JCSW Coalition **Standard Operating Procedure**	**Subject:** **Municipal Good Housekeeping MCM 6**	**SOP Number** **JCSWC - 7**
	Approved By: _____ _____ MS4 Municipal SWMO Date	Issue Date: 6/1/2016

Purpose

To create a standard procedure for Municipal Good Housekeeping with regard to MCM 6.

Standard Operating Procedures

Process

The Stormwater Coalition members are to use the attached procedure and guide to do self assessments of their municipal facilities and operations.
The Stormwater Coalition members will then develop BMPs as needed.
The Stormwater Coalition members will then train their responsible staff to maintain BMPs' and document their work in the SWMP.Purpose

Jefferson County Stormwater Coalition

Guidance to Developing an Effective Municipal Pollution Prevention and Good Housekeeping Program

Revised May, 2016

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Stormwater Pollution Prevention Planning for Municipal Operations

In this manual a planning process is suggested for municipal operations which allows the Municipal Separate Storm Sewer System (MS4) operators to identify the activities that generate pollutants and the best management practices (BMPs) applicable to the activities. Successful completion of this process will help ensure the MS4 operator is able to meet all State requirements for Minimum Measure 6, Pollution Prevention and Good Housekeeping for Municipal Operations. The recommended process includes the following components:

1. **Understand Permit Requirements:** Review and understand current New York State Department of Environmental Conservation (NYSDEC) permit requirements to help ensure that you are on the path to compliance with the Control Measure. Full permit requirements can be found in Appendix A.

2. **Inventory**: An inventory is developed of all municipal facilities and operations that may be a source of pollutants in stormwater.

3. **Assessment**: Next, using the inventory, facilities and operations are evaluated for their potential to discharge pollutants to storm drains and/or receiving waters. The outcome of this process should be to develop an understanding of BMPs already in place and which areas of facilities and operations are likely sources of stormwater pollution. Priorities are established during the assessment, and pollution generating activities are identified for implementation of additional or new BMPs.

4. **BMP Selection**: BMPs are then selected to deal with the identified sources of stormwater pollution. Emphasis is placed on source control BMPs and proper maintenance of treatment control BMPs. This process will also include development of measurable goals.

5. **Program Implementation**: BMPs are implemented and their effectiveness evaluated. A staff training program is initiated. Periodically record, assess and modify measurable goals as needed and report on the effectiveness of the entire program.

1. Summary of Current Permit Requirements 2010-2015

(for Traditional Land-Use Control MS4s, Complete Regulations in Appendix A)

An MS4 must develop and implement a pollution prevention/good housekeeping program for municipal operations and facilities that:

1. Addresses municipal operations and facilities that contribute or potentially contribute pollutants of concern to the small MS4 system

2. Includes the performance of a self assessment of all municipal operations once every three years

3. Determines management practices, policies, procedures etc. that will be developed and implemented to reduce or prevent the discharge of potential pollutants

4. Prioritizes pollution prevention and good housekeeping efforts

5. Addresses pollution prevention and good housekeeping priorities

6. Includes employee training

7. Requires third party entities performing contracted services to meet permit requirements as applicable

8. Requires municipal operations that would otherwise be subject to coverage by the State Multi-Sector General Permit (MSGP) to prepare and implement provisions in the Stormwater Management Program (SWMP) that comply with applicable sections of the MSGP

9. Consider and incorporate cost effective runoff reduction techniques and green infrastructure

10. Develops, records, assesses and modifies as needed, measurable goals

11. Selects appropriate pollution prevention and good housekeeping BMPs and measurable goals to ensure reduction of all pollutants of concern in stormwater discharges to the maximum extent practicable

Reporting:

1. Indicate the municipal operations and facilities that the program assessed.

2. Describe management practices, policies and procedures that have been developed, modified and implemented. Report, at a minimum, on specific items addressed during the reporting year as required in the permit.

3. Staff training events and the number of staff trained.

4. Report on the effectiveness of program, BMP and measurable goal assessment.

2. Inventory

This step involves simply making a list of all Municipal activities. The listed activities will be used later during the assessment. They can be categorized into two groups as described below:

Fixed Facilities: Specific locations that municipalities own and/or operate and at which municipal activities occur. Examples of these facilities are:

Parks, Cemeteries & Golf courses
Public Buildings (police, fire, libraries etc.)
Stadiums
Animal Shelters/Services
Public Parking Facilities
Fairgrounds
Maintenance Yards
Storage Yards for Materials
Vehicle Maintenance and Storage Areas
Solid Waste Transfer Facilities

Operations: A set of related municipal activities that take place throughout the municipality. These types of activities may also be privately contracted. Examples of these activities are:

Road Street and Bridge Maintenance
Drainage System Operation and Maintenance
Waste Handling and Disposal
Landscape Maintenance

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Table 1

Potential Pollutants Likely Associated with Fixed Facility Activities									
Fixed Facility Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Building and Grounds Maintenance and Repair	X	X	X	X	X	X	X	X	X
Parking/Storage Area Maintenance	X	X	X	X	X	X	X		X
Waste Handling and Disposal	X	X	X	X	X	X	X	X	X
Vehicle and Equipment Fueling			X	X		X	X		
Vehicle and Equipment Maintenance and Repair				X		X	X		
Vehicle and Equipment Washing and Steam Cleaning	X	X	X	X		X	X		
Outdoor Loading and Unloading of Materials	X	X	X	X		X	X	X	X
Outdoor Container Storage of Liquids		X		X		X	X	X	X
Outdoor Storage of Raw Materials	X	X	X			X	X	X	X
Outdoor Process Equipment	X		X	X		X	X		
Over Water Activities			X	X	X	X	X	X	X
Landscape Maintenance	X	X	X		X			X	X

Adapted for use from the California Stormwater Quality Association Stormwater Best Management Practice Handbook, Municipal, 2003

Table 2

Field Program Activities and Associated Potential Pollutants										
Field Programs	**Activities**	**Potential Pollutants**								
		Sediment	**Nutrients**	**Trash**	**Metals**	**Bacteria**	**Oil & Grease**	**Organics**	**Pesticides**	**Oxygen Demanding Substances**
Roads Streets and Highway Operations and Maintenance	**Sweeping and Cleaning**	X		X	X		X			X
	Street Repair, Maintenance, and Striping/Painting	X		X	X		X	X		
	Bridge and Structure Maintenance	X		X	X		X	X		
Plaza,Sidewalk and Parking Lot Maintenance and Cleaning	**Surface Cleaning**	X	X		X	X				X
	Graffiti Cleaning	X	X		X			X		
	Sidewalk Repair	X		X						
	Controlling Litter	X		X		X	X			X
Fountains,Pools,Lakes and Pond Maintenance	**Fountain and Pool Draining**		X					X		
	Lake and Pond Maintenance	X	X	X		X			X	X
Landscape Maintenance	**Mowing/Trimming/Planting**	X	X	X		X			X	X
	Fertilizer & Pesticide Management	X	X						X	
	Managing Landscape Wastes			X					X	X
	Erosion Control	X	X							
Drainage System Operation and Maintenance	**Inspection and Cleaning of Stormwater Conveyance Structures**	X	X	X		X		X		X
	Controlling Illicit Connections and Discharges	X	X	X	X	X	X	X	X	X
	Controlling Illegal Dumping	X	X	X	X	X	X	X	X	X
	Maintenance of Inlet and Outlet Structures	X		X	X		X			X
Waste Handling and Disposal	**Solid Waste Collection**		X	X	X	X	X	X		X
	Waste Reduction and Recycling			X	X					X
	Household Hazardous Waste Collection			X	X		X	X	X	
	Controlling Litter			X	X	X		X		X
	Controlling Illegal Dumping	X		X		X	X		X	X
Water and Sewer Utility Operation and Maintenance	**Water Line Maintenance**	X				X	X			
	Sanitary Sewer Maintenance	X				X	X			X
	Spill/leak/Overflow Control, Response, and Containment	X	X			X		X		X

Adapted for use from the California Stormwater Quality Association Stormwater Best Management Practice Handbook, Municipal, 2003

3. Assessment

This section outlines the procedures for assessing fixed facilities and operations for BMP selection and implementation. Data gathered during the inventory process should be used to support the assessment process as described below:

Fixed Facilities: The first step in the assessment is to identify the most likely types and source areas of stormwater pollutants associated with the activities conducted at each facility. Refer to **Table 1** on page 5 for examples of various types of activities commonly associated with fixed facilities and the many pollutants associated with them.

Once all the potential stormwater pollutants are identified at a facility, the next step is to identify BMPs already in place at the facility. These may include pavement sweeping, drain inlet cleaning, covered waste storage bins, and spill prevention and cleanup procedures. Other BMPs that were installed for reasons unrelated to stormwater control, such as berming, covered material storage, and designated wash areas should also be identified.

