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**Municipality/Organization:** **Town of Ludlow**

**EPA NPDES Permit Number:** **MA041014**

**MaDEP Transmittal Number:** **W-036097**

**Annual Report Number**
**& Reporting Period: No. 4: May 1, 2006-April 30, 2007**

# NPDES PII Small MS4 General Permit Annual Report

## Part I. General Information

Contact Person: Paul Dzubek Title: Director 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: Thomas Haluch

Printed Name: Thomas Haluch

Title: Chairman – Ludlow Board of Public Works

Date: 4/24/07

## Part II. Self-Assessment

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

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

The Town of Ludlow received a letter August 18, 2006 from David M. Webster, Industrial Branch Chief which detailed the compliance status of the Town of Ludlow. Below is a summary of Ludlow's progress towards achieving full implementation of our Stormwater Management Program.

### Regulatory Mechanisms

The Town of Ludlow adopted a General Stormwater Bylaw at the October 2005 Special Town Meeting, Article 18, amended at the October 2006 Special Town Meeting, Article 24. The Bylaw provides mechanisms that 1) prohibit non-allowable, non-stormwater discharges to MS4s; 2) require sediment and erosion control at construction sites; and 3) control post-construction stormwater runoff from development or redeveloped parcels. A copy of the adopted bylaw is attached to this annual report.

### Illicit Discharge Programs

As outlined in Permit Part II.B.3., the Town of Ludlow has nearly finished the development of its storm sewer system map (85%) and, as mentioned above, Ludlow adopted regulatory mechanisms to prohibit non-stormwater discharges to its MS4. However, Ludlow has yet to complete the required illicit discharge detection and elimination plan. Development and implementation of said plan will be completed in the final permitting year.

### Outfall Mapping Requirement

Prior to the issuance of the NDPES Phase II regulation, the Town of Ludlow had its entire drainage system mapped on hard copy form.

This base map was developed in 1987 and has been updated manually in subsequent years. The Town of Ludlow obtained a grant in 2003 through the Pioneer Valley Planning Commission (PVPC) to map the stormwater management system located within the urbanized area. Ludlow began to incorporate/cross reference the hard copy with the electronic map provided by PVPC, in addition to adding those stormwater management systems constructed after 1987. In October 2005, the computer server that contained the electronic data of the drainage system crashed and all data was lost. At this time the Department of Public Works is proceeding with the recreation of the electronic data. It is anticipated that the final stormwater management map will be completed in compliance by the end of Permit Year V.

Certification of Eligibility – Endangered Species Act (ESA) and National Historic Preservation Act (NHPA)

In its Permit Year II Annual Report, the Town of Ludlow indicated it was in compliance with the above referenced certifications. Enclosed in the annual report, the Town of Ludlow is submitting a letter from received from the Commonwealth of Massachusetts Division of Fisheries & Wildlife dated March 17, 2005. As stated in the letter, there are "no current records of federally listed species occurring in the Town of Luldow." Therefore the Town of Ludlow meets eligibility criterion "A", as detail in the Phase II permit requirements.

During the permit year May 1 2004 to April 30, 2005 the Town of Ludlow reported it had identified two properties listed on the National Register of Historic Places, Ludlow Center Historic District (located along Church, Center & Booth Streets) and Ludlow Village Historic District (Bounded roughly by Windsor, Sewall, & State Streets and the Chicopee River, and crossing said river above Red Bridge Road). The Town of Ludlow's MS4 is located within the Ludlow Village Historic District. At this time, the only BMPs that could be implemented within said district would be as outlined in Item 6f below. The work required with BMP 6f would be limited to within the paved area on the roadway and areas currently maintained within the public right of way. As stated in Ludlow's permit year II annual report a written agreement will be made with the appropriate State Historical Preservation Officer which will outline the measures the applicant will follow to mitigate or prevent adverse effects.

Discharges into Water Quality Impaired Waters

According to the *Massachusetts Year 2004 Integrated List of Waters*, published by MassDEP, water bodies is Ludlow are categorized as the following: Category 2 Haviland Pond, Red Bridge Impoundment, and Springfield Reservoir; Category 3 Harris Pond and Murphy Pond; Category 4a Minnechoag Pond; and Category 5 Alden Pond and Chicopee River. In addition, Appendix 1 lists Minnechoag Pond as the only water body covered by a TMDL. Currently the MS4 operated by the Town of Ludlow discharge into Murphy Pond, Minnechoag Pond, and the Chicopee River. The Town of Ludlow received a s319 grant from the MassDEP to reduce primary pollutants for a section of MS4 discharging to the Chicopee River. Currently the design of said BMP project is being conducted, with construction expected either Fall 2007 or Spring 2008.

