

**Municipality/Organization: VA Central Western Massachusetts
Healthcare System (formerly Northampton VA Medical Center)**

EPA NPDES Permit Number: MAR042026

MassDEP Transmittal Number: W-041170

**Annual Report Number Year 15
& Reporting Period: April 1, 2017 – March 31, 2018**

NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2018)

Part I. General Information

Contact Person: Robert E. Michalik

Title: Environmental Protection
Specialist / GEMS Program
Manager

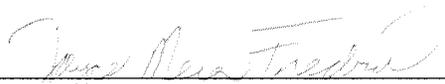
Telephone #: (413) 584-4040 ext.2330

Email: Robert.Michalik@va.gov

Mailing Address: 421 North Main Street, Leeds, MA 01053-9764

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: John P. Collins

Title: Director

Date: April 28, 2018

Part II. Self-Assessment

In March 2005, the Veterans Administration (VA) issued a directive which requires the Veterans Health Administration (VHA) and other VA Administrations and Staff Offices develop governing environmental policy and appropriate guidance for the development and implementation of Environmental Management Systems.

Subsequently the VHA implemented the Green Environmental Management System (GEMS) program, which provides a systematic framework for VA medical centers to manage their environmental "footprint," (i.e., the environmental impact associated with the operation of facilities and delivery of services). When implemented as part of the overall management system of a VA medical center, GEMS provide a set of processes and practices that enables a VA medical center to:

- (1) Identify and address the impacts that the VA medical center's work has on the environment;
- (2) Evaluate how environmental programs are managed;
- (3) Ensure compliance with applicable environmental requirements;
- (4) Determine opportunities for further and continual improvement;
- (5) Manage environmental responsibilities in a proactive manner and pay greater attention to environmental regulatory responsibilities;
- (6) Integrate its environmental program with organizational structure, responsibilities, facility planning activities, work practices and processes, organizational goals, operations, and resource allocation;
- (7) Prevent pollution and conserve resources;
- (8) Enhance its image with regulators, patients, the public, and stakeholder groups.

The systematic approach of GEMS allows VA medical centers to better focus on implementation and integration of environmental management programs and take a more inclusive and proactive view of environmental protection. The VA Central Western Massachusetts Healthcare System has implemented a GEMS program under the direction of its GEMS Program Manager. During the first term of the MS4 permit (consisting of Years 1 thru 5) focus of the VA CWM SWMP was evaluation of the implementation and effectiveness of Best Management Practices (BMPs) as described in the VAMC Storm Water Management Plan to help ensure implementation of the VA CWM SWMP by end of Permit Year 5. This Annual Report summarizes on-going progress in continual improvement for the monitoring and measuring of goals and BMPs in the VAMC SWMP during Permit Year 15.

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
1.3.1 Revised	Public Education Materials	GEMS Coordinator	<p>Develop a stormwater section for the Patient Handbook.</p> <hr/> <p>Communicate stormwater awareness to VA CWM employees through electronic publications on the intranet webpage.</p> <p>Communicate stormwater awareness to patients, visitors, and on-site contractors through hard copy publications.</p>	<p>Continued to communicate annual stormwater awareness to various stakeholders (employees, patients, visitors).</p> <p>Communicated stormwater awareness verbally to on-site contractors at pre-construction meetings.</p> <p>Communicated the need for on-site contractors to ensure disturbed areas are returned to pre-development hydrology.</p>	<p>Continue with periodic updates to the community through both electronic and hard copy media.</p> <p>Develop a Stormwater Management Awareness Brochure. Ensure this brochure will be provided to all construction contractors working on-site at the Medical Center when picking up their Government Identification Badges.</p>
1.3.2	Training Programs	GEMS Coordinator	Stormwater awareness topics have been incorporated into annual Oil SPCC training for VA CWM employees.	Presentation of comprehensive stormwater training that includes assessment of BMPs and lessons learned was effective in raising awareness in regards to preventing and eliminating illicit discharges.	Continue with annual presentation of comprehensive SWMP training incorporating BMPs and lessons learned.