The MS4 staff must then decide whether additional or new BMPs should be implemented to reduce stormwater pollutants to the maximum extent practicable from the site. Stormwater pollutant sources or activities that do not have BMPs are obvious candidates for BMP development. The municipality should consider and evaluate various factors when performing the assessment such as:

- Effectiveness of current BMPs
- Type of activity
- Type and quantities of significant materials handled, produced, stored or disposed of
- History of spill or leak
- Non-stormwater discharges (illicit discharges)
- Size of facility
- Proximity to receiving water and type of receiving water

Operations: Similar to the effort at a fixed facility, the MS4 operator should identify likely types of stormwater pollutants associated with operational activities. Refer to **Table 2** on page 6 for examples of the specific activities associated with these operations and field program activities and the many pollutants commonly associated with each. Next, identify BMPs that are already in place and the extent of their effectiveness. Using this information and the inventory data, the MS4 can identify activities with the potential for discharging pollutants, the type of pollutants being discharged, and the extent that the pollutants are being addressed with current procedures or BMPs. The MS4 can then assess whether additional or new BMPs are necessary. Likely stormwater pollutant operational activities that do not have BMPs are obvious candidates for BMP development. In considering the need for new or additional BMPs an MS4 should consider:

- Effectiveness of current BMPs
- Type of field program and pollutants being discharged
- Exposure of activities to stormwater
- Land use category
- Proximity to receiving water and/or type of receiving water

Using the Assessment Checklist: A checklist has been developed for use during the assessment. It can be found in Appendix B. The checklist will be used to identify existing activities, likely pollutant sources, existing BMPs and needs for new BMPs.

Across the top row, list all municipal facilities and operations such as Municipal Offices, DPW Garage, Solid Waste collection etc. These come from the inventory previously completed in Section 2. The left column of the checklist is divided into 8 categories of municipal operations identified by the NYSDEC:

- Street and Bridge Maintenance
- Winter Road Maintenance
- Stormwater System Maintenance
- Vehicle and Fleet Maintenance
- Parks and Open Space
- Municipal Buildings
- Solid Waste Management
- Streambank and Hydrologic Habitat Maintenance

*Additional categories that might be included would be New Construction and Land Disturbance, and Right of Way Maintenance

Each category of operations is further divided into two sections, **Pollution Generating Activities** and **Current BMPs**. In the first section several typical pollution generating activities are already listed. If you have identified others at your facilities that are not listed, write them on one of the blank lines. Below this section written in bold letters, are the BMPs that you may already perform. If a BMP is performed, but not listed in this column, add the BMP to the column.

To perform the assessment, go down the pollution generating activities in the left column and place and X in the box if that activity occurs at one of your facilities or operations listed to the right. The activities in **Bold** are BMPs. If you are performing one of these BMPs at a facility or for an operation, place an X in the corresponding box. Again, if you are performing an activity or BMP that is not found in the column then add it. Refer to tables 1 & 2 for help identifying activities that may not be listed.

For additional assistance in assessing Vehicle and Fleet Operations refer to Appendix C. Here you will find a Stormwater Pollution Prevention Facility Self Audit that can be used to further assess good housekeeping / pollution generating activities and BMPs

Interpreting the Assessment Interpretation of the assessment provides the foundation for BMP development. At the completion of the assessment you will have uncovered two important components to your program; identification of BMPs that are already in place and pollution generating activities that may require a BMP. All boxes on the checklist that are checked and are not BMPs, are your potential pollution sources. BMPs in bold that are checked show BMPs already in place.

4. BMP Selection

To begin this step you should start by documenting existing BMP activities. Refer to your completed assessment and the lines with BMPs. Complete a BMP summary sheet for each BMP that is checked on the assessment. A Blank Summary Sheet can be found in Appendix D along with several example BMPs. Complete a summary sheet for each existing BMP by describing the BMP, the measurable goals, a timeline/implementation schedule and who is responsible for maintaining the BMP. Where possible, write BMPs so they apply across different municipal operations and departments. This will help streamline the process and provide consistency throughout the MS4.

The next step is to write BMPs for pollution generating activities that you have identified and for which there is no current practice in place. Refer to the activities sections in your assessment and the boxes that have been checked These are areas that might require a new BMP. Appendix D provides many BMPs in that can easily be modified to fit your specific facility or operation. In order to be effective, BMPs must be appropriate to the application and properly implemented. For a more comprehensive listing of potential BMPs refer to the *California Stormwater Quality Association – Best Management Practice Handbook – Municipal.* The handbook has served as a valuable resource for the development of this guidance document and is available on-line at:

http://www.cabmphandbooks.com/municipal.asp

5. Implementation

The final step to a successful program is to implement the BMPs that have been developed. Before beginning, it is important to first set priorities for your pollution prevention and good housekeeping efforts. Such things as geographic area, potential to improve water quality, facilities or operations most in need of modifications or improvement, and the MS4 capabilities are all important factors to consider. For example, your assessment may have uncovered the need for a structural improvement to a fixed facility, but funding considerations may delay the improvement for a period of time. If, however, it is determined that this structural deficiency is resulting in a significant pollution source, the MS4 may prioritize the improvement and find the means necessary to make the repair sooner rather than delaying it.

BMP implementation can begin once priorities are established. Successful implementation is dependent on the following components:

- Effective training of municipal and contract employees working in both fixed facilities and field programs.
- Regular inspections of fixed facilities, field programs, and treatment controls.
- Maintenance of treatment controls as needed to ensure proper functioning.
- Periodic evaluation/monitoring of BMP performance consistent with State permit requirements
- Follow-up action to correct deficiencies in BMP implementation noted during inspections.
- Accurate record keeping to track training, inspections, monitoring, and BMP maintenance.
- Submittal of annual report to NYSDEC regarding the effectiveness of the municipal efforts to reduce pollutants from fixed facilities and field programs.
- Documentation showing how the municipality has met its measurable goals, or revisions to those goals with supporting documentation.

Reporting

As the stormwater pollution prevention plan and best management practices are implemented, it is a good idea to periodically review the section in the State permit on Minimum Measure Six reporting (Appendix A). This section details minimum program implementation and reporting requirements for permit holders. Keeping these reporting requirements in mind while developing BMPs will help ensure that all permit requirements are met annually. Accurate record keeping and documentation are critical to a successful program.

Appendix A
Minimum Measure 6 Permit Requirements
2010-2015 Permit Period
(for Traditional Land-Use Control MS4s)

Pollution Prevention/Good Housekeeping For Municipal Operations - SWMP Development / Implementation

At a minimum, all *permittees* must:

a. *Develop* and *implement* a pollution prevention / good housekeeping program for *municipal* operations and facilities that:

i. addresses *municipal* operations and facilities that contribute or potentially contribute *POCs* to the *small MS4* system. The operations and facilities may include, but are not limited to: street and bridge maintenance; winter road maintenance; stormwater system maintenance; vehicle and fleet maintenance; park and open space maintenance; municipal building maintenance; solid waste management; new construction and land disturbances; right-of-way maintenance; marine operations; hydrologic habitat modification; or other;

ii. at a minimum frequency of once every three years, perform a self assessment of all municipal operations addressed by the SWMP to:
- determine the sources of pollutants potentially generated by the *permittee*'s operations and facilities; and
- identify the *municipal* operations and facilities that will be addressed by the pollution prevention and good housekeeping program, if it is not done already;

iii. determines *management practices*, policies, procedures, etc. that will be *developed* and *implemented* to reduce or prevent the discharge of (potential) pollutants. Refer to management practices identified in the "NYS Pollution Prevention and Good Housekeeping Assistance Document" and other guidance materials available from the EPA, *State,* or other organizations;

iv. prioritizes pollution prevention and good housekeeping efforts based on geographic area, potential to improve water quality, facilities or operations most in need of modification or improvement, and *permittee*'s capabilities;

v. addresses pollution prevention and good housekeeping priorities;

vi. includes an employee pollution prevention and good housekeeping training program and ensures that staff receive and utilize training;

vii. requires third party entities performing contracted services, including but not limited to street sweeping, snow removal, lawn / grounds care, etc., to meet permit requirements as the requirements apply to the activity performed; and

viii. requires *municipal* operations and facilities that would otherwise be subject to the NYS Multisector General Permit (MSGP, GP-0-06-002) for industrial stormwater discharges to prepare and *implement* provisions in the SWMP that comply with Parts III. A, C, D, J, K and L of the MSGP. The permittee must also perform monitoring and record keeping in accordance with Part IV. of the MSGP. Discharge monitoring reports must be attached to MS4 annual report. Those operations or facilities are not required to gain coverage under the MSGP. *Implementation* of the above noted provisions of the SWMP will ensure that MEP is met for discharges from those facilities;

b. Consider and incorporate cost effective runoff reduction techniques and green

infrastructure in the routine upgrade of the existing stormwater conveyance systems and municipal properties to the MEP. Some examples include replacement of closed drainage with grass swales, replacement of existing islands in parking lots with rain gardens, or curb cuts to route the flow through below grade infiltration areas or other low cost improvements that provide runoff treatment or reduction.

c. *Develop*, record, periodically assess and modify as needed measurable goals; and

d. Select appropriate pollution prevention and good housekeeping *BMPs* and *measurable goals* to ensure the reduction of all *POCs* in *stormwater discharges* to the *MEP*.

e. Adopt techniques to reduce the use of fertilizers, pesticides, and herbicides, as well as potential impact to surface water.

