

**Municipality/Organization:** Manchester-by-the-Sea, MA  

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**EPA NPDES Permit Number:** MAR041207  

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**MassDEP Transmittal Number:** X265736  

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**Annual Report Number & Reporting Period:** **Year 12**  
**April 1, 2014 – March 31, 2015**

## **NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2015)**

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

Contact Person: Carol Murray Title: Interim 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: \_\_\_\_\_

Printed Name: Carol Murray - \_\_\_\_\_

Title: Interim Director of Public Works - \_\_\_\_\_

Date: - \_\_\_\_\_

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

The Town of Manchester-by-the-Sea's Public Works Department continues to take the lead on compliance with the Town's Small Municipal Separate Storm Sewer Systems (MS4) Permit. Throughout Permit Year 12, the Town of Manchester-by-the-Sea continued to implement BMPs and make progress meeting requirements of the United States Environmental Protection Agency's (USEPA) 2003 General Permit for Storm Water Discharges from MS4s.

Various stormwater management activities are conducted by Town staff from DPW, Conservation Commission, Building Department, Board of Health, and Planning Board. The Board of Health held its annual household hazardous waste collection day and also hosted a Drug Take-Back day.

The Town has an active Coastal Stream Team, which is a group of local citizens who discuss local environmental issues and focus on projects designed to maintain and improve water cleanliness, quality, and to preserve coastal habitats. The Stream Team conducts numerous outreach and education activities throughout the year, sponsors cleanups, and conducts sampling. As part of the Clean Beaches and Streams program, Salem Sound Coastwatch coordinated with the Stream Team to conduct water quality sampling in Town. Samples were analyzed for Enterococci which are used to detect human pathogens often found in sewage and assess water quality at saltwater beaches.

Operations and Maintenance activities completed by the Town's Highway Department continue to reduce potential for pollution from stormwater. During this period, all catch basins in Town were cleaned, and approximately 20 miles of Town streets were swept. The Town uses catch basin cleaning activities as an opportunity to identify potential illicit discharges.

The Town has reviewed the Draft MS4 General Permit that was published by the USEPA in the Federal Register on September 30, 2014. The Town understands the potential future requirements associated with the draft permit and will continue to await a new final Massachusetts MS4 Permit to determine the level of compliance that will be required in the next Permit cycle.

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

**1. Public Education and Outreach**

| <b>BMP ID #</b> | <b>BMP Description</b>                | <b>Responsible Dept./Person Name</b> | <b>Measurable Goal(s)</b>                  | <b>Progress on Goal(s) – Permit Year 12</b><br>(Reliance on non-municipal partners indicated, if any)  | <b>Planned Activities – Permit Year 13</b>  |
|-----------------|---------------------------------------|--------------------------------------|--|--|---|
| 1.1<br>Revised  | Water Conservation Practice Brochures | DPW                                  | Brochure distribution (goal of over 1,700) | This goal was completed. In Year 12, the Town mailed water conservation brochures with one water bill.   | Continue to provide educational brochures with water bills as the budget allows.  |
| 1.2<br>Revised  | Hold Hazardous Waste Collection       | Board of Health                      | Conduct annual event                       | <p>Goal met. In April 2014 of Year 12 the Board of Health held its annual household hazardous waste collection day.</p> <p>The Town also provides recycling information on the Town website.</p> <p>Manchester-by-the-Sea uses its Town website to provide information on hazardous waste disposal. The website promotes the household waste recycling program and encourages residents to utilize services available at the Transfer Station. The Transfer Station serves as a drop-off location for used oil from residents.</p> <p>The Highway Department recycles its used oil, which is processed regularly by the Transfer Station.</p> <p>Manchester-by-the-Sea participated in a Drug Take-Back program in Year 12, and provided notice of this event locally.</p> | <p>MBTS will continue holding the annual HHW day event, as the budget allows.</p> <p>The Town will continue to update and provide recycling information on the Town website.</p> <p>The Town will continue to participate in Drug Take-Back events.</p> |

