot – dry), 8-16-06 (wet), and 10-18-06 (damp). Also received were "hot spot" sampling results from the Mystic River Watershed Association for 1-31-06 (dry), 6-07-06 (wet), 6-20-06 (dry) and 10-24-06 (dry). Mr. Frymire's and the Mystic's sampling results are included in Appendix #3

- During this program year Cambridge completed the design of the next common manhole (CMH) contract to separate 12 CMHs in the Alewife watershed. This contract should begin construction during Year 5. Common manholes are underground structures that allow people to access both sewer and storm drainpipes through a single structure. Typically, the drainage system runs above the sanitary system, separated by a steel plate. Over time the steel plate deteriorates causing sewerage to mix with stormwater. This can lead to two problems during storm events. First it can cause stormwater to enter and overwhelm the sanitary system causing sewerage to overflow and back-up on to the street or into basements. Second, untreated sewerage can enter the storm drain system and be released into either the Charles River or Alewife Brook. See Appendix #3

for a map of the common manholes that have been separated throughout Cambridge.

- The outfalls located at Fresh Pond have not been sampled this year. The outfall located in the North East Sector portion of the reservation was removed and the new flow from the reconstructed portion of Lusitania Field will be directed to an infiltration berm, thus there will be no point source discharge from this area in the future. This work is still under construction. There is an outfall located at Weir Meadow, which is tied to a single catch basin, which is surrounded by meadow and receives no urban runoff. The 2 other outfalls, which are associated with the walking path and hillside, are also connected to single catch basins and receive flow from the adjoining hillside and rip rap swale. These areas have recently been reconstructed and pose no threat to water quality at the pond. Water quality at Fresh Pond is closely monitored and samples are taken from the pond itself. Sampling is done regularly for the small ponds within the Fresh Pond Reservations including Black's Nook and Little Fresh Pond. These sample results and the 2006 Little Fresh Pond Water Quality Statement are attached in Appendix 3.

- We have added a new BMP [MCM 3.b.(x)] to do wet weather sampling at 2 outfalls. During the next permit year the City will commence a stormwater monitoring program that will be used to determine pollutant loading through stormwater discharges to the Charles River and Alewife Brook during monitored rainfall events. Two monitoring locations will be chosen that are representative of the predominant land uses within the Charles River and Alewife Brook watersheds in Cambridge. The City will conduct two rounds of sampling at each of the two locations during the next permit year.

  The monitoring program will consist of three elements. Stormwater flow monitoring will be measured at each of the sampling locations with Sigma 910 flow meters equipped with depth/ velocity sensors. Two grab samples will be collected at each of the locations during each sampling event. The samples will be analyzed at a certified laboratory for bacteria, nutrients and other parameters consistent with the City's dry weather sampling program. Rainfall will be monitored at two locations using City owned rainfall gauges. The readings at these rainfall gauges will be checked against readings obtained at nearby locations as published by the National Weather Service.

  A report will be prepared by the City detailing the results of the sampling event. The report will contain a spreadsheet comparing rainfall versus flow measurements and the laboratory report for the analysis completed. This report will be submitted to EPA and published on the City's stormwater management web site.

MCM #4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
4.a	Develop Program for Construction Site Runoff Control	Commissioner/DPW	(i) Review existing planning and construction procedures	Complete (refer to MCM #4.a (iii) below for the development of the draft regulatory mechanism).	Complete
		Commissioner/DPW	(ii) Clarify needed regulatory mechanism	Complete (refer to MCM #4.a (iii) below for the development of the draft regulatory mechanism).	Complete
		Commissioner/DPW	(iii) Develop draft regulatory mechanism, procedures and guidelines	One (1) meeting with the Law Department concerning the development of draft ordinance and regulations specific to construction site runoff control. Subsequently we have developed draft requirements for all development projects where soil disturbance activities are probable. This procedure has been used since December 2006. There are twenty (20) projects currently operating under these requirements.	Record number of inte-departmental meetings held relative to draft ordinance, regulations and/or guidance documents.
		Commissioner/DPW	(iv) Present draft to City Manager, City Council and the community for review	The revised regulations were not presented to the City Manager, City Council or the community for comment. We were unable to complete the draft to the extent necessary due to the unprecedented need to divert resources to address other legal stormwater issues within the Alewife.	Regulations will be presented to the City Manager, City Council for consideration. Record the number of meetings.