Required SWMP Reporting

f. **Program *implementation* reporting** for **continuing *permittees*** (authorized under GP-02-02). *Permittees* are required to report on all *municipal* operations and facilities within their jurisdiction (*urbanized area* and *additionally designated area*) that their program is addressing. The *permittee* shall report at a minimum on the items below:

i. indicate the *municipal* operations and facilities that the pollution prevention and good housekeeping program assessed;

ii. describe, if not done so already, the management practices, polices and procedures that have been developed, modified, and / or implemented and report, at a minimum, on the items below that the *permittee's* pollution prevention and good housekeeping program addressed during the reporting year:

- acres of parking lot swept;
- miles of street swept;
- number of catch basins inspected and, where necessary, cleaned;
- post-construction control stormwater management practices inspected and, where necessary, cleaned;
- pounds of phosphorus applied in chemical fertilizer
- pounds of nitrogen applied in chemical fertilizer; and
- pounds of pesticides / herbicides applied as pure product.

iii. staff training events and number of staff trained; and

iv. report on effectiveness of program, *BMP* and *measurable goal* assessment. If the pollution prevention and good housekeeping program addresses other operations than what is listed above in Part VII.A.6.a(ii), the *permittee* shall report on items that will demonstrate program effectiveness.

g. **Reporting for newly regulated *permittees*** (small MS4s not authorized under GP-02-02). *Permittees* are required to report on all *municipal* operations and facilities within their jurisdiction (*urbanized area* and *additionally designated area*) that their program is addressing. The *permittee* shall report at a minimum on the items below:

i. **program *development* deadlines and reporting** (first three years after authorization is granted):

Complete by end of Year 1:

- identify the municipal operations and facilities that will be considered for inclusion in the pollution prevention and good housekeeping program;
- describe the pollution prevention and good housekeeping program priorities (geographic area, potential to improve water quality; facilities or operations most in need of modification or improvement);
- describe management practices, policies, procedures, etc. that will be developed or modified;

- identify the staff and equipment available;

Initiate by end of Year 2; complete by end of Year 3:

- describe employee pollution prevention and good housekeeping program training program and begin training, report on number of staff trained; and

Complete by end of Year 3:

- description of developed management practices.

ii. **program *implementation* reporting** as set forth in Part VII.A.6.(d) above. Commence reporting after three year *development* permit. *Implementation* reporting may begin earlier if *implementation* begins during *development* period.

Appendix B
Municipal Stormwater Assessment Checklist

Municipal Stormwater Assessment

Municipal Facilities and Operations, from Inventory

Legend (place #'s in boxes indicate)
1= Activity occurs at a location and a A58BMP is in-place. **2** = Activity occurs- BMP needs to be developed. 3 = Activity and BMP needed.

Activity	DOT Garage	Parks and Recreation	Sewer Department						Comments
Street and Bridge Maintenance									
Sidewalks and parking lots cleaned									
Street maintenance									
Striping/painting performed									
Bridge and structure maintenance									
Ditch maintenance									
Maintenance of unpaved roads performed									
Winter Road Maintenance									
Road salting performed									
Salt storage on-site									
Salt vehicle washing									
Alternative materials used									
Sensitive or Priority Waterbody Considerations									
Spreaders Calibrated and Maintained									

Municipal Stormwater Assessment

Municipal Facilities and Operations, from Inventory

Legend (place #'s in boxes indicate)
1= Activity occurs at a location and a A58BMP is in-place. **2** = Activity occurs- BMP needs to be developed. 3 = Activity and BMP needed.

Activity	DOT Garage	Parks and Recreation	Sewer Department						Comments
Stormwater Drainage and Conveyance System									
Ditch scraping									
Inspections of system components									
Record keeping and frequency tracking									
Maintenance, repair cleanout of system components									
Maintenance of open drain ditches									
Staff have been trained re. stormwater mgmt principles									
Vehicle Equipment Maintenance (See Also the Facility Self Audit in Appendix C)									
Vehicle washing done outside									
Repairs done outside									
Hazardous material storage									
Repairs done inside									
Recycling oil and antifreeze									
Spill prevention and response plan									
Staff have been trained re. stormwater mgmt principles									
Wastewater disposal and treatment from wash water									
Oil water separator on site									

Municipal Stormwater Assessment

Municipal Facilities and Operations, from Inventory

Legend (place #'s in boxes indicate)
1= Activity occurs at a location and a A58BMP is in-place. **2** = Activity occurs- BMP needs to be developed. 3 = Activity and BMP needed.

Activity	DOT Garage	Parks and Recreation	Sewer Department					Comments
Parks & Open Space Maintenance								
Contractor Used								
Fertilizer application								
Pet waste present								
Pesticide application								
Records Maintained								
Loading dock								
Hazardous materials storage outside								
Bulk material storage outside								
Litter Control								
Erosion control practices								
Municipal Building Maintenance								
Contractor used for maintenance								
Bulk petroleum storage								
Hazardous materials storage								
Outdoor loading and unloading of materials								
Outdoor container storage of liquids								
Outdoor storage of raw materials								
Roof drainage systems								
Building washing performed								
Sidewalk cleaning (powerwashing)								
Sidewalk salting								
On-site septic systems								
Septic inspections and record keeping								
Restaurant location								
Outside dumpster								

Municipal Stormwater Assessment

Municipal Facilities and Operations, from Inventory

Legend (place #'s in boxes indicate)
1= Activity occurs at a location and a A58BMP is in-place. **2** = Activity occurs- BMP needs to be developed. 3 = Activity and BMP needed.

Activity	DOT Garage	Parks and Recreation	Sewer Department					Comments
Solid Waste Management								
Illegal dumping occurs								
Solid waste transfer station								
Recycle drop off location								
Household hazardous waste collection								
Litter control program								
Pet waste control program								
Streambank and Hydrologic Habitat Maint.								
Stream bed dredging								
Creek bottom sediment removal								
Removal of woody debris								
Bank reshaping								
Cleaning culverts and outfalls								
Priority setting for streambank stabilization projects								
Use of alternative "soft" engineering approaches								
Inventory of ponds								
Pond maintenance program								

Appendix C

Stormwater Pollution Prevention
Facility Self Audit

Review each question and check the appropriate box to determine if your facility is incorporating stormwater pollution prevention in daily operations. This checklist may be used to identify opportunities for improvement in pollution prevention as well as to document practices that the facility uses to prevent stormwater pollution. It is recommended that a self-audit be conducted twice a year, once during summer operations and once during winter operations.

Facility Operation

	Yes	No	Not Applicable	Can't Determine
Are vehicles parked indoors or under a roof when not in use?				
Are operations such as vehicle washing, vehicle maintenance, draining of fluids, storage of fluids and waste performed under a roof or inside?				
Are vehicles washed regularly to remove contamination and prevent it from polluting stormwater?				
Is wash water treated in an oil-water separator prior to discharge?				
Is process water diverted to a trench drain system to collect contaminated runoff inside work areas?				
Is process water from the trench drain system treated in an oil-water separator prior to discharge?				
Are solids cleaned out of the oil-water separator and trench drain system on a regular basis?				
Are drains inside the facility connected to a sanitary sewer?				

	Yes	No	Not Applicable	Can't Determine
When working outdoors, is contaminated process water and sediment collected to prevent it from mingling with and contaminating stormwater?				

Fluids Management

	Yes	No	Not Applicable	Can't Determine
Are fluids in tanks or drums stored with an appropriate amount of secondary containment, i.e. secondary containment should be able to hold maximum volume spilled from largest container in the area?				
Are drum-top pads used for leaks and spills that occur during transfer of fluids?				
Are funnels or pumps used when transferring fluids?				
Are drip pans placed under leaks?				
Are containers maintained in good condition, closed, covered and away from equipment that can cause them to tip over?				
Are containers stored inside or under a roof?				
Are containers inspected regularly?				
Are fluids stored in appropriate containers and/or storage cabinets?				
Are all containers labeled in a manner that describes the contents adequately?				
Is a closed-loop parts washer system used (contains solvent)?				
Is the parts-washer lid kept closed when not in use?				
Is a contract in place with a parts washer service company to change out spent solvent?				

	Yes	No	Not Applicable	Can't Determine
Has the possibility of using an aqueous-based parts washer been explored?				
Are storage areas kept clean and well organized?				
Are storage areas labeled clearly?				

Leak and Spill Prevention and Control

	Yes	No	Not Applicable	Can't Determine
Are vehicles inspected daily for leaks?				
Is spill control equipment and absorbents readily available?				
Are emergency phone numbers posted in the area?				
Are material safety data sheets (MSDSs) readily available?				
Are spills cleaned up immediately?				
Are employees trained annually on spill prevention?				

Oil Management

	Yes	No	Not Applicable	Can't Determine
Is oil changed over a drip pan or pad?				
Is oil changed indoors over concrete, sloped to a drain or curbed surface?				
Are funnels or pumps used when transferring oil?				
Is waste oil stored indoors when possible and with secondary containment?				
Are waste oil containers in good condition, closed, labeled and inspected regularly?				
Is waste oil stored separately from other substances?				
Is waste oil recycled?				

Antifreeze

	Yes	No	Not Applicable	Can't Determine
Is antifreeze drained over a drip pan or pad?				
Is antifreeze changed indoors over concrete that is sloped to drain or curbed surface?				
Are funnels or pumps used when transferring antifreeze?				
Is waste antifreeze stored indoors when possible with secondary containment?				
Are containers kept in good condition, closed, labeled and inspected regularly?				
Is antifreeze stored separate from other wastes?				
Is waste antifreeze recycled?				

Lead-Acid Batteries

	Yes	No	Not Applicable	Can't Determine
Are lead-acid batteries stored indoors over a curbed impermeable surface or stored on an acid resistant rack or tub?				
Are cracked or leaking batteries stored in closed leak-proof and labeled containers?				
Are batteries stacked in a stable manner?				
Are batteries inspected regularly for leaks?				
Are acid neutralizing agents, such as baking soda, available in case of leaks?				
Are batteries recycled?				
Are batteries recycled within 6 months?				
Is the date each battery was placed into storage tracked by writing it directly on the battery?				
Are lead cable ends left on the batteries to be recycled?				