|         |   |                              |  |   |  |
|---------|---|------------------------------|--|---|--|
| 1.3     | Stormwater Brochures at Town Hall                                 | DPW/Conservation/Stream Team | Make stormwater related brochures available at Town Hall | Manchester-by-the-Sea continued to make stormwater brochures available in Town Hall. Topics included: The Importance of Streamside Buffers” and “Pet Waste and Bathing Beaches – Guidelines for Pet Owners.”  | Continue to provide accessible brochures and posters.  |
| Revised |   |                              |  |   | Identify and implement alternative information sources for public outreach and evaluate the program.<br><br>Manchester-by-the-Sea will provide outreach materials on the Town’s website and post links to stormwater BMPs and other water quality education resources, including EPA and DEP, on its website. The Town will print a summary sheet of available educational information and make it available at Town Hall. |
| 1.4     | Animal Control Bylaw (Town’s General Bylaws Article X Section 28) | Police/Board of Health       | Enforce Animal Control Bylaw                             | The Animal Control Bylaw prohibits disposal of dog waste on beaches, sidewalks, streets, parks, in town storm drains, and on public beaches. In Year 12, the Police continued to enforce the bylaw by patrolling beaches, parks, recreational areas and cemeteries and monitoring the “dog waste stations.”<br><br>The Board of Health also promotes compliance with the bylaw and educates residents and visitors about this bylaw.<br><br>Signage on streets within Manchester-by-the-Sea alert visitors of the bylaw maintained by the Town. | The Police force and Board of Health will continue to promote and enforce the bylaw.   |
| Revised |   |                              |  |   |  |

## 2. Public Involvement and Participation

| BMP ID #       | BMP Description              | Responsible Dept./Person Name   | Measurable Goal(s)   | Progress on Goal(s) – Permit Year 12<br>(Reliance on non-municipal partners indicated, if any)  | Planned Activities   |
|----------------|------------------------------|---|--|---|--|
| 2.1<br>Revised | Stream Cleaning and Cleanups | DPW/Conservation Commission/SSCW                                      | Annual Project   | <p>The Town continues to support stream cleaning and other cleanup projects over the permit term.</p> <p>Throughout Year 12, the DPW supported volunteer cleanup events by removing trash and debris picked up at each event.</p> <p>COASTSWEEP 2014 included a volunteer cleanup of Singing Beach in April. This was organized by the Town’s Stream Team.</p> <p>The Manchester Coastal Stream Team also cleaned Sawmill Brook in the spring of 2014.</p>  | <p>Continue annual stream cleanings and support volunteer cleanup efforts.</p> <p>Hold community clean-ups in the Town, including Earth Day events in Year 13, and evaluate the program.</p> |
| 2.2<br>Revised | Stakeholder Meetings         | Manchester Coastal Stream Team/Conservation Commission/Planning Board | <p>Conservation Commission Meetings (Goal – 16 times per year)</p> <p>Stream Team Meetings (Goal – 9 times per year)</p> <p>Planning Board Meetings (Goal – 15 times per year)</p> | <p>The Conservation Commission continues to meet twice a month on the second and fourth Tuesdays. Additional meetings are scheduled as needed.</p> <p>Abutters and general public are invited to consider drainage and stormwater management issues as related to the Wetlands Protection Act and related state and local laws.</p> <p>The Manchester Coastal Stream Team met periodically to discuss environmental issues that affect water bodies in Manchester-by-the-Sea and to plan corrective measures to address identified issues.</p> <p>The Planning Board met 2 times per month to hear applications relating to the use and division of land, including projects that fall under Section 6.15 Stormwater Management Special Permit, of the Zoning Blylaw.</p> <p>Meetings held by the Conservation Commission and the Planning Board complied with state public notice requirements at MGL Chapter 39 Section 23B and the local public notice requirements.</p> | <p>Continue to discuss stormwater at all relevant meetings.</p>  |