Revised			Present comprehensive stormwater training in addition to incorporation of stormwater awareness topics in other environmental program trainings.	<p>Comprehensive Stormwater Management Training Power-Point presentation, accessible by all VA CWM employees has been uploaded to the Medical Center GEMS Manual intranet webpage.</p> <p>Coordinated EPA sponsored Rain Garden Training and subsequent Rain Garden installation.</p>	<p>Stormwater Management Brochure to be developed will be distributed during all SWMP Trainings. GEMS Coordinator will ensure this brochure is also distributed during GEMS Training to all New Employees during New Employee Orientation (N.E.O.).</p> <p>Ensure Comprehensive Stormwater Management Training Power-Point presentation located at the Medical Center GEMS Manual intranet webpage is current and up-to-date, as this provides a readily accessible.</p> <p>VA CWM coordinated SWMP development training with Woodard & Curran to export newly developed regulations to Facility Management Employees (Engineering, Grounds Department, FMS M&O Supervisor.</p>
1.3.3	Storm Drain Identification Program	GEMS Coordinator	Identify and mark all stormwater catch basins in the VA CWM MS4.	On-going seasonal snow-plowing activities continue to be a concern for a small percentage of damaged/missing Drains to River medallions.	Continue with on-going inspection and replacement of damaged or missing medallions (as needed).
Revised					Ensure the identification and subsequent marking of all stormwater catch basins continue as an integral part of the Medical Center's Stormwater Management Program.
Revised					

1a. Additions

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2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
2.3.1	Annual “Clean the Stream” Program	Not Assigned	Volunteers help clean and maintain the stormwater collection system.	N/A - VA CWM anticipated recruiting volunteers to help the VA CWM to “Clean the Stream” on an annual basis. This would be an annual one day event to raise awareness by coordinating volunteers to walk the facility outfalls and ponds to remove debris, and raise awareness about the impact of facility operations on the surrounding environment. Volunteer turnout for the event during Permit Year 1 was very poor and due to ongoing maintenance and upkeep by the Grounds Department, there was very little debris to remove. Evaluation of this BMP in Permit Year 2 determined that it offers minimal benefit to the overall implementation and it has been discontinued.	No activities planned as BMP discontinued after Permit Year 2.
Revised	<i>This BMP was discontinued.</i>	N/A	N/A		
2.3.2	Partner/Support the City of Northampton	GEMS Coordinator	Establish and maintain communication with the City of Northampton Stormwater Program Coordinator.	During Permit Year 15 VA CWM continued to maintain regular communication with Mr. Douglas McDonald, Stormwater Coordinator with the city of Northampton.	Continue to maintain and broaden the inter-municipal relationship between the VA CWM and the City of Northampton.
Revised					
2.3.3	Call Center/Suggestion Box	GEMS Coordinator	Set up a designated telephone extension with a voice mailbox.	During Report Year 15 VA CWM continued to operate a designated telephone extension to receive any questions or concerns related to Stormwater. Stormwater Awareness was also communicated to employees on VA CWM intranet and in emails to all employees.	Continue to inform employees and the public about VA CWM designated telephone extension with voice mailbox for receiving stormwater related concerns or questions.
Revised					