Discharges into Waters with Approved Total maximum Daily Load Allocations

The Town of Ludlow's MS4 discharges to Minnechoag Pond for which a TMDL has been approved. Ludlow currently has design plans completed for the reconstruction of a portion of the drainage system discharging to Minnechoag Pond. Construction and implementation of this BMP is scheduled for Spring 2008.

Stressed Basins

According to the *Stressed Basins in Massachusetts* report published by the Massachusetts Water Resources Commission, the Town of Ludlow is located with in a Low Stress Basin. Therefore, the Town of Ludlow is not required to address the annual loss of recharge to groundwater. However, the Town of Ludlow has requires development and redevelopment project to maximize groundwater recharge through the regulator mechanisms adopted by the Town Meeting.

Measurable Goals

As discussed above, most of Ludlow's original measurable goals have been met prior to the expiration permit. However, some BMPs added during the course of implementation of the Stormwater Management Plan, have not met the measurable goals as a result of financial constraints.

Summary

The Town of Ludlow has nearly completed all activities as presented in the Original Notice of Intent for the implementation of Stormwater Management Program. Over the past four permit years, Ludlow has also added Best Management Practices that provide further resource protection. However, in Permit Year IV (May 1, 2006 thru April 30, 2007), some BMPs which were added after the initial NOI was filed were not able to be accomplished. Financial limitations did not allow all activities to be completed. Despite some BMPs not being completed, the Town of Luldow is in compliance with its Phase II Stormwater Management Program.

## 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 4 (Reliance on non-municipal partners indicated, if any) | Planned Activities – Permit Year 5 |
|---|---|---|---|---|---|
| 1a. Revised | Create website links | DPW | Post links to EPA & DEP stormwater information | Links to DEP and EPA Stormwater information posted on Town of Ludlow website and DPW website. | Update links as necessary and continue EPA and MA DEP stormwater information links. |
| 1b. Revised | Make Stormwater Management Plan available. | DPW | Have Plan copies available at Town Hall, Library & DPW | The plan is available. | Keep copies of the plan available & update as necessary. |
| 1c. Revised | Use Arbor Day for publicity. | DPW | Distribute stormwater information | A proclamation with a stormwater message was published and posted. (Approximately 60 students received information on 4/28.) | Use this annual event for distribution of stormwater information.<br><br>Document # of participants. |
| 1d. Revised | Hold a household hazardous waste collection day. | DPW | One collection per year. | A household hazardous waste day was held in September 2006.<br><br>57 Ludlow Residents participated in a regional event in September. | A household hazardous waste collection day is scheduled for September 8, 2007.<br><br>Document # of participants. |
| 1e. Revised | Cable access bulletins. | DPW | Air 4 bulletins per year. | Bulletins aired May, July, September & March | Continue to run bulletin and update with upcoming stormwater related events. |
| 1f. *Revised* | Door hanger Distribution | DPW | Distribute Stormwater Info 1 time/yr<br>*BMP Removed* | Door hangers were not distributed in Permit YR IV. | No activities planned. Door hanger program removed as BMP due to financial constraints. |
| 1g. Revised | Scout Outreach | DPW | Conduct two Informational Meetings per year | Meetings were not able to be coordinated between DPW staff and local scout groups. | Hold at least two informational seminars/meetings with boy scout/girl scout groups during the summer months. Continue information meetings were conducted with two boy scout/cub scout packs per year. |

## 1a. Additions

| | | | | | |
|---|---|---|---|---|---|
| 1j<br>Revised | Regional Public Outreach | DPW | Regional Multi-Media Campaign | See Attachment A "Connecticut River Stormwater Subcommittee (CRSS) Accomplishments for FY 06" and Attachment B "CRSS Progress Report January 1 to December 31, 2006." | Continue participation in CRSS and document outreach materials distributed. |
| Revised | | | | | |