### 3. Illicit Discharge Detection and Elimination

| BMP ID # | BMP Description               | Responsible Dept./Person Name                                 | Measurable Goal(s)                      | Progress on Goal(s) – Permit Year 12<br>(Reliance on non-municipal partners indicated, if any)   | Planned Activities  |
|----------|-------------------------------|---|---|--|---|
| 3.1      | Map of Storm Drains           | Public Works  | Complete by June 30, 2006               | GIS map of storm sewer system (outfalls, catch basins, and other drainage structures) in the Urbanized Area is complete. Connectivity, where known, is included on the map.<br><br>The Town contracts with Applied Geographics, Inc. for mapping services. They provide an online viewer for GIS, with a link on the Town website, including the drainage system map. Town Staff provide revisions and edits to Applied Geographics throughout the year, based on field surveys.   | This BMP has been completed and the measurable goal met.<br><br>The Town will continue to locate new outfalls that are added and update mapping as needed.  |
| Revised  |                               |   |   |  |   |
| 3.2      | Illicit Discharge Policy/Regs | DPW/Conservation Commission/Planning Board/Building Inspector | Complete implementation by May 31, 2008 | Due to limitations on staff time and budgets, as well as Town Staff turnover, efforts to adopt the Illicit Discharge Detection and Elimination (IDDE) Bylaw have stalled.<br><br>The Town’s Stormwater Management Zoning Bylaw requires projects to meet the MA Stormwater Standards and Handbook, and therefore regulates illicit discharges and connections from projects disturbing one or more acres.<br><br>The Town’s Street and Sidewalks Bylaw regulates illegal dumping on the town streets and sidewalks, as well as public lands and coastal and inland waters. | Continue to work on adopting IDDE Bylaw in conjunctions with inflow and infiltration regulations and investigations.<br><br>Continue enforcing bylaw.<br><br>The Town will develop wet and dry weather outfall inspection Standard Operating Procedures. The staff will receive training on these procedures and they will then be incorporated into the annual inspection process. |
| Revised  |                               |   |   |  |   |

#### 4. Construction Site Stormwater Runoff Control

| BMP ID # | BMP Description  | Responsible Dept./Person Name                                 | Measurable Goal(s)        | Progress on Goal(s) – Permit Year 12<br>(Reliance on non-municipal partners indicated, if any)  | Planned Activities   |
|----------|--|---|---------------------------|---|--|
| 4.1      | Develop and Implement Construction Runoff Policy/Regulations regulating erosion and sediment control | DPW/Conservation Commission/Planning Board/Building Inspector | Complete by June 30, 2007 | The “Stormwater Management Special Permit” was added to the Town’s Zoning Bylaw on April 4, 2007. Regulations have been adopted by the Planning Board.  | The Town completed the BMP and the measurable goal has been achieved.  |
| Revised  |  |   |                           | This bylaw requires erosion and sediment controls at construction sites that disturb one or more acres (or less than one acre if part of a common plan of development) and includes sanctions to ensure compliance and requirements for inspections. This bylaw references the Massachusetts Stormwater Management Standards and Handbook as performance standards.<br><br>Planning Board continued to implement Bylaw and regulations. | Continue to implement and use the tools created by the Bylaw and regulations.<br><br>Evaluate the current Bylaw and update as appropriate. |

## 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 12<br>(Reliance on non-municipal partners indicated, if any)   | Planned Activities   |
|----------|--|---|---|--|--|
| 5.1      | Bylaw: Require post-construction runoff controls | DPW/Conservation Commission/Planning Board/Building Inspector | Complete by June 30, 2007.<br>Implement Bylaws. | The “Stormwater Management Special Permit” was added to the Town’s Zoning Bylaw on April 4, 2007. Regulations have been adopted by the Planning Board.   | The Town completed the BMP and the measurable goal has been achieved.  |
| Revised  |  |   |   | <p>This bylaw regulates stormwater runoff from development and redevelopment projects that disturb one or more acres (or less than one acre if the project is part of a larger common plan of development), and includes long term O&amp;M requirements. This bylaw references the Massachusetts Stormwater Management Standards and Handbook as performance standard, and therefore controls that are put in place should prevent or minimize impacts to water quality.</p> <p>The Planning Board continued to implement the bylaw and regulations as needed.</p> | <p>Continue to implement the current bylaw and regulations.</p> <p>Evaluate the current bylaw and regulations and update as necessary.</p> |