Revised					
Revised					
Revised					

2a. Additions

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
3.4.1	Storm Drain Map	Facilities Management Program	Comprehensive AutoCAD map of the drainage system identifying all drainage structures, connections, and outfalls	The map of the facility's stormwater drainage system developed during Permit Year 1 will be amended to show changes to the drainage structures, connections and outfalls during Permit Year 15.	Continue with an annual review of storm drain map of drainage system.
Revised					Ensure the identification and subsequent marking of all stormwater catch basins continue as an integral part of the Medical Center's Stormwater Management Program. Incorporate all changes into an AutoCAD and Web GIS map of the drainage system identifying all drainage structures, connections, and outfalls.
3.4.2	Stormwater Policy	GEMS Coordinator	Implement a VA CWM policy that describes potential non-stormwater discharges and prohibitions.	During Report Year 15 VA CWM reviewed its published stormwater policy that was issued during Permit Year 2. Because of anticipated new 5 year permit to be forth coming from EPA, no changes were made to the facility's Stormwater Management Policy.	VA CWM contracted with Woodard & Curran to provide a comprehensive revised Stormwater Management Plan for MS4s. VA CWM will revise its Stormwater Management Plan & Policy to reflect all new EPA / MA Small MS4 stormwater requirements.
Revised					

3.4.3	Illicit Discharge Detection Program	GEMS Coordinator / Facilities Management Program	Conduct quarterly compliance inspections of the system outfalls to identify possible cross connections through dry weather flow.	During Permit Year 15 documentation of catch basin and outfall inspections showed no illicit discharges. All catch basin were inspected as required and documented.	Revise catch basin inspection form to reflect annual compliance inspections. Continue with annual training for Medical Center (Grounds Department) personnel performing illicit discharge inspections during “dry” and “wet” weather conditions, and document the training.
Revised			Because no discharges were observed during Permit Years 1 through 8, outfall inspections have been reduced to a frequency of three (3) times annually for “wet” weather and (3) times annually for “dry” weather. Outfall inspections will occur during the Spring, Summer, and Fall.	All outfalls were inspected as required and documented accordingly. Documentation includes “dry” weather and “wet” weather inspections. Outfall inspections occurred during the Spring, Summer, and Fall.	Continue with on-going periodic monitoring of catch basins and outfalls. Inspection sheets to ensure inspections occur as required by Medical Center Policy.
3.4.4	Illicit Discharge Elimination Program	GEMS Coordinator / Facilities Management Program	When illicit discharges are detected the VA CWM will work to expeditiously to correct the problem.	No illicit discharges were detected were detected during Permit Year 15.	Continue to monitor for illicit discharges with timely address of any identified discharges.
Revised					
3.4.5	Education Program	GEMS Coordinator	Educate VA CWM employees, patients, visitors, and on-site contractors about preventing and eliminating illicit discharges.	During Permit Year 15, GEMS Coordinator presented comprehensive stormwater management training to all Facilities Management and Sanitation employees at the VA CWM. Training included information about illicit discharges.	Continue to present comprehensive SWMP training incorporating the revised BMPs and lessons learned to employees who work at or near catch basins and outfalls.

Revised					<p>Develop a Stormwater Management Awareness Brochure. Ensure this brochure will be provided to all construction contractors working on-site at the Medical Center when picking up their Government Identification Badges.</p> <p>Develop a Stormwater Management Awareness Brochure. Ensure this brochure will be provided to all New Employees during New Employee Orientation (N.E.O.).</p> <p>Ensure Comprehensive Stormwater Management Training Power-Point presentation located at the Medical Center GEMS Manual intranet webpage is current and up-to-date.</p>
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3a. Additions

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
4.2.1	Regulatory Controls	Facilities Management Program	Erosion and sediment control specifications.	Erosion and sedimentation control techniques are now being incorporated into all construction projects occurring at the Medical Center.	Continue with inclusion of erosion and sedimentation control techniques in construction, demolition and renovation projects, regardless of total land disturbance.
Revised				Conducted preliminary construction project review assessment with regard to the Energy Independence and Security Act of 2007, Section 438. This Act requires Federal Facilities disturbing more than 5,000 square feet of soil to “preserve” or “restore” hydrology of the construction site. Ensure all future construction projects disturbing more than 5,000 square feet of soil are assessed for this requirement.	Conduct preliminary construction project review assessment with regard to the Energy Independence and Security Act of 2007, Section 438. This Act requires Federal Facilities disturbing more than 5,000 square feet of soil to “preserve” or “restore” hydrology of the construction site. Ensure all future construction projects disturbing more than 5,000 square feet of soil are assessed for this requirement and documented.
4.2.2	Review and Site Inspection Procedures	GEMS Coordinator	Periodic inspections of erosion and sediment control structures during construction projects.	Formal inspections of construction site(s) occurred during Permit Year 15. An initial inspection was conducted prior to the commencement of construction. Periodic inspections occurred at least every 7 days after construction commenced and within 24 hours of a storm event of 0.5” or more. A final inspection occurred once the construction site had undergone final stabilization and all temporary sediment controls were removed.	VA CWM Stormwater Management Policy will be reviewed and revised in conformance with all new regulations as necessary to require documentation of site inspections for erosion and sediment runoff from construction activities.
Revised					