Tires

	Yes	No	Not Applicable	Can't Determine
Are tires stored in a storage building or under a roof?				
If tires are stored outdoors, is the tire pile covered?				
Are tires recycled frequently to keep the number of tires stored on site low?				

Rags, Oil-Absorbing Pads, Towels and Clothing

	Yes	No	Not Applicable	Can't Determine
Are oil rags and absorbent pads stored in appropriate containers and disposed of properly?				
Are reusable oily materials such as towels and clothing maintained through a commercial laundering service or an in-house washing machine (using no emulsifying detergents) that discharges to a sanitary system through an oil-water separator?				

Salt Storage

Are salt piles stored in a salt storage building or under a roof?				
Are salt spills at a facility cleaned up promptly?				
Does stormwater drain away from the salt pile?				

Miscellaneous Storage Piles

	Yes	No	Not Applicable	Can't Determine
Are piles of spoils, asphalt, street cuts, etc. stored at the facility under a roof or cover?				
Are stored piles of spoils, asphalt, street cuts, etc. located away from storm drain inlets and surface water bodies?				
Are spills of miscellaneous debris on facility grounds cleaned up promptly?				

Facility Stormwater Runoff

	Yes	No	Not Applicable	Can't Determine
Is uncontaminated stormwater prevented from mixing with process areas (i.e. roof drains)?				

Comments/Action Items

_____
_____
_____
_____
_____
_____
_____

Inspected by: _____

Date: _____

Appendix D

BMP Summary Sheet, Example BMPs, and Sample BMPs

BMP Summary Sheet

Department Name:
Minimum Control Measure:

BMP Title:
BMP Description:
Measurable Goals:
Timeline/Implementation Schedule:
Specific Components and Notes:
Responsible Party for this BMP *Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.* Name: Department: Phone: E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Street and Bridge Maintenance**

BMP Title:	**Graffiti Removal**

BMP Description:

- Graffiti removal activities are to be scheduled during dry weather.
- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal.
- Nearby storm inlets are to be protected prior to removing graffiti. Runoff from sand blasting and high pressure washing should be directed into a landscaped or dirt area. If such an area is not available filter runoff through an appropriate filtering device (e.g. filter fabric) to keep sand, particles and debris out of storm sewers.
- When power washing using cleaning compounds, nearby storm inlets are to be plugged and water is to be vacuumed/pumped to the sanitary sewer.
- Waterless and nontoxic chemical cleaning methods (e.g. gels or spray compounds) should be used when possible.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Street and Bridge Maintenance**

BMP Title: **Paint and Paint Removal**

BMP Description:

- Paint and materials are to be transported to and from job sites in containers with secure lids and tied down to the vehicle.
- Do not transfer or load paint near storm drain inlets or waterways.
- Spray equipment is to be tested and inspected prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Nearby storm drain inlets are to be plugged prior to starting painting in areas where there is a significant risk of a spill reaching the drain. Remove plugs when the job is complete.
- Storm drain inlets are to be covered prior to sand blasting.
- If a bridge crosses a waterway work should be performed on a maintenance traveler, platform or over suspended netting or tarps to capture paint, rust, paint removing agents or other materials to prevent discharge of materials to surface waters. If sanding, use a sander with a vacuum filter bag.
- Capture all cleanup water and dispose of properly.
- Unused paint will be taken to the Monroe County Household Hazardous Waste Facility.

Measurable Goals:

- Staff retraining or continuing education activities related to policies and procedures

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Street and Bridge Maintenance**

BMP Title:	**Bridge Repair Work**

BMP Description:

- Prevent concrete, steel, wood, metal parts, tools and other work materials from entering storm drains or waterbodies.
- Thoroughly clean up the job site when repair work is completed.
- If surface cleaning, painting and paint removal, and graffiti removal are performed implement the appropriate procedures as outlined in those BMPs.

Measurable Goals:

- Number of bridge repair/replacement projects with incorporated pollution prevention or streambank erosion control components
- Erosion control and drainage measures implemented for roads.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP
Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Street and Bridge Maintenance**

BMP Title:	**Unpaved Roads and Trails**

BMP Description:

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- Roadside areas with exposed soils should be vegetated with a mulch or binder that will hold the soils in place while the vegetation is establishing. Native vegetation should be used if possible.
- If vegetation cannot be established immediately, apply temporary erosion control mats/blankets, straw or gravel as appropriate.
- In roadside areas where sediment is already eroded and mobilized temporary controls should be installed. These may include: silt fences, fabric dikes, hay bales staked in place, or any other appropriate measure.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Street and Bridge Maintenance**

BMP Title: **Roadway Patching, Resurfacing and Surface Sealing**

BMP Description:

- Patching, resurfacing and sealing are to be scheduled for dry weather.
- Material stockpiles are to be kept away from streets, gutter areas, storm drain inlets or waterways. Piles are to be bermed or covered during wet weather to prevent runoff.
- Preheating, transfer or loading of hot bituminous material is to be done away from drainage systems or waterways.
- Where applicable, nearby storm drains are to be covered before applying seal coat, slurry seal etc.
- Covers are to be left in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from storm drain inlets when the job is complete.
- Excess material is to be prevented from entering streets or storm inlets.
- There shall be a designated area for cleanup and proper disposal of excess material.
- To avoid runoff, only as much water as is necessary will be used for dust control.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Street and Bridge Maintenance**

BMP Title: **Street Sweeping and Cleaning**

BMP Description:

- A consistent sweeping schedule is to be maintained.
- Street cleaning is only to be performed during dry weather if possible.
- Wet cleaning or flushing of the street is to be avoided where possible.
- When possible, sweeping frequency will be increased based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water course.
- Sweepers are to be operated at manufacturer requested optimal speed level to increase effectiveness.
- Vacuum or regenerative air sweepers will be used in the high sediment and trash areas.
- Accurate logs of the number of curb-miles swept and the amount of waste collected are to be kept.
- Dispose of sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Debris storage is to be kept to a minimum during the wet season. Piles will be contained by a berm or covered.

Measurable Goals:

- Approximate quantity (tons or cubic yards) of debris cleaned from streets, sidewalks and parking lots.
- Staff retraining or continuing education activities related to policies & procedures

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

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Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: Winter Road Maintenance

BMP Title: Road Salt Application

BMP Description:

- Calibrate salt spreaders to ensure proper application.
- Only apply the amount of salt needed to get the job done.
- Follow the proper application guidelines.
- Consider temperature when determining volume of salt to apply.
- Cleanup 'trackout' after a storm event around the storage area.
- Contain wash water from trucks used for salting and sanding in a holding tank for disposal or discharge into sanitary sewers.
- Explore alternative compounds to spread on the roads that have the same effect but are better for surrounding area.
- Store salt properly under cover to make sure salt is not leaving the storage area and draining to a storm drain or water body.
- Place salt piles in areas not subject to flooding.
- Use diversion berms to minimize water runoff from storage areas.

Measurable Goals:

- Salt storage structures have been inspected and necessary repairs have been scheduled or completed.
- All deicing materials have been stored under cover.
- Application components have been tested, calibrated, and maintained at regular intervals.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name: .

Category of Municipal Operations: Stormwater System Maintenance

BMP Title: Catch Basin/ Inlet Structures

BMP Description:

- Staff should regularly inspect the storm drain system to identify problems.
- Any deterioration threatening structural integrity should be immediately repaired.
- Catch basins should be cleaned before the sump is 40% full. Cleaning frequently should be scheduled as needed to meet this standard.
- Clean catch basins, inlets and other conveyance structures in high pollution load areas before the wet season to remove accumulated sediment and debris.
- Conduct inspections more frequently during wet season for problem areas where sediment or trash accumulates more often.
- Keep accurate logs of the number of catch basins cleaned and record the amount of waste collected.
- Store any collected waste appropriately away from inlets or streams. If waste is collected by vactor follow procedures for dumping of vactor waste.

Measurable Goals:

- Stencil or label "Don't Dump" on all catch basins
- Approximate quantity (tons or cubic yards) of material cleaned from structures
- Frequency of scheduled cleaning

Timeline/Implementation Schedule:

Stenciling complete by end of 2009

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Stormwater System Maintenance**

BMP Title:	**Open Channel, Ditch Maintenance**

BMP Description:

- **There are no open channel or ditches present at covered facilities**
- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- If ditch scraping is necessary do it in patches with vegetated strips left down slope to capture sediments.
- Use hydroseeding immediately after scraping.
- Hydroseed early in the season to allow sufficient growing time
- Do not hydroseed immediately before a rain

Measurable Goals:

- Approximate length of open drainage ditches maintained with enhanced implementation of erosion control practices in ditch (e.g. hydroseeding)

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Stormwater System Maintenance**

BMP Title:	**Storm Sewer Conveyance System**

BMP Description:

- Locate reaches of storm sewers with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent by vactor or pump to the sanitary sewer
- During routine maintenance field staff should look for evidence of illegal discharges or illicit connections. Any signs of spills, dumping or illicit connections should be followed up according to the illicit discharge program.