		Commissioner/DPW	(v) Amend draft as necessary and submit for consideration for adoption	Not applicable in Year 4. This MCM is based on the completion of MCM #4.a (iv).	We will amend draft as necessary and submit for consideration for adoption.
		Commissioner/DPW	(vi) Record number of required Stormwater Management Permits submitted	Not applicable in Year 4.	Not applicable in Year 5 (scheduled for the next permit period).
		Commissioner/DPW	(vii) Provide stormwater management guidance materials or references	Not applicable in Year 4	Stormwater management guidance materials or references for site development that target pollutants of concern will be provided.
		Commissioner/DPW	(viii) Adopt procedures for inspections during construction activities.	Conduct peer review of inspection procedures in neighboring states was begun.	Complete peer review and adopt procedures.
		Commissioner/DPW	(ix) Adopt procedures for enforcement and penalties for violations.	The Law Department began their review of the city's existing procedures for enforcement and penalties.	Conduct peer review and adopt procedures.
		Commissioner/DPW	(x) Record the number of enforcement actions taken and reported	Not applicable in Year 4	Not applicable in Year 5 (scheduled for the next permit period).

4.b	Educate Contractors and Residents about the Construction Site Runoff Control Program	Commissioner/DPW	(i) Make materials available on erosion and sediment control practices available through city web site and/or other means	Information on erosion and sediment control practices was provided to contractors when they submit plans for site plan review. Information specific to catch basin sediment control Dandy Dewatering Bag, Stabilized Construction Entrances and Silt Sacks was provided (see Appendix 4).	Information will be added to the web site.
		Commissioner/DPW	(ii) Discuss erosion and sediment control practices and problems at 3 construction coordination meetings annually	The City Engineer discussed erosion and sediment control practices and problems with permitted contractors working in the City at least 3 construction coordination meetings on May 8thth, May 15th and June 5th (see Appendix 4 for sign-in sheets and letter to contractors). Information was provided on the preferred catch basin inserts (silt sacks) to use during construction and a letter was mailed to approximately 50 contractors discussing construction issues including stormwater management.	The City Engineer will discuss erosion and sediment control practices and problems with contractors at 3 construction coordination meetings.
New		Commissioner/DPW	(iii) Record the number of guidance materials or reference materials provided.	Peer review of applicable BMPs was begun. Guidance materials on silt sacks and wheel wash requirements were provided to contractors.	Finalize peer review and record the number of reference materials provided.
New		DPW	(iv) Create a list of resources, which provides BMP suggestions for the targeted pollutants of concern.	Peer review of Best Alternative Technologies was begun.	Finalize peer review and create a list of resources.

New		Commissioner/DPW	(v) Record the number of workshops or meetings with City departments to discuss implementation of plan requirements	There have been no workshops or meetings with City departments to discuss implementation of plan requirements. MCM 4.a (iii) above must be completed before implementing this MCM.	Meetings will be held to discuss proposed ordinances and regulations

MCM #4. Additional Information

- The ordinance and applicable regulations shall include requirements for the Construction Site Runoff Control and Post Construction Site Runoff Control Programs as part of MCMs #4 and #5. The Construction Site Runoff Control Program shall include development and adoption of an ordinance and separate regulations as the regulatory mechanisms to address construction activities. The ordinance sets the legal framework for the City to require a Stormwater Management Permit to discharge stormwater from land disturbance activities that are (at a minimum) greater than or equal to one acre. The ordinance and regulations will provide the legal authority for construction site inspections and enforcement. It will include penalties and enforcement of a Stormwater Management Permit. A proposed Stormwater Management Permit will require the submission of plans and details related to construction activities. Specific requirements of this plan will be included in the regulations; guidance with checklists and BMPs to meet the requirements will be included in guidance documents for permittees to use:
  a) The Stormwater Management Plan shall include water quality and quantity strategies to address peak discharges, runoff volumes, and pollutants of concern; BMPs (including water quality and water quantity controls with standards and specifications to address pollutants of concern), and areas of special interest that may include low impact development strategies and stormwater hot spots. Guidance will be provided for preferred structural and non-structural BMPs that include pollutant removal effectiveness.
  b) The Erosion and Sediment Control Plan shall provide site plan requirements and DPW review procedures, construction sequencing/scheduling, best management practices (including vegetative controls, temporary/permanent controls, waste control, and dewatering), and procedures for the receipt of public inquiries, concerns, and information.
  c) The Operation and Maintenance Plan shall provide procedures for the proper maintenance of temporary erosion and sediment control BMPs while construction activities are occurring.