## 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 |
|---|---|---|---|---|---|
| 2a. Revised | Form a stormwater committee. | Selectmen | Begin meeting. | Stormwater Committee held three meetings in YR IV to review bylaw implementation. | Continue to hold regular committee meetings. Post meeting minutes on Town of Ludlow website. |
| 2b. Revised | Develop stormwater bylaws. | Stormwater Committee | Public hearing held. | Public meetings held September 2006 for revisions & additional to Ludlow Stormwater Bylaw. | Hold public hearings, as needed, to revise/update general bylaw for future Annual Town Meeting. |
| 2c. Revised | Develop a catch basin stenciling program. | DPW | Number of catch basins selected. | Stenciling program developed. Approximately 500 catch basins stenciled. | Continue stenciling program and recruit volunteers. |
| 2d. Revised | Town Meeting consideration of Bylaws. | Selectmen | Recorded vote of Town Meeting. | Stormwater Management Bylaw adopted Article 18 October 2005 Special Town Meeting. | Revise/Update bylaw as necessary. |
| 2e. Revised | Scout Participation | DPW | Organize Day for Scout Participation | DPW was not able to coordinate Scout Participation Program. | Continue to recruit scout troop(s) to deliver educational materials to community members during scouting activities. |

## 2a. Additions

**No additions at this time.**

## 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 |
|---|---|---|---|---|---|
| 3a. Revised | Draft a drainage system bylaw. | Stormwater Committee | Draft bylaw ready for Town Meeting in year 2. Record Vote | Language added to existing Stormwater Management Bylaw governing penalties illicit discharge connections. Voted passed: Article 24 October 2006 Special Town Meeting | Revise/update bylaw as needed. |
| 3b. Revised | Map the MS4. | DPW | Completed map. | Continue to update map as additional segments are added. Continue field verification and inspection project. | Continue map updates and outfall and receiving water inspections to identify high priority area. |
| 3c. Revised | Accidental Spill Prevention – Sight Distance Improvement | DPW | Reduce one sight distance hazard per year | Second site distance design completed. No construction activities completed in YR III. | Schedule construction.<br><br>Complete design of sight distance improvement for street with greatest traffic volumes and major trucking routes. |
| Revised | | | | | |
| Revised | | | | | |
| Revised | | | | | |

## 3a. Additions

**No additions at this time.**

## 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 |
|---|---|---|---|---|---|
| 4a. | Develop construction site runoff control regulations. | Stormwater Committee | Interdepartmental policy in place | General Stormwater Bylaw adopted in October 2005 Special Town Meeting, Article 18. Encompasses development construction activities. | Revise/update bylaw to include more stringent enforcement options for violations. |
| Revised | | | | | |
| 4b. | Multi-Departmental Pre-Project Release Form | Building Department | Institute Multi-Department Release Form | Draft form adopted in October 2005. Use for every development project in Ludlow. | Revise/update development form as needed. |
| Revised | | | | | |
| 4c. | Pre-Construction Stormwater Permit | Planning Department | Record number of Permits Filed | Stormwater Permit process developed and implemented October 2005. Nine permits filed and reviewed since implementation | Continue to review permits and site plans for adequate stormwater controls for any constriction activity. |
| Revised | | As of October 2006, DPW is responsible for issuing permits | 18 Permit Waivers filed and approved<br>5 Permits Issued | | |
| | | | | | |
| Revised | | | | | |
| | | | | | |
| Revised | | | | | |
| | | | | | |
| Revised | | | | | |

## 4a. Additions

**No additions at this time.**

## 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 |
|---|---|---|---|---|---|
| 5a. | Adopt bylaw. | Stormwater Committee | Prepare for Town Meeting. | Revise General Stormwater Bylaw adopted in October 2005. Encompasses development construction activities. | Revise/update bylaw to include more stringent enforcement clauses for violations. |
| Revised | | | | | |
| 5b. | Detention/Retention/Infiltration Basin Inspections | DPW | Inspection Log | Due to budget constraints no activities completed in Permit YR III. | Develop inspection program for all detention, retention, and infiltration basins to ensure proper function during future storm events. |
| Revised | | | | | |
| | | | | | |
| Revised | | | | | |
| | | | | | |
| Revised | | | | | |
| | | | | | |
| Revised | | | | | |