Measurable Goals:

- **In 2009 assess need for cleaning**

- Length of storm drain pipe cleaned or repaired
- Number of outfalls cleaned
- Upgrades or technology improvements implemented in overall system
- Staff training or continuing education activities

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Vehicle and Fleet Maintenance**

BMP Title: **Vehicle and Equipment Cleaning**

BMP Description:

- Mark the area clearly as a wash area, which should be covered or bermed to collect wash water and direct it to a treatment or disposal facility.
- Use biodegradable, phosphate-free detergents for washing vehicles as appropriate.
- Design wash areas to properly collect and dispose of wash water when engine cleaning is conducted and when chemical additives, solvents, or degreasers are used.
- Consider washing vehicles and equipment inside the building if washing must occur on-site.
- If washing must occur outside, use designated paved wash areas.
- If a paved area is not available for outdoor washing, it should be done over a gravel or grassed area with cold water and no soap.
- Cover the wash area when not in use to prevent contact with rain water.
- Consider filtering and recycling wash water.
- Discharge all wash water to a sanitary sewer, holding tank, or a process treatment system after consulting with the local sewer authority to find out if pretreatment is required.

Measurable Goals:

- Create and mark the wash area in your facility.
- Report number of facilities where proper disposal of wastewater has been implemented.
- Train fleet maintenance staff on policies, procedures, BMPs and stormwater management.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Vehicle and Fleet Maintenance**

BMP Title: **Vehicle and Equipment Fueling**

BMP Description:

- Spot clean leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.
- Label drains within the facility boundary to indicate whether they flow to an oil/water separator, directly to a sewer, or to a storm drain.
- Post signs to remind employees not to top off the fuel tank when filling and ban employees from changing engine fluids at the same location.
- Report leaking vehicles to fleet maintenance.
- Equip catch basins with chambers to remove large particles from stormwater in impervious areas. Also maintain these devices.
- Release accumulated non-contaminated stormwater prior to next storm.
- Install overflow protection devices on tank systems to warn operator to shutdown transfer pumps when the tank is full.
- Install protective guards around tanks and pipes to prevent damage.
- Clearly tag or label all valves.
- Maintain clean fuel-dispensing areas using dry cleanup methods.
- Use secondary containment when transferring fuel from the truck to the fuel tank, and cover nearby storm drains.
- Design fueling areas to prevent stormwater runoff and spills, such as covering the area with a roof structure, paving the area with concrete rather than asphalt and fitting fuel nozzles with hold automatic shutoffs.
- Apply a suitable sealant that protects the asphalt from spilled fuels in areas where covering is not feasible.

Measurable Goals:

- Clearly label all drains and valves in the facility for employees to know where the water is ending up.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Vehicle and Fleet Maintenance**

BMP Title: **Vehicle and Equipment Repair**

BMP Description:

- Whenever feasible, move maintenance and repair activities indoors.
- Store idle equipment containing fluids under cover.
- Avoid hosing down work areas, but if work areas are washed, collect the water and direct to sanitary sewer.
- Post signs to indicate storm drains and sinks are not to receive hazardous wastes.
- Designate a special area, with no connections to the storm drain, to drain motor fluids.
- Collect leaking or dripping fluids in drip pans or containers, and drain all fluids immediately.
- Promptly transfer used fluids to proper waste or recycling drums.
- If equipment is to be stored outside, all fluids should be drained first.
- Keep equipment clean, don't allow excess grease and oil buildup.
- If temporary work is being done outside, use a tarp, ground cloth, or drip pans to capture all spills and drips, and dispose of properly.
- Regularly inspect vehicles and equipment for leaks and repair immediately.

Measurable Goals:

- Number of cleanouts of oil and grit separators or similar maintenance operations for site draingage structures
- Recycling program results for oil, antifreeze, other fluids

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Parks and Open Space Maintenance**

BMP Title:	**Fountain & Pool Maintenance**

BMP Description:

- Use chlorine or other alternatives to control algae, not copper-based algaecides.
- Drain water from fountains and pools to a sanitary sewer or water can be dechlorinated and recycled/reused by draining it gradually onto a landscaped area. Water is tested to ensure no chlorine present.
- Maintain an 'air gap' between the discharge line and the sewer line to prevent backflow to the sanitary sewer.
- Provide drip pans beneath drain pipe connections to prevent leaks.
- Never clean a filter in the street or near a storm drain.
- Rinse cartridge filters onto a dirt area and spade filter residue into soil.
- If there is not a proper dirt area for discharge, filter backwater to the sanitary sewer if permitted.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Parks and Open Space Maintenance**

BMP Title:	**Lakes, Ponds and Lagoon Maintenance**

BMP Description:

- Reduce fertilizer use around the water body.
- Discourage the public from feeding the wildlife to control bacteria.
- Consider introducing fish that eat algae.
- Educate the public on algae and relay that certain types of algae are beneficial to the water.
- Control erosion in many ways such as maintaining vegetative cover on banks, provide riprap along banks so minimize erosion potential, and confine excavated materials away from lakes and keep covered.
- Conduct inspections to detect illegal dumping in or near a lake.
- Pickup landscape waste in and around lakes where feasible.
- Provide and maintain trash cans near recreational water bodies for the public, and increase trash collection during peak visitation.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Parks and Open Space Maintenance**

BMP Title: **Landscape Maintenance**

BMP Description:

- Use mechanical methods of vegetation removal whenever possible.
- Avoid loosening the soil when removing weeds, and use mulch when soils are exposed.
- Collect lawn and grass clippings, pruning waste, tree trimmings and weeds, and compost or dispose of properly.
- Place stockpiles away from water and berm or cover them to prevent releases to the storm drains.
- Consider planting native vegetation where feasible.
- Reduce the use of high nitrogen fertilizers which produce excess growth.
- Avoid placing landscape waste around storm drain inlets.
- Only irrigate when needed and use measures to ensure minimal runoff.
- Utilize a management system that incorporates integrated pest management techniques.
- Use pesticides only if there is an actual problem.
- Do not use pesticides if rain is expected, and do not prepare pesticides near a storm drain.
- Calibrate application equipment to avoid excessive application.
- Fertilizers should be worked into the soil rather than left on the surface, and sweep fertilizer off pavement before watering.
- Dispose of containers accordingly.

Measurable Goals:

- Report percent of staff applying pesticides who are NYS Certified Applicators.
- Reduction in fertilizer usage.
- Reduction in pesticide usage and adoption of alternative pest control approaches.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Category of Municipal Operations: **Parks and Open Space Maintenance**

BMP Title: **Outdoor Storage of Raw Materials**

BMP Description:

- Store all materials inside. If this is not feasible, then all outside storage areas should be covered with a roof and enclosed to prevent storm water contact.
- Cover and contain stockpiles of raw materials while not in use to prevent storm water from running into the covered piles.
- If stockpiles are to large to be covered and contained, implement erosion control practices at the perimeter of the site.
- Keep liquids in a designated area on a paved impervious surface with secondary containment.
- Keep outdoor storage containers in good condition, and in a clean and dry area.
- Secure drums stored in an area to prevent accidental spillage or stealing.
- Cover wood treated with chromated copper arsenate, ammonical copper zinc arsenate, creosote, or pentachlorophenol with tarps store indoors.
- Store chemicals, drums, or bagged materials in secondary containers if applicable.
- Release accumulated stormwater in petroleum storage areas prior to the next storm. Water should at least pass through an oil/water separator and, if allowed, discharged to a sanitary sewer.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Parks and Open Space Maintenance**

BMP Title:	**Pet Waste Collection**

BMP Description:

- Assess municipal parks and open space areas to determine locations with excessive amounts of pet waste.
- Prioritize problem areas based upon quantity of pet waste and proximity to waterbodies.
- Install pet waste signs or bag stations as necessary.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Municipal Building Maintenance**

BMP Title: **Outdoor Container Storage**

BMP Description:

- Protect materials from rainfall, runon, runoff, and wind dispersal by covering the storage area with a roof.
- Use covered dumpsters for waste containers.
- Use a 'doghouse' structure for storage of liquid containers.
- Berm or surround tank or container with secondary containment system.
- Provide barriers around tanks such as posts to prevent collision damage from vehicles.
- Place tight fitting lids on all containers.
- Raise containers off the ground with provisions for spill control and secondary containment.
- Contain the material in such a way that if a leak or spill occurs, the contents will not drain to the storm drain or other waters.
- Place containers in a lean-to structure or otherwise covered to keep rainfall away.

Measurable Goals:

- Implementation of a recycling program.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: Municipal Building Maintenance

BMP Title:	**Outdoor Loading and Unloading**

BMP Description:

- Develop an operations plan that describes procedures for loading and unloading.
- Do not conduct loading and unloading during wet weather if possible.
- Cover designated loading areas to reduce exposure of materials to rain.
- Design loading areas to prevent stormwater runon which would include grading or berming the area, and positioning roof downspouts so they direct stormwater away from the loading area.
- Load all materials and equipment in covered areas such as building overhangs at loading docks.
- Pave loading areas with concrete instead of asphalt.
- Avoid placing storm drains in the area.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Municipal Building Maintenance**

BMP Title: **Plaza and Sidewalk Cleaning**

BMP Description:

- Use dry cleaning methods whenever practical for surface cleaning activities.
- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Regularly broom (dry) sweep sidewalks plaza and parking lot areas to minimize cleaning with water
- Sweep, collect, and dispose of debris and trash before washing
- Block the storm drain or contain runoff when cleaning with water. Discharge wash water to landscaping or collect water and pump to a tank or discharge to the sanitary sewer.
- Block storm drain inlets or contain runoff when washing parking areas, driveways or drive-throughs. Use absorbents to pick up oil; then sweep dry. Clean with or without soap. Collect water and pump to a tank or discharge to the sanitary sewer.