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 4 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 5
5.a	Revise Sewer Use Regulations and Guidance	Commissioner/DPW	(i) Complete a working draft	The City's draft Sewer and Stormwater Drainage Use Regulations and existing permit requirements related to construction activities were reviewed. A separate ordinance, regulations, and permit were recommended as part of MCM #5.a (ii) below. The ordinance will include post construction program requirements.	Complete.
Revised	Develop Program for Post Construction Site Runoff Control		**(Revised in Year 3)**		
		Commissioner/DPW	(ii) Undertake and complete peer review and legal review of draft	The draft regulations/ordinance were revised based on the Law Department's comments.	Regulations/Ordinance will be submitted for final review.
		Commissioner/DPW	(iii) Develop draft guidelines on BMPs	Began peer review of BMPs for stormwater management guidance. Draft guidance was completed for the Concord-Alewife area. These guidelines will be the basis for city-wide guidelines. A copy of the final Table of Contents and Introduction is provided in Appendix 2.	Stormwater management guidance guidelines and BMPs related to post construction activities will be developed or cited. A peer review to define parameters for tracking methods as part of the development of a BMP tracking system will be conducted.

		Commissioner/DPW	(iv) Discuss final draft and guidance with City Manager, City Council and the community	Not applicable in Year 4. This BMP is contingent upon the completion of MCM 5.a (ii) and (iii) above.	A draft ordinance will be discussed with the City Manager, City Council, and community.
		Commissioner/DPW	(v) Present final regulation, guidance and monitoring program for consideration and adoption	Not applicable in Year 4. This MCM is based on the completion of MCM #5.a (iv).	Final regulations, guidance and program will be presented for consideration and adoption.
		Commissioner/DPW	(vi) Record the number of meetings held by the City for the regulatory process	The City has held 8 staff meetings to review regulations on 6-07-06, 6-22-06, 7-10-06, 9-11-06, 9-28-06, 11-13-06, 11-20-06, 11-27-06..	Continue to record the number of meetings held.
		Commissioner/DPW	(vii) Administer stormwater management permit requirements	Not applicable in Year 4. This BMP is contingent upon the completion of MCM #5.a (v)	Identify permit requirements. Conduct workshop with staff to review implementation.
		Commissioner/DPW	(viii) Administer procedures for enforcement and penalties for violations	Not applicable in Year 4. This BMP is contingent upon the completion of MCM #5.a (v)	Conduct law department review. Conduct meetings to discuss with staff.
		Commissioner/DPW	(ix) Adopt procedures for post construction inspections	Peer review of post construction inspection procedures was begun.	Complete peer review on post construction inspection procedures and adopt procedures.

		Commissioner/DPW	(x) Discuss alternatives to ensure adequate long-term operation and maintenance of BMPs	We have required the submittal of a maintenance plan for private BMPs since December 2006 and included this in the comments for site plan review (see sample attached in Appendix 5). We began discussion on how to have owners prove that long-term maintenance has been performed, but have not finalized a procedure.	Finalize process and requirements for owners to prove that annual maintenance has been performed.
		Commissioner/DPW	(xi) Provide legal mechanism to require annual compliance for the operation and maintenance of BMPs	Not applicable in Year 4. This BMP is contingent upon the completion of MCM 5.a. (x) above.	Draft legal mechanism.
5.b	Undertake Tree Protection Activities	Commissioner/DPW	(i) Provide one community outreach and education activity annually on the care, importance and protection of trees and their role in climate protection	The City Arborist participated in approximately 5 outreach and education activities including school visits, Arbor day events neighborhood tree walks and other volunteer events. The arborist also works closely with the Public Planting Committee and administers Tree hearings for the removal of trees from the public way.	DPW will continue outreach efforts on the importance and protection of trees.