## 5a. Additions

**No additions at this time.**

## 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 4 (Reliance on non-municipal partners indicated, if any) | Planned Activities – Permit Year 5 |
|---|---|---|---|---|---|
| 6a. Revised | Clean catch basins. | DPW | Clean all catch basins once per year. | Catch basins were cleaned. | Catch basins will be cleaned. |
| 6b. Revised | Sweep streets. | DPW | Sweep all streets. | All streets were swept. | All streets will be swept subject to funding. |
| 6b. Revised | Municipal Employee Training Program. | DPW | Institute a Stormwater Awareness Program for all Public Works Employees. | Stormwater awareness training seminar held in June and October 2006. | Continue to conduct at least two stormwater awareness workshops per year for DPW employees. |
| 6c. Revised | Municipal Facility Assessment | DPW | Develop detailed map of all municipal facilities, identify receiving waters, and conduct clean up operations of all facilities. | DPW yard area plan developed. Additional municipal facility mapping in progress. | Continue mapping program for each municipally owned facility. |
| 6d. Revised | Management Education | DPW | Remain up-to-date with current Stormwater policies and regulation. | At least two stormwater seminars attended by all staff. | Attend Stormwater management classes and/or seminars, 2 per year minimum. |
| 6e. Revised | Truck Wash | DPW | Construct Truck Wash facility | Funding not approved thru Capital Improvement Committee in YR IV | Continue to seek fund for constructing of Municipal Truck wash |
| 6f. Revised | Catch Basin Replacement | DPW | Document No. of Catch Basins Replaced | Twelve 12 deep sump catch basins installed, Blanchard Ave, Swan Ave, Loopley St | Replace existing non deep sump, non-hooded catch basin with deep sump and hood catch basins throughout urbanized area. |

## 6a. Additions

**No additions at this time**

## 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 4 (Reliance on non-municipal partners indicated, if any) | Planned Activities – Permit Year 5 |
|---|---|---|---|---|---|
| 7a. | Map drainage to Minnechoag Pond. | DPW | Document drainage to pond & identify all possible sources. | The drainage to Minnechoag Pond has been mapped. | Investigate potential pollutant sources. Develop BMP once sources are identified. |
| Revised | | | | | |
| 7a-1. | Reconstruct drainage system to Minnechoag Pond from East Street. | DPW | Reduce sediment load reaching the pond from a major street via flow from a substantial discharge. | 25% MHD Reviewed of project plans. Town given approval to proceed with 75% design plans. Public Hearing scheduled for May 2006. | Continue Work closely with consultant to design the drainage system to remove sediment/phosphorous loading to Minnechoag Pond. |
| Revised | | | | | |
| | | | | | |
| Revised | | | | | |

### 7a. Additions

**No additions at this time.**

### 7b. WLA Assessment

A TMDL has been issued for Minnechoag Pond for Phosphorus. It is expected that the reconstruction of the drainage system on East Street will dramatically improve the discharge from Ludlow's outfall to the pond. Catch basins on East Street will be reconstructed as off-line elements of the system. This should reduce the amount of phosphorus transported into Minnechoag Pond by reducing the sediment load.

## Part IV. Summary of Information Collected and Analyzed

No significant amount of information has yet been collected.

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

### Programmatic

| | (Preferred Units) | Response |
|---|---|---|
| Stormwater management position created/staffed | (y/n) | No |
| Annual program budget/expenditures ** | ($) | ~60.000 |
| Total program expenditures since beginning of permit coverage | ($) | 170,000 |
| Funding mechanism(s) (General Fund, Enterprise, Utility, etc) | | None |
| | | |

### Education, Involvement, and Training

| | | |
|---|---|---|
| Estimated number of property owners reached by education program(s) | (# or %) | 10,000 |
| Stormwater management committee established | (y/n) | Yes |
| Stream teams established or supported | (# or y/n) | Not established |
| Shoreline clean-up participation or quantity of shoreline miles cleaned ** | (y/n or mi.) | Yes |
| Shoreline cleaned since beginning of permit coverage | (mi.) | 0.25 |
| Household Hazardous Waste Collection Days | | |
| ▪ days sponsored ** | (#) | 1 |
| ▪ community participation ** | (# or %) | 57 households |
| ▪ material collected ** | (tons or gal) | ~2000 gal |
| School curricula implemented | (y/n) | No |
| | | |

**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 | | | | 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 paper<br>25 electronic |
| Estimated or actual number of outfalls | (#) | ~200 |
| System-Wide mapping complete (complete storm sewer infrastructure) | (%) | 85 |
| Mapping method(s) | | |
| ▪ Paper/Mylar | (%) | 100 |
| ▪ CADD | (%) | 25 |
| ▪ GIS | (%) | 25 |
| Outfalls inspected/screened ** | (# or %) | 0 |
| Outfalls inspected/screened (Since beginning of permit coverage) | (# or %) | 0 |
| Illicit discharges identified ** | (#) | 0 |
| Illicit discharges identified (Since beginning of permit coverage) | (#) | 0 |
| Illicit connections removed ** | (# ); and<br>(est. gpd) | 0 |

| | | |
|---|---|---|
| Illicit connections removed (Since beginning of permit coverage) | (#); and (est. gpd) | 0 |
| % of population on sewer | (%) | 60 |
| % of population on septic systems | (%) | 40 |