Measurable Goals:

- Report number of alternative products or methods used.

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:
Minimum Control Measure: Municipal Building Maintenance

BMP Title:	**Spill Prevention, Control, & Cleanup**

BMP Description:

- Move material handling indoors, under cover, or away from storm drains or sensitive water bodies, if possible.
- Properly label all containers so contents are easily identifiable.
- Berm storage areas so that if a spill of leak occurs, the material is contained.
- Cover outside storage areas either with a permanent structure or a seasonal one so that rain cannot contact materials.
- Check containers often for leaks or spills, and replace deteriorating containers with ones in good condition.
- Store, contain, and transfer liquid materials in such a manner that if the contents spilled, they would not discharge or be washed into the storm drain, surface waters, or groundwater.
- Place drip pans or absorbent materials beneath all mounted taps and all potential drip and spill locations during the filling and unloading of containers.
- For field programs, only transport the minimum amount of material needed for the daily activities and transfer materials between containers at a municipal yard where leaks and spills are easier to control.
- If paved, sweep and clean storage areas monthly. Do not hose down area unless water is being collected and disposed properly.
- Install a spill control device in any catch basins that collect runoff from areas storing materials that separate and float on water.
- Protect catch basins while a conducting field activity so if a spill does occur, the material is contained.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Solid Waste Management**

BMP Title:	**Chemical/ Hazardous Waste**

BMP Description:

- Store hazardous materials and wastes in covered containers protected from vandalism, and in compliance with fire and hazardous waste codes.
- Place hazardous waste containers in secondary containment as necessary
- Hazardous waste is to be collected, removed, and disposed of only at authorized disposal areas.

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Solid Waste Management**

BMP Title: **Illegal Dumping and Litter Control**

BMP Description:

- Post no littering signs as necessary.
- Provide litter receptacles in busy, high pedestrian traffic areas of the community at recreational facilities, and at community events.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Post "No Dumping" signs as necessary. Signs should include a phone number to report dumping and disposal.
- Establish a system for tracking incidents. The system should be designed to identify such things as, dumping hotspots, types and quantities of wastes, patterns in time of occurrence, mode of dumping, etc.
- Consider landscaping/beautification of hot spots in order to discourage future dumping.

Measurable Goals:

- Number of sites identified where illegal dumping occurs
- Number of sites that have been modified to discourage illegal dumping
- Number of litter reduction events conducted or endorsed (including stream/streambank cleanup and beach cleanup

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Solid Waste Management**

BMP Title:	**Run-on/ Runoff Prevention**

BMP Description:

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain
- Waste piles are to be covered with a temporary material such as a reinforced tarpaulin, polyethylene, etc.
- If feasible, cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Check waste management areas regularly for leaking containers or spills

Measurable Goals:

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Solid Waste Management**

BMP Title: **Waste Collection**

BMP Description:

- Regularly inspect solid waste containers (dumpsters & garbage cans) for structural damage. Damaged containers are to be repaired or replaced as necessary.
- Containers must be closed tightly when not in use
- Waste containers should never be filled with washout water or any other liquid
- Only appropriate solid wastes are to be added to waste containers. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers.
- If feasible, trash storage areas should be covered.

Measurable Goals:

- Staff training or continuing education activities related to policies and procedures

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

BMP Summary Sheet

Department Name:

Category of Municipal Operations: **Solid Waste Management**

BMP Title: **Waste Reduction and Recycling**

BMP Description:

- Wastes are to be recycled whenever possible. Gasoline, antifreeze, waste oil and lead acid batteries can be recycled. Latex and oil-based paint can be reused as well as recycled. Materials that can not be reused or recycled should be disposed of properly.
- Recycling bins for glass, newspaper, metal, plastic bottles and other recyclable household solid wastes should be provided at public facilities.

Measurable Goals:

- Frequency of hazardous material collection events
- Municipal recycling program results (tons or cubic yards) for glass, metal, paper, plastic, organic materials

Timeline/Implementation Schedule:

Specific Components and Notes:

Responsible Party for this BMP

Indicate who specifically is responsible for the implementation and monitoring of this BMP. This should be the individual who is actively involved with the BMP.

Name:
Department:
Phone:
E-mail:

Municipal Pollution Prevention
And
Good Housekeeping Program Assistance

May 2006

Denise M. Sheehan, Commissioner
NYS Department of Environmental
Conservation

George Pataki, Governor
State of New York

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Section 1

Introduction: The Importance of Pollution Prevention and Good Housekeeping in Stormwater Management

1.1 Assistance Document Purpose and Scope

This assistance document is intended to set a framework for pollution prevention and good housekeeping programs for municipal operations and facilities. Pollution prevention and good housekeeping for municipal operations is one of six minimum control measures required under New York State's Municipal Separate Storm Sewer System (MS4) Phase II Stormwater Permit Program.

The term MS4 does not solely refer to municipally owned storm sewer systems, but rather has broader application and includes, in addition to local jurisdictions: the NYS Department of Transportation, public universities, local sewer districts, public hospitals, military bases, and prisons. An MS4 is not limited to a system of underground pipes; it can include roads with drainage systems, gutters and ditches.

This assistance document is also intended to clarify New York State's expectations for reporting by MS4s on the progress and implementation of pollution prevention and good housekeeping programs (referred to as Minimum Control Measure 6). Recommendations are provided for self-assessment of existing programs (Section 2) and implementation of more comprehensive pollution prevention efforts (Section 3). Finally, sources of additional published information on specific best management practices (BMPs) are provided (Section 4).

This assistance document is considered to be a dynamic document that will evolve as experience is gained and shared among municipalities and other MS4s. In addition, as updated information becomes available, the discussion of practical aspects of program assessment and implementation and viable BMPs are expected to change and be incorporated into future assistance materials.

1.2 Program Requirements

The United States Environmental Protection Agency's (USEPA) Stormwater Phase II Final Rule and New York State's MS4 Phase II Stormwater Permit Program require an operator of a regulated small MS4 to:

- Design and implement an operation and maintenance program to reduce and prevent discharge of pollutants to the maximum extent practicable from municipal operations and facilities;

- Include a training component in the program on pollution prevention and good housekeeping techniques in municipal operations;

- Select and implement management practices for pollution prevention and good housekeeping in municipal operations; and

- Develop measurable goals to ensure the reduction of all pollutants of concern in stormwater discharges to the maximum extent practicable.

The New York State Department of Environmental Conservation (DEC), in partnership with other state agencies and institutions, has published since 1992 a series of documents that together comprise the NYS Management Practices Catalogue for Nonpoint Source Pollution Prevention. This catalogue preceded the final adoption of the Stormwater Phase II Rule and many of the included practices are relevant to the pollution prevention/good housekeeping goals.

However, other published management practice documents may also be suitable and address details not in the original NYS Management Practices Catalogue. Section 4 provides references to some of these. It is expected that improved descriptions of management practices suitable for municipal pollution prevention programs will be published in the future. These practices, often referred to as BMPs in literature, may be accepted in the New York State Phase II Stormwater Permit Program, and may be referenced in future updates of this assistance document.

Section 2

Assessing Existing Programs and Setting Priorities

2.1 Assessing Existing Programs

Pollution prevention and good housekeeping policies and procedures may already be in place in some municipalities. In many cases, municipalities are implementing activities that support pollution prevention and good housekeeping. These activities are being performed either under direct control of the municipality or are contracted or shared with other public entities.

New York State recommends that municipalities conduct a self-assessment of their existing policies, procedures and activities that relate to pollution prevention and good housekeeping. This assessment will serve to identify both strengths and potential gaps or revisions that need to be addressed for compliance with the Phase II Stormwater Permit requirements. The self-assessment should address contracted or shared operations, as well as those under direct municipal control.

The self-assessment should be conducted for each of the principal categories of municipal operations that comprise Minimum Control Measure 6, which are:

- Street and Bridge Maintenance
- Winter Road Maintenance
- Stormwater System Maintenance
- Vehicle and Fleet Maintenance
- Parks and Open Space Maintenance
- Municipal Building Maintenance
- Solid Waste Management
- Streambank and Hydrologic Habitat Maintenance

Within a given municipality, the self-assessment should consider the status of policies and procedures, resources (staff and equipment) and training for all operation categories within that municipality. Table 2.1 presents a suggested list of questions to ask when performing the assessment. Municipalities can add additional questions, as needed, to help improve the effectiveness of the assessment.

This self-assessment is only a guide. The results of the assessment are not required to be submitted to the DEC. However, municipalities will benefit from the assessment because it will help determine if the necessary steps are being taken and adequate staff and resources are available to achieve compliance with the Phase II Stormwater Permit requirements. Assistance for tracking the established policies and procedures and activities performed are presented in Section 3 and will be useful for assessing the effectiveness of the municipal pollution prevention and good housekeeping program.

Table 2.1

Pollution Prevention and Good Housekeeping
Self-Assessment for Municipal Operations

1. Status of Policies and Procedures
- Established?
- Format (document type, if any)?
- Latest revision or review?
- Content: For each municipal operation category in Tables 3.1 to 3.8, all relevant key items listed under policies and procedures currently addressed?

2. Staff
- Number of staff (with significant roles in municipal operations for each category)?
- Percent of staff receiving training in pollution prevention, good housekeeping and stormwater management?
- Percent of staff trained in existing policies and procedures?