MCM #5. Additional Information

- The tri-community working group worked with the USGS on a cooperative watershed effort to install a flow gage along the Alewife Brook to obtain and share important hydraulic information. The gage became functional in August 2005. Each community is continuing to participate on an equal financial and resource basis for the gauging station's installation and maintenance. Te real time flow measurements can be observed at http://waterdata.usgs.gov/ma/nwis/uv?01103025 .

- DPW has monthly meetings with the Committee on Public Planting regarding the benefits of green space and trees.

- DPW received a grant from the MA Department of Conservation and Recreation to undertake a comprehensive tree management inventory. During year 4, DPW completed approximately 95% of the inventory and mapped the data onto the City 's GIS using ArcPad technology.

  In the Summer of 2007, the Cambridge Public Works department will complete the inventory. The inventory will then be managed in the City's work order management system, Remedy. Every tree planting, removal and tree pruning will be recorded and tracked in the work order system and reflected in the GIS system, with overall goal of understanding if the caliber, canopy and age of Cambridge Public trees is increasing or decreasing. The information will also be used in planning future plantings and in analysis on the density of the tree cover in Cambridge.

- Cambridge received the "Tree City USA" award in 2006 by the National Arbor Day Foundation. This marks the fifteenth year that Cambridge has received this award, which recognizes municipalities for their efforts to maintain the urban forest.

- Adoption of the Municipal Tree Protection Ordinance reinforces the City Councils finding that the preservation of existing trees and the promotion of new tree planting is a public purpose that protects the public health, welfare, environment and aesthetics of the City of Cambridge and its citizens. The Urban forest serves a wide variety of functions, which promote the health, safety and welfare of residents. To date trees have been replaced to maintain/exceed the total significant tree diameter inches on all sites except for 1 project, which contributed into the tree fund for planting in other areas.

- The ordinance and applicable regulations shall include requirements for the Construction Site Runoff Control and Post Construction Site Runoff Control Programs as part of MCMs #4 and #5. The Post Construction Site Runoff Control Program shall include development and adoption of an ordinance and separate regulations as the regulatory mechanisms to address post construction activities. The ordinance sets the legal framework for the City to require a Stormwater Management Permit to discharge from a site after construction activities have commenced and the site is stabilized. The ordinance and regulations will provide the legal authority for post construction site inspections, documentation, and enforcement. The proposed

Stormwater Management Permit will require the submission of plans as describe above in BMP 4.a and MCM #4. Additional Information for construction and will also address the post construction requirements. A plan submittal will be required for long term operation and maintenance of BMPs:

a) The Operation and Maintenance Plan will address maintenance for BMPs and requirements for annual compliance. Specific requirements of this plan will be included in the regulations; specific guidance will be provided in guidance documents as related to specific site BMPs.

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

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
6.a	Educate Municipal Employees about Pollution Prevention	Commissioner/DPW	(i) Provide stormwater training for municipal employees annually	Municipal Good Housekeeping Refresher Training was conducted at DPW on 3-13-7. See Appendix 6 for a copy of the sign-in sheet, handout and agenda.	Conduct training annually.
		Commissioner/DPW	(ii) Work with managers to identify operations personnel with stormwater responsibilities	A list of responsible operations personnel with stormwater responsibilities was updated.	Continue to record names and keep running count of City employees who receive training.
		Commissioner/DPW	(iii) Develop and implement training protocols that are applicable to operations	The Good Housekeeping Manual was placed on the city's intranet site.	Completed.
		Commissioner/DPW	(iv) Record number of facility personnel who complete inspections on an annual basis	90 facilities were completed.	Number of good housekeeping inspections completed by facility personnel on an annual basis.
		Commissioner/DPW	(v) Record number of facilities that have initial good housekeeping inspections conducted	Approximately 54 park facilities had initial inspections.	Record additional facilities inspected.