4.2.3	Enforcement Procedures	GEMS Coordinator / Facilities Management Program	Contractor accountability and immediate correction of inadequate erosion and sediment control structures	Enforcement of contract specifications through Facilities Management Program Director, Engineering and VA CWM Contracting Officer continued throughout 2017.	Continue to enforce contract specifications through Facilities Management Program Director, Engineering and the VA CWM Contracting Officer.
Revised					
4.2.4	Procedures for Handling Public Comment	GEMS Coordinator / Facilities Management Program	Set up a designated telephone extension with a voice mailbox.	The GEMS Coordinator is the designated individual responsible for implementation of the SWMP. As indicated on the intranet webpage, interested parties may communicate their suggestions, ideas, or observations at anytime directly to the GEMS Coordinator.	Continue to publish information informing employees, visitors and other stakeholders of facility stormwater contact person and how to report stormwater related questions and concerns to the VA CWM.
Revised					

4a. Additions

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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
5.3.1	Structural Stormwater Controls	GEMS Coordinator / Facilities Management Program	Identify structural controls in design documents and contract specifications	During Permit Years 1 thru 15 VA CWM has not conducted any construction projects disturbing land greater than one acre and post structural stormwater controls have not been necessary.	Continue to evaluate all proposed construction projects for potential implementation of structural controls in design documents and contract specifications.
Revised					
5.3.2	Stormwater Policy	GEMS Coordinator	Stormwater policy should focus on preserving surface water quality.	Medical Center's Stormwater policy continues to support preservation of surface water quality.	Continue with annual review of VA CWM Stormwater policy with the goal of publishing new SWMP should new permit requirements be required for the second 5 year permit period by the EPA.
Revised					
5.3.3	Planning Strategies	GEMS Coordinator / Facilities Management Program	Develop planning strategies that focus on avoiding sensitive areas for development.	During Permit Years 1 thru 15 VA CWM has not conducted any construction projects disturbing land greater than one acre and post structural stormwater controls have not been necessary.	Continue with evaluation of proposed construction projects for potential impact to sensitive areas of the facility.
Revised					
Revised					

5a. Additions

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 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
6.3.1	Employee Training Program	GEMS Coordinator	Stormwater awareness topics have been incorporated into a comprehensive Stormwater Management Training for those employees who work at or near stormwater catch basins and outfalls.	Presentation of stormwater training in conjunction with required annual spill prevention and safety training has been very effective in raising awareness about illicit discharges. During Permit Year 15 GEMS conducted training on comprehensive stormwater management that included review and assessment of all BMPs. This training has been exported to all FMS Employees.	Continue with annual presentation of comprehensive SWMP training, incorporating assessment of BMPs and lessons learned.
Revised					
6.3.2	Waste Oil Recycling	Grounds Department	Provide designated collection areas for proper management and disposal of waste oil and used cooking oil generated at VA CWM.	Waste oil and used cooking oil that is generated throughout the VA CWM is collected, managed, and recycled. Waste oil that is not recycled is stored, managed, and disposed of as hazardous waste.	Continue to maintain program and monitor program to ensure oil does not enter stormwater catch basins.