3. Equipment
- Adequacy: are upgrades or new equipment needed?
- Proper maintenance schedules implemented?

4. Coordination/Collaboration
- Are policies consistent across municipal departments? (e.g. pesticide use in different operations, recycling, etc.)
- Are county, regional or state agencies consulted or involved in municipal pollution prevention and good housekeeping efforts?
- Are community groups and citizens involved either through volunteer assistance, advisory roles, or outreach and education?

2.2 Setting Local Priorities

Most pollution prevention and good housekeeping practices should be implemented across all geographic areas, at all municipal facilities and in all municipal operations. Practical considerations, though, may indicate the need for setting priorities. A municipality's capabilities, the nature of existing pollution and its sources, and waterbody and watershed characteristics are important factors that may warrant program adjustments and influence such decisions as:

- BMP priorities and selection
- Scheduling and frequency of BMP implementation
- Targeting of different operations or facilities for primary emphasis
- Need for more advanced technology or system component upgrades or repairs
- Need for fostering partnerships with businesses or other public entities within the municipality, or other areas within the watershed but outside of the municipality
- Worker training priorities

The watershed (including waterbodies) characteristics, existing pollution and sources of pollution are interrelated. Together, they should guide a municipality in determining which types of operations or facilities and which general locations are most important to address first. The likelihood that an operation or facility may store or release a high priority pollutant and the proximity of that operation or facility to a high priority waterbody are the most important considerations.

Municipal Capabilities and Existing Pollutants

This process for setting priorities may be used to set short-term implementation decisions (targeted operations, locations, schedules), but may also be applied to longer-term development of a comprehensive pollution prevention program. Uniform procedures across all operations and all areas are an ideal goal, but basing priorities on common sense interpretations of watershed and pollutant characteristics will lead to more cost-effective programs in the short term.

An assessment of the municipality's capabilities and potential to achieve results in the receiving waterbodies may suggest other needed adjustments. Beyond the constraints of a municipality's resources (staff, infrastructure, equipment), the significance of pollution sources in the watershed outside of the municipality or not under municipal control directly affects the potential to achieve results through the municipal pollution prevention/good housekeeping program. Longer-term partnerships and implementation of other stormwater management program measures may be important.

Another important factor in setting priorities is related to "clean water" exposure. The opportunity for relatively clean runoff to contact potential pollutant sources must be minimized. This may be controlling direct precipitation or meltwater, roof runoff, or other sheet or channel runoff. Such exposure, even in areas not close to priority waterbodies, may be assigned a high

priority for BMP implementation.

Local Sources of Resources and Assistance

For many municipalities across New York State, a very useful resource that can guide program priorities is the recent work of county-level (and sometimes regional) organizations to establish County Water Quality Strategies. These strategies have been developed in many counties through the cooperative work of local agencies and organizations that comprise the County Water Quality Coordinating Committee (CWQCC). The organizations included in the CWQCC, are excellent sources of assistance. In many cases, their expertise on local water resources, land use and pollution problems is invaluable for determining both geographic and pollutant priorities for municipalities.

Another resource in some areas of the state is the Regional Planning Council (sometimes referred to as the regional planning and development board or regional planning agency). Such agencies, depending on the region, have invested considerable talent in water resource management planning and priority setting.

To locate County Water Quality Coordinating Committee (CWQCC) contacts, go to http://www.nys-soilandwater.org/ and scroll down and click on "CWQCC." To identify the CQWCC contact, click on the menu item in the left column named "Contacts," then select "County Offices". Below the "NYS Map" you will see that the CWQCC contact for each county is in the far right column. To quickly refer to your county, click on the county on the "NYS Map" and the page will automatically scroll down to the county of interest. In the future, you will also be able to obtain the contact information directly from the "CWQCC" page.
To locate Regional Planning Council contacts, go to http://www.dos.state.ny.us/lists/rgcoplan.html . Next, click on "Regional Planning Agencies" and scroll down to the planning body for the county/ies of interest (counties are listed after the name of each planning body).

Waterbody Assessment

The most useful geographic tool for identifying priorities is the DEC's Waterbody Inventory/Priority Waterbodies List (WI/PWL). This inventory and list, which is a component of DEC Division of Water's Comprehensive Assessment Strategy, has been published in fourteen documents for the basins of New York. Published information is available through:

Bureau of Watershed Assessment and Management
NYSDEC Division of Water
625 Broadway
Albany, NY 12233-3502

and information can be found on the worldwide web at:
http://www.dec.state.ny.us/website/dow/bwam/wqap.html

The Waterbody Inventory is a comprehensive inventory of all surface waters of the state, whereas the Priority Waterbodies List (PWL) is a subset of these waters with documented, potentially resolvable higher priority problems and issues.

The highest priority waters in New York State are a further subset of the PWL, known as the New York State 2004 Section 303(d) List of Impaired Waters Requiring a TMDL (Total Maximum Daily Load). This list, often referred to as the Section 303(d) List, identifies those waters that do not support appropriate uses and that require TMDL development or other strategy to attain water quality standards. The 2004 Section 303(d) List identifies 592 separate waterbodies, though multiple pollutants in some of these waterbodies result in 976 waterbody/pollutant listings. Information on the 2004 Section 303(d) List is available from the same DEC Division of Water Office and website listed above.

Both the PWL and Section 303(d) List indicate specific waterbodies along with general assessments of pollutant(s) causing the listing and the source(s) of pollutant(s). Municipal pollution prevention and good housekeeping programs should target municipal operations or facilities which are most likely to collect, store or release such pollutants or which are in closest proximity to the listed waters.

Another useful tool for setting priorities based on watershed characteristics that complements the PWL and Section 303(d) lists is the New York State Department's of Health's Source Water Assessment Program (SWAP). This program addresses public drinking water sources, including both surface water and groundwater, and is therefore narrower in scope than the PWL and Section 303(d) Lists. The SWAP assessments may be a useful tool because they attempt to address and set priorities based on land use characteristics in the watershed and on pollutant and pollutant source categories. Information on the Source Water Assessment Program and specific assessments may be obtained from the following New York State Department of Health webpage: http://www.health.state.ny.us/nysdoh/water/swap.htm .

2.3 Guiding Principles for Stormwater Pollution Prevention

Priorities for implementing municipal pollution prevention and good housekeeping programs should also be based on a series of guiding principles. The following listing of such principles may support decisions on BMP selection and targeting of more important operations and facilities. They may also serve to develop employee capabilities, improve coordination with other non-municipal efforts, and facilitate measurement of progress in reducing stormwater pollution. The "common sense" nature of these suggestions, while not required, can provide a useful perspective and all are considered to be worthy of attention.

1. Prevent Pollution at its Source

Controlling pollutants at their source and preventing their wider release is more efficient and cost-effective than removing them from stormwater runoff or other water treatment. Remove or capture contaminants before stormwater contact; prevent erosion; and provide multiple barriers to pollutant releases at storage and waste sites.

Examples:

- sweeping streets (abrasives removal, litter, organic debris removal)
- secondary containment at storage sites
- revegetating eroding slopes
- early capture of hydrocarbons by pretreatment vaults
- animal waste collection and management

2. Manage Clean Water Runoff and Minimize Pollutant Exposure to Clean Water

Prevent clean water runoff and precipitation from contacting potential pollutants and prevent mixing of clean runoff with polluted water flows.

Examples:

- structural cover of storage sites
- roof drainage management
- site drainage design/runoff diversion
- maximize infiltration of runoff

3. Minimize Use of Potential Pollutants

Examine municipal use of all chemicals and other potential pollutants and identify methods of eliminating, reducing or better targeting their use in municipal operations and facilities (including alternative products).

Examples:

- reduced or alternative pesticide use
- reduced fertilizer use
- reduced road salt and abrasives use
- reduced or alternative exterior cleaning product use

4. Plan for Spills and Accidents

Develop spill prevention and response policies and procedures for ALL facilities that use or store chemicals (not just petroleum).

Examples:

- provide secondary containment
- equip facility to handle any size of spill
- assign responsible person/team for response
- post procedures and emergency contacts

5. Practice Preventive Maintenance

Regularly inspect components of stormwater collection, conveyance and treatment system; regularly inspect machinery, pipes, storage tanks and other equipment for leaks or worn parts; regularly calibrate application equipment (salts, pesticides, fertilizers); plan for system upgrades and component replacements and repairs.

Examples:

- containment of minor leaks and spills with drip pans, absorbent pads
- use of dry cleanup methods rather than washing
- establish inspection calendar and incorporate into records/data system
- establish equipment maintenance and calibration calendar and incorporate into records/data system

6. Identify Potential Pollution Sources

Identify all municipal facilities and operations that could impact stormwater quality; identify potential pollution sources at each site or for each activity; identify, map and inspect the facility's stormwater drainage system.

Examples:

- all material storage sites, especially those with any outside loading or unloading operations
- all fueling sites
- all drainage structures and components
- all sites with animal waste concentrations
- pesticide/fertilizer application areas

7. Plan New Facilities to Include Stormwater Pollution Prevention

Include a stormwater pollution prevention component in all new municipal facilities and activities; site new facilities to minimize waterbody impacts.

Examples:

- minimize impervious surfaces
- maintain stream buffers
- infiltrate runoff
- eliminate pollutant exposure
- provide spill containment measures and structural stormwater management practices

8. Improve Data Collection, Mapping, and Records Maintenance

Emphasize improvement of data collection and records maintenance to address higher priority pollution sources and contaminants; improvement of geographic information; and unification of data management across all relevant municipal departments and operations.