			(vi) Record the number of municipal facility site plans updated, including structural controls based upon initial site visits.	There were no GIS updates based upon the initial inspections. This work will be done in Year 5.	Municipal facility site plans will be updated based upon revised information from the initial site inspections.
6.b	Maintain Strong Operations & Maintenance Program to Reduce Pollutants from Operations	Commissioner/DPW	(i) Review operations and maintenance programs	There were no new activities identified at the inspected facilities.	Record new activities at facilities should be noted and applicable BMPs implemented.
		Commissioner/DPW	(ii) Identify municipal facilities in separated areas and identify structural controls	City facilities in separated and combined areas were updated and identified (see Appendix 6).	Incorporate facility inspection drainage findings into the City's GIS system. Work to provide updated facility maps for staff (refer to 6.a. (vi) above.
		Commissioner/DPW	(iii) Document inspections procedures and maintenance schedules in a procedures manual	17 requests were tracked for catch basin cleaning.	The DPW will perform requested parking lot sweeping and catch basin cleaning at City-owned facilities that request maintenance operations.
		Commissioner/DPW	(iv) Develop inspections procedures and maintenance schedules for long term structural controls	143 work orders were tracked for catch basin maintenance/repair in the Cambridge Request System of which 61 were closed (see Appendix 6).	The DPW will keep track of the number and type of drainage system work orders completed, as recorded in the Cambridge Request System.
		Commissioner/DPW	(v) Record percentage of City catch basins cleaned	629 catch basins cleaned (approximately 16%)	Keep record of City catch basins cleaned annually.

		Commissioner/DPW	(vi) Record tons of street sweepings collected	1,505.87 tons	Keep record of tons of street sweepings collected annually.
		Commissioner/DPW	(vii) Record tons of waste/recycling collected	12,758 tons of recycled material	Keep record of tons of waste and recycling collected annually.
		Commissioner/DPW	(viii) Record number of new trees planted	Approximately 200.	Keep record of new trees planted.
		Commissioner/DPW	(ix) Record number of public structural controls constructed/repaired.	Refer to information provided below under "Additional Information"	Keep record of public structural controls constructed or repaired.

MCM #6. Additional information

- Last year the Department of Public Works began a pilot program using vacuum sweepers to supplement the existing program of mechanical sweepers. Through the month of November two vacuum sweepers were sent out behind the mechanical sweepers on a daily basis in an effort to see what volume of fine material was being left on the roadway after mechanical sweepers had made a first pass. Visual inspections were done throughout the month and the program resulted in a significant amount of fines being removed. The entire city was swept once using this program.

- In public construction projects DPW has constructed the following stormwater best management practices (BMPs)
  - number of illicit connections removed = 4
  - number of new catch basins with 6' deep sumps and hoods installed = 114 [(21) FY07 Remedial, (12) Chapter 90, (65) Cambridgeport Roadways, (10) Harvard Square, (4) 238 Broadway, (2) Gore Street Park]
  - number of deep sump drainage manholes = 5 [(2) 238 Broadway, (1) Remedial, (1) Cambridgeport Roadways, (1) Harvard Square]
  - number of catch basins retrofitted with a hood = 4 [(3) 238 Broadway, (1) Gore Street Park]

- number of curb markers installed = 88 [(3) 238 Broadway, (0) Harvard Square, (65) Cambridgeport Roadways, and (12) Chapter 90.
- number of new grit pits (deep sump DMH) = 6 [(1) Cambridgeport Roadways, (3) 238 Broadway, (1) Harvard Square, and (1) Gore Street Park
- Linear Feet of combined sewer separated = 1625 (Cambridgeport Roadways)
- Number of Common Manholes removed = 8 (Cambridgeport Roadways)

- Additional maintenance activities were performed on stormwater drainage systems including:
  - Pump Station maintenance
    - Stormwater pump station inspected = 14
    - New stormwater pumps installed = 2 (Yerxa Underpass)
    - Pump station chambers cleaned = 4 (29%)
    - Pump station sump manholes cleaned = 4 (100%)
    - Discharge line check valves cleaned = 8
  - Storm drain cleaned and televised = 24,900 LF

Part IV. Summary of Information Collected and Analyzed

- See Appendix 3 for the results of water quality sampling at Alewife Brook, Charles River and Fresh Pond from April 2005 through March 2006 and their associated summary of results.
  - Alewife Brook samples from May 18, 2006, July 27, 2006, November 07, 2006 and February 18, 2007.
  - Charles River samples from July 27, 2006 and February 18, 2007.
  - Additional Alewife Brook and Charles River samples from April 10 and 11, 2007 (one sample at each location).
  - Little Fresh Pond samples from January 19, 2006, June 22, 2006, August 10, 2006, October 17, 2006 and January 22, 2007..
  - Oil and Grease samples from May 0, 2006
  - Charles River Hot Spot (dry and wet weather) monitoring by Roger Frymire on June 15, 2006, June 21, 2006, August 16, 2006 and October 18, 2006.
  - Mystic Monitoring Network "Hot Spot" Sampling Results for Mystic River Watershed on January 31, 2006, June 07, 2006, June 20, 2006 and October 24, 2006.