## 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 12<br>(Reliance on non-municipal partners indicated, if any)   | Planned Activities   |
|----------------|--|-------------------------------|---|--|--|
| 6.1<br>Revised | Stormwater System and Catch Basin Inspection and Cleaning Program      | DPW                           | Annual Inspections                          | DPW inspects catch basins and other stormwater system components throughout Town, as needed. In Year 12, all catch basins were cleaned and inspected for illicit discharges. Approximately 6 catch basins were repaired. | The Town will continue annual inspections and as needed cleanings.<br><br>The Town will review regulations and recommendations from DEP and EPA to develop or update an operations and maintenance plan to include proper disposal of street sweepings, catch basin cleanout, snow disposal, and outside storage of materials. |
| 6.2<br>Revised | Septic system controls   | Board of Health               | Implement Title 5                           | The Board of Health continued to implement Title 5. Systems are inspected and failing systems are upgraded as required by Title 5. The BOH continued to track the number of pump outs.                                   | The Board of Health will continue to monitor septic systems in accordance with Title 5.  |
| 6.3<br>Revised | Sweep all streets by June 1  | DPW                           | Complete by June 1 <sup>st</sup> each year. | Approximately 20 miles of streets throughout the Town were swept by DPW in April 2014.   | The Town will continue to sweep streets once per year, as budget allows.<br><br>The Town will review regulations and recommendations from DEP and EPA to develop or update an operations and maintenance plan to include proper disposal of street sweepings.  |
| 6.4            | Biweekly (minimum) sweeping of main streets from May through September | DPW                           | Sweep as necessary                          | Swept as necessary.  | Continue to sweep main streets as needed and as budget allows.<br><br>The DPW will sweep main streets,   |

|         |                   |   |                      |   |   |
|---------|-------------------|---|----------------------|---|---|
| Revised |                   |   |                      |   | which include those near beaches and in the downtown areas, as needed throughout the summer season (May through September, or later, depending on weather).   |
| 6.5     | Employee Training | Conservation Commission/Fire Department/DPW | Train staff annually | Training was not completed in Year 12. Town staff has been trained previously on how to recognize illicit discharges. | The Town will continue stormwater trainings as the budget allows.<br><br>Training on stormwater elements will be incorporated into other Conservation Commission, Fire Department, and DPW trainings. |
| Revised |                   |   |                      |   |   |

**6a. Additions**

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**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 12<br>(Reliance on non-municipal partners indicated, if any)   | Planned Activities  |
|----------|-----------------|-------------------------------|--------------------|--|---|
| Revised  | Not Applicable  | Not Applicable                | Not Applicable     | <p>The following Manchester-by-the-Sea water bodies are considered impaired per the current Integrated List of Waters (Massachusetts Year 2012).</p> <p>TMDLs are required for several water bodies (Category 5) and will be developed in the future, including: Cat Brook (Fecal Coliform/Low pH); Causeway Brook (Fecal Coliform); Waite Pond (mercury in fish tissue); Manchester Harbor between Gales Point and Chubb Point (Fecal Coliform); and the northern portion of Salem Sound, including waters landward of and within imaginary lines from Chubb Point, Manchester to Gales Point, Manchester to the northwest point of Bakers Island (Fecal Coliform).</p> | Evaluate any TMDLs developed for Manchester-by-the-Sea impaired waters. |

**7a. Additions**

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**7b. WLA Assessment**

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

The Town of Manchester-by-the-Sea maintains that it continues to be in compliance with the 2003 Massachusetts Small MS4 Permit. In addition to the information presented in Part III, above, the following information is available:

- I. - Results from Salem Sound Coastwatch's Clean Beaches and Streams Water Quality Monitoring Program for Summer 2014 are available at their website. <http://www.salemsound.org/CB&S.html>
- II. - The Town's Board of Health maintains records of weekly sampling results and beach closings for the Town's beaches at eight sampling locations. The Massachusetts Department of Public Health also presents sampling results on their website: [http://mass.digitalhealthdepartment.com/public\\_21/beaches.cfm?btown=Manchester-By-The-Sea](http://mass.digitalhealthdepartment.com/public_21/beaches.cfm?btown=Manchester-By-The-Sea)

**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, 2014 through March 31, 2015)

**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) |                   | General Fund |
|   |                   |              |