Revised	Oil-Water Separator at Motor Pool	Motor Pool / Grounds Department		Medical Center is still prohibiting contractors from shipping waste oil off-site. All waste oil generated by contractors via construction work is collected, managed, and disposed of as MA hazardous waste. All waste oil generated by contractors is shipped off-site via hazardous waste manifests. Environmental Protection Specialist / GEMS Program Manager signs all manifests as Generator on behalf of VA CWM.	Continue to ensure all waste oil generated by contractors via construction projects is collected, stored, and disposed of as MA hazardous waste using a hazardous waste manifest.
6.3.3	Catch Basin Cleaning Program	Grounds Department	Reduce the frequency of catch basin cleaning.	Comprehensive catch basin cleaning was conducted by a contractor in July 2008. On-going inspection of catch basins does not show cleaning required at this time. Annual catch basins inspection occurred during Permit Year 15.	Revise catch basin inspection form to reflect inspection frequency. Continue with an annual review of storm drain map of drainage system. Ensure the identification and subsequent marking of all stormwater catch basins continue as an integral part of the Medical Center's Road-repaving Project currently scheduled 2015-2017. Incorporate all changes into an AutoCAD map of the drainage system identifying all drainage structures, connections, and outfalls. Continue annual monitoring of catch basins and outfalls.
Revised					
6.3.4	Street Sweeping Program	Grounds Department	Schedule street sweeping based on priority areas.	During Permit Years 3 thru 5 VA CWM has significantly reduced the amount of sand used during winter road	Continue to maintain Street Sweeping and Vacuuming program and document the results.

Revised				<p>maintenance. This has resulted in a reduction of priority areas and the ability to maintain the system through a single annual facility-wide street sweeping program with additional street sweepings subject to intense weather conditions causing increase debris on VA CWM roadways. Street sweepings and street leaf vacuuming were documented throughout 2015 and continue to be documented.</p>	
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6a. Additions

6.3.5	Rain / Healing Garden Installation Program	GEMS Program	Design and install at least one Rain / Healing Garden Annually	<p>VA CWM is committed to install one (1) Rain or Healing Garden every year. In September 2011, VA CWM hosted EPA sponsored Rain Garden Training Program. This program is part of the EPA "Soak it Up" Program. Rain and Healing Gardens act as a mechanism to retain stormwater on site, thereby minimizing the potential for stormwater runoff impact.</p>	<p>VA CWM continues to add at least one Rain / Healing Garden or catchment Annually. Maintain existing Rain Garden locations to ensure effective stormwater run-off control and prevention.</p>
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7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities
Revised					

7a. Additions

7b. WLA Assessment

Part IV. Summary of Information Collected and Analyzed

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, 2016 through March 31, 2017)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	
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 %)	
Stormwater management committee established	(y/n)	
Stream teams established or supported	(# or y/n)	
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	
Shoreline cleaned since beginning of permit coverage	(mi.)	
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	
▪ community participation **	(# or %)	
▪ material collected **	(tons or gal)	
School curricula implemented	(y/n)	

Legal/Regulatory

In Place

Reviewing

Draft

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

Mapping and Illicit Discharges

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

Construction

(Preferred Units) Response

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

Post-Development Stormwater Management

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

Operations and Maintenance

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

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	
• Disposal cost**	(\$)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	
• Vacuum truck(s) owned/leased	(#)	
• Vacuum trucks specified in contracts	(y/n)	
• % Structures cleaned with clam shells **	(%)	
• % Structures cleaned with vector **	(%)	

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

Reduction (since beginning of permit coverage) in application on public land of:
 (“N/A” = never used; “100%” = elimination)

▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	
Integrated Pest Management (IPM) Practices Implemented	(y/n)	

	(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	
Pre-wetting techniques utilized **	(y/n or %)	
Manual control spreaders used **	(y/n or %)	
Zero-velocity spreaders used **	(y/n or %)	
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 %)	
% of salt/chemical pile(s) covered in storage shed(s)	(%)	
Storage shed(s) in design or under construction	(y/n or #)	
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	

• Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	
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