**Construction**

| | (Preferred Units) | Response |
|---|---|---|
| Number of construction starts (>1-acre) ** | (#) | |
| Estimated percentage of construction starts adequately regulated for erosion and sediment control ** | (%) | 90 |
| Site inspections completed ** | ( %) | 100 |
| Tickets/Stop work orders issued ** | (# ) | 12 |
| Fines collected ** | (# and $) | $500 |
| Complaints/concerns received from public ** | (#) | |
| | | |
| | | |

**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 ** | ( %) | 100 |
| BMP maintenance required through covenants, escrow, deed restrictions, etc. | (y/n) | No |
| Low-impact development (LID) practices permitted and encouraged | (y/n) | No |
| | | |
| | | |

**Operations and Maintenance**

| | | |
|---|---|---|
| Average frequency of catch basin cleaning (non-commercial/non-arterial streets) ** | (times/yr) | 1 |
| Average frequency of catch basin cleaning (commercial/arterial or other critical streets) ** | (times/yr) | 1 |
| Qty of structures cleaned ** | (#) | ~500 |

| | | |
|---|---|---|
| Qty. of storm drain cleaned ** | (%, LF or mi.) | |
| Qty. of screenings/debris removed from storm sewer infrastructure ** | (lbs. or tons) | 1500 cy |
| Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) ** | (location) | Compost |
| Basin Cleaning Costs | | |
| • Annual budget/expenditure (labor & equipment)** | ($) | $27,400 |
| • Hourly or per basin contract rate ** | ($/hr or $ per basin) | $225.50 hr |
| • Disposal cost** | ($) | $7,200 |
| Cleaning Equipment | | |
| • Clam shell truck(s) owned/leased | (#) | 1 |
| • Vacuum truck(s) owned/leased | (#) | 0 |
| • Vacuum trucks specified in contracts | (y/n) | Yes |
| • % Structures cleaned with clam shells ** | (%) | 5 |
| • % Structures cleaned with vactor ** | (%) | 95 |

| | (Preferred Units) | Response |
|---|---|---|
| Average frequency of street sweeping (non-commercial/non-arterial streets) ** | (times/yr) | 1 |
| Average frequency of street sweeping (commercial/arterial or other critical streets) ** | (times/yr) | 1 |
| Qty. of sand/debris collected by sweeping ** | (lbs. or tons) | 850cy |
| Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) ** | (location) | Compost |
| Annual Sweeping Costs | | |
| • Annual budget/expenditure (labor & equipment)** | ($) | ~$36,000 |
| • Hourly or lane mile contract rate ** | ($/hr. or ln mi.) | $225 mile |
| • Disposal cost** | ($) | |
| Sweeping Equipment | | |
| • Rotary brush street sweepers owned/leased | (#) | 1 |
| • Vacuum street sweepers owned/leased | (#) | 0 |
| • Vacuum street sweepers specified in contracts | (y/n) | Yes |

| | | |
|---|---|---|
| • % Roads swept with rotary brush sweepers ** | % | 90 |
| • % Roads swept with vacuum sweepers ** | % | 10 |

| | | |
|---|---|---|
| Reduction (since beginning of permit coverage) in application on public land of:<br>("N/A" = never used; "100%" = elimination) | | |
| ▪ Fertilizers | (lbs. or %) | |
| ▪ Herbicides | (lbs. or %) | |
| ▪ Pesticides | (lbs. or %) | |
| Integrated Pest Management (IPM) Practices Implemented | (y/n) | Y |
| | | |

| | (Preferred Units) | Response |
|---|---|---|
| Average Ratio of Anti-/De-Icing products used **<br><br>(also identify chemicals and ratios used in specific areas, e.g., water supply protection areas) | % NaCl<br>% $CaCl_2$<br>% $MgCl_2$<br>% CMA<br>% Kac<br>% KCl<br>% Sand | 60<br>5<br><br><br><br><br>35 |
| Pre-wetting techniques utilized ** | (y/n or %) | Yes |
| Manual control spreaders used ** | (y/n or %) | Yes |
| Zero-velocity spreaders used ** | (y/n or %) | No |
| 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) | (%) | 100 |
| 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) | Yes |

**Water Supply Protection**

| | | |
|---|---|---|
| Storm water outfalls to public water supplies eliminated or relocated | # or y/n | None |
| Installed or planned treatment BMPs for public drinking water supplies and their protection areas | # or y/n | None |
| • Treatment units induce infiltration within 500-feet of a wellhead protection area | # or y/n | None |