**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)    | Y |
| 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 **  | (#)           | 1 |
| ▪ community participation **   | (# or %)      |   |
| ▪ material collected **  | (tons or gal) |   |
| School curricula implemented   | (y/n)         |   |
|  |               |   |

## Legal/Regulatory

|  | In Place<br>Prior to<br>Phase II | Reviewing<br>Existing<br>Authorities | Drafted | Draft<br>in<br>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                             | (#)                     |          |
| System-Wide mapping complete (complete storm sewer infrastructure) | (%)                     | 99       |
| Mapping method(s)  |                         |          |
| ▪ Paper/Mylar  | (%)                     |          |
| ▪ CADD   | (%)                     |          |
| ▪ GIS  | (%)                     | 100      |
| 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<br>(est. gpd) |          |
| Illicit connections removed (Since beginning of permit coverage)   | (#); and<br>(est. gpd)  |          |
| % 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 ** | (%)        | 100 |
| 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 | (%)      | 100 |
| 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)     | 1       |
| Average frequency of catch basin cleaning (commercial/arterial or other critical streets) ** | (times/yr)     | 1       |
| Qty of structures cleaned **   | (#)            | ~620    |
| 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)     | Compost |
| 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   | (#)                     | 1 – leased |
| • Vacuum truck(s) owned/leased   | (#)                     |            |
| • Vacuum trucks specified in contracts   | (y/n)                   |            |
| • % Structures cleaned with clam shells **   | (%)                     | 90         |
| • % Structures cleaned with vector **  | (%)                     | 10         |
|  | (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)          |            |
| Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **   | (location)              | Compost    |
| Annual Sweeping Costs  |                         |            |
| • Annual budget/expenditure (labor & equipment)**  | (\$)                    | ~\$10,000  |
| • Hourly or lane mile contract rate **   | (\$/hr. or ln mi.)      |            |
| • Disposal cost**  | (\$)                    |            |
| Sweeping Equipment   |                         |            |
| • Rotary brush street sweepers owned/leased  | (#)                     | 1, leased  |
| • Vacuum street sweepers owned/leased  | (#)                     | 0          |
| • Vacuum street sweepers specified in contracts  | (y/n)                   | N          |
| • % Roads swept with rotary brush sweepers **  | %                       | 100        |
| • % Roads swept with vacuum sweepers **  | %                       | 0          |
| Reduction (since beginning of permit coverage) in application on public land of:<br>("N/A" = never used; "100%" = elimination) |                         |            |
| ▪ Fertilizers  | (lbs. or %)             | 100        |
| ▪ Herbicides   | (lbs. or %)             | 100        |
| ▪ Pesticides   | (lbs. or %)             | 100        |
| Integrated Pest Management (IPM) Practices Implemented   | (y/n)                   |            |
|  |                         |            |



|  | (Preferred Units)   | Response -  |
|--|---|---|
| Average Ratio of Anti-/De-Icing products used **<br>(also identify chemicals and ratios used in specific areas, e.g., water supply protection areas) | % NaCl<br>% CaCl <sub>2</sub><br>% MgCl <sub>2</sub><br>% CMA<br>% Kac<br>% KCl<br>% Sand<br>Treated salt<br>(NaCl/<br>MgCl <sub>2</sub> mix) | Mixture is<br>NaCl and<br>Sand, 50%<br>NaCl and 50%<br>Sand |
| Pre-wetting techniques utilized **   | (y/n or %)  | N   |
| Manual control spreaders used **   | (y/n or %)  | Y   |
| Zero-velocity spreaders used **  | (y/n or %)  | N   |
| Estimated net reduction or increase in typical year salt/chemical application rate   | (±lbs/ln mi.<br>or %)   |   |
| Estimated net reduction or increase in typical year sand application rate **   | (±lbs/ln mi.<br>or %)   |   |
| % 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 |  |
| Installed or planned treatment BMPs for public drinking water supplies and their protection areas                                   | # or y/n |  |
| <ul style="list-style-type: none"> <li>Treatment units induce infiltration within 500-feet of a wellhead protection area</li> </ul> | # or y/n |  |