Examples:

- incorporate geographic information systems (GIS) into pollution prevention planning
- maintain chemical usage data (pesticides, fertilizers, salts, solvents, etc.)
- maintain inspection, repair, maintenance records
- integrate records maintenance across departments, based on priorities (e.g., pesticide usage)

9. Train and Reward Employees

Train employees regarding stormwater pollution and prevention practices; identify emergency contacts and reporting procedures; seek employee ideas on pollution prevention methods and priorities; reward employees who participate in prevention program.

Examples:

- general education on importance of stormwater pollution control to all employees
- targeted training on policies, procedures and best management practices for maintenance staff
- retraining and continuing education on routine basis for maintenance staff
- bulletin boards, web postings or other options for BMP news and updates.
- establish and continue employee rewards or recognition program

10. Improve Communications and Coordination

Emphasize communication and coordination across key municipal departments and operations; coordinate stormwater and pollution prevention activities with county and state agencies, organizations and institutions; develop public outreach and citizen participation regarding municipal pollution prevention activities.

Examples:

- establish a municipal pollution prevention team (public works director, planner engineer, water/sewer operator, highway, etc.)
- participate in County Water Quality Coordinating Committee (county agencies, etc.)
- participate in statewide organizations (Association of Towns, Conference of Mayors, Cornell Local Roads Program, etc.)
- work with local educational institutions
- work with Regional Planning Agency for your area
- include stormwater pollution prevention column in municipal newsletter and bulletins
- post informational signs at special project sites
- encourage participation by citizens and businesses in special events such as hazardous waste collection events or community cleanup days.

Section 3

New York State Expectations for Municipal Pollution Prevention and Good Housekeeping Programs

3.1 Progressive Development of Pollution Prevention and Good Housekeeping Programs

Many municipalities across New York State have already established elements of pollution prevention and good housekeeping that address their routine operations. Proper storage of materials, spill prevention and response, street cleaning, and stormwater drainage system maintenance are just some of the practices that have been incorporated as standard procedures.

However, there is also wide variation in the degree of development and implementation of the diverse aspects of pollution prevention and good housekeeping, even within a single municipality. Consistency - or a unified, integrated approach - across the different municipal operations is an important concern. A coherent approach to setting priorities, policies and procedures, record keeping and worker training for all operations related to stormwater management is strongly recommended.

It is essential to recognize the relevance of many routine municipal operations to the stormwater management program. Any operations that collect, store or release sediments, wastes or other potential pollutants are important elements of stormwater management and should be addressed in the comprehensive pollution prevention and good housekeeping program.

The self-assessment approach recommended in Section 2.1 serves to identify both strengths and program development needs for a broad spectrum of municipal operations. The program development phase that is emphasized in the self-assessment focuses on the following:

- statement of policies and procedures
- selection of BMPs for implementation
- identification of priorities
- setting schedules for implementation
- worker training
- equipment review (adequacy, maintenance, upgrades, new technology)
- record keeping practices
- protocols for partnerships (cooperative work with other public agencies, contractors, citizen groups)

To the extent practicable, it is desired that these elements be addressed in a unified approach across different municipal operations and departments. Priority setting approaches, record-keeping practices, and worker training are examples where a unified approach is most beneficial.

Many of these elements are already developed to some degree for most of the key municipal operations. New York recognizes that future municipal program development will be phased, as each of these elements may be enhanced in stages. Early emphasis on setting geographic and pollutant priorities is important. Worker training should also be addressed at an early stage.

Continued re-evaluation of some of these elements will also be very important. As the nation-wide effort to reduce stormwater pollution progresses, improved BMP references and documentation will become available. New technology will also be field-tested and become available. The results of program implementation may indicate the need for revising priorities. The municipal pollution prevention and good housekeeping program should be considered dynamic.

The program implementation phase, though already underway in most communities, draws from the program development phase and entails the field implementation of BMP. It includes the actual cleanout of system components, the construction of materials storage facilities, the maintenance of facilities, the recycling of wastes and any other field operations that support pollution prevention.

3.2 Documenting Progress - Measurable Goals

New York State provides a framework for reporting by municipalities to the state on progress of the stormwater management program in the MS4 Annual Report form. The specific reporting requirements for Minimum Control Measure 6 are addressed in that form.

This section describes sample measurable goals that are recommended by DEC to provide the basis for municipalities to document their progress in pollution prevention and good housekeeping programs. These recommended goals may be more comprehensive than the specific requirements of the MS4 Annual Report. They may provide the information that a municipality reports in their annual report to DEC. They may also provide a more comprehensive summary of progress as a supplement to the Annual Report.

Municipalities may organize recordkeeping in different ways, depending on their municipal department organization. DEC recommends that recordkeeping reflect the organization of the municipal government and its operations. This should facilitate and simplify both collecting information and communicating best management practice information to field staff.

Some aspects of pollution prevention (e.g., hazardous material storage, pesticide management) will apply to more than one municipal department or operation. For this reason, DEC recommends that municipalities establish a coordination mechanism across departments or operations for pollution prevention. This can ensure reasonably consistent policies and help avoid conditions where the field practices in one operation might have negative impacts on another. The coordination mechanism may take different forms: committee, uniform policies,

notifications of actions or department policy changes, uniform recordkeeping data system, or other approaches.

The sample measurable goals for Minimum Control Measure 6 are summarized in Tables 3.1 through 3.8. These are organized based on types of municipal operation, as follows:

- Street and Bridge Maintenance
- Winter Road Maintenance
- Stormwater System Maintenance
- Vehicle and Fleet Maintenance
- Parks and Open Space Maintenance
- Municipal Building Maintenance
- Solid Waste Management
- Streambank and Hydrologic Habitat Maintenance

Municipalities may combine certain aspects of these operation categories, depending on their organization.

The scope of these municipal operations encompassed by Minimum Control Measure 6 is focused on: (1) activities at municipally owned or operated facilities (e.g., buildings, parks, public works facilities or infrastructure), and (2) operations throughout the community that are the ordinary responsibilities of municipal departments (e.g., street maintenance, stormwater drainage system maintenance).

Operations and maintenance activities undertaken by private contractors, but which serve municipal programs, facilities and responsibilities, are to be included in this scope. Operations that might serve the residential community but which are municipal program responsibilities, such as household hazardous waste collection events, are also included within this scope. However, this scope does NOT include pollution prevention and good housekeeping practices within commercial or industrial properties or within residential properties unless there is a direct connection to municipal program responsibilities.

Using Tables 3.1 to 3.8

There are two types of measurable goals that municipal pollution prevention programs **may** want to report on in their annual report or other reporting format: policy and procedure measurable goals and implementation measurable goals. Reporting on the measurable goals would identify components of the pollution prevention and good housekeeping program and indicate work done and progress made. Tables 3.1 to 3.8 provide examples of the two types of measurable goals.

The policy and procedure measurable goals are important topics or issues that are recommended for inclusion in policies, procedures and training. Policies and procedures

documents may take any form that communicates these topics or issues to municipal staff, including memos, posters, or comprehensive strategies. An indication of staff training regarding the policies and procedures is also a recommended measurable goal. Including information about new or existing policies, procedures and staff training would provide useful information to people interested about the pollution prevention and good housekeeping activities in a given municipality.

The sample implementation measurable goals are examples of some of the activities municipal operations may choose to measure and report on. The measurements and reporting would provide information about the work performed by the different municipal operations to document their progress in pollution prevention and good housekeeping. Reporting on these measurable goals (in the annual report or other forum) would also provide useful information to parties interested about the pollution prevention and good housekeeping activities in a given municipality.

Some of these municipal operation categories or sample measurable goals may not apply to all municipalities (e.g. marinas and streambank stabilization / hydrologic habitat modification). The following eight categories of operations in Tables 3.1 through 3.8 are included as suggestions for a comprehensive municipal pollution prevention and good housekeeping program. Although MS4s are required to reduce discharges to the maximum extent practicable, MS4s are not specifically required to make additions to the program that were not planned in the original Notice of Intent (NOI) that address all of these suggestions.

Table 3.1

Street and Bridge Maintenance
Sample Measurable Goals
(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for street and bridge maintenance which address:

   a. street cleaning priorities
   b. schedules and frequency
   c. priority waterbody considerations (PWL, Section 303(d) List / TMDL, other)
   d. equipment
   e. sidewalks and municipally owned parking lots cleaning
   f. pollution prevention and streambank erosion control in bridge maintenance
   g. maintenance of unpaved roads (drainage, erosion and dust control)

2. Street and bridge maintenance staff have been trained regarding the above elements and stormwater management principles.

IMPLEMENTATION

1. Approximate quantity (tons or cubic yards) of debris cleaned from streets, sidewalks and parking lots (cumulative for calendar year).

2. Number of bridge repair/replacement projects with incorporated pollution prevention or streambank erosion control components.

3. Street and bridge maintenance staff retraining or continuing education activities related to policies, procedures and stormwater management.

4. Street and bridge maintenance policies and procedures, or BMP updates or revisions.

5. Erosion control and drainage measures implemented for roads.

Table 3.2

Winter Road Maintenance
Sample Measurable Goals
(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for winter road maintenance which address:

    a. deicing material storage methods
    b. storage site operations and cleanup
    c. salt reduction options, including alternative materials
    d