Part V. Program Outputs & Accomplishments (OPTIONAL)

(Since beginning of permit coverage unless specified otherwise by a **, which indicates response is for period covering April 1, 2006 through March 31, 2007)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	Y
Annual program budget/expenditures **	($)	
Total program expenditures since beginning of permit coverage	($)	
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	100% residents
Stormwater management committee established	(y/n)	N
Stream teams established or supported	(# or y/n)	1
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	Y
Shoreline cleaned since beginning of permit coverage	(mi.)	
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	3
▪ community participation **	(# or %)	1078 vehicles
▪ material collected **	(tons or gal)	34.95 tons
School curricula implemented	(y/n)	

Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	Adopted
Regulatory Mechanism Status (indicate with "X")					
▪ Illicit Discharge Detection & Elimination		X			
▪ Erosion & Sediment Control		X			
▪ Post-Development Stormwater Management		X			
Accompanying Regulation Status (indicate with "X")					
▪ Illicit Discharge Detection & Elimination				X	
▪ Erosion & Sediment Control				X	
▪ Post-Development Stormwater Management				X	

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	100%
Estimated or actual number of outfalls	(#)	32
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	95%
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	100%
Outfalls inspected/screened **	(# or %)	
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	100%
Illicit discharges identified **	(#)	4
Illicit discharges identified (Since beginning of permit coverage)	(#)	14
Illicit connections removed **	(#); and (est. gpd)	4
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	14
% of population on sewer	(%)	99.9%

% of population on septic systems	(%)	.1%

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	6
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	100%
Site inspections completed **	(# or %)	100%
Tickets/Stop work orders issued **	(# or %)	0
Fines collected **	(# and $)	0
Complaints/concerns received from public **	(#)	5

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100%
Site inspections (for proper BMP installation & operation) completed **	(# or %)	100%
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	Y
Low-impact development (LID) practices permitted and encouraged	(y/n)	Y

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	0.5 times/year
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	0.5 times/year
Qty of structures cleaned **	(#)	629
Qty. of storm drain cleaned **	(%, LF or mi.)	18,000 LF
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	450 tons
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Landfill

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	($)	$250,000
• Hourly or per basin contract rate **	($/hr or $ per basin)	$120/basin
• Disposal cost**	($)	$85/ton
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	2
• Vacuum truck(s) owned/leased	(#)	2
• Vacuum trucks specified in contracts	(y/n)	N
• % Structures cleaned with clam shells **	(%)	95%
• % Structures cleaned with vactor **	(%)	5%

	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	10 times/yr
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	Approximately daily
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	1505.87 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	landfill
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	($)	$293,000 (contract only)
• Hourly or lane mile contract rate **	($/hr. or ln mi.)	$90/hour/sweeper
• Disposal cost**	($)	$20/ton
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	2
• Vacuum street sweepers owned/leased	(#)	2
• Vacuum street sweepers specified in contracts	(y/n)	N
• % Roads swept with rotary brush sweepers **	%	100
• % Roads swept with vacuum sweepers **	%	100

Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	IPM followed – only organic fertilizers used
▪ Herbicides	(lbs. or %)	NA
▪ Pesticides	(lbs. or %)	NA
Integrated Pest Management (IPM) Practices Implemented	(y/n)	Y

	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	80% 0 20% 0 0 0 0
Pre-wetting techniques utilized **	(y/n or %)	Y
Manual control spreaders used **	(y/n or %)	Y (100%)
Zero-velocity spreaders used **	(y/n or %)	N
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	100% reduction
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100%
Storage shed(s) in design or under construction	(y/n or #)	N
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	Y

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	1
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	Y
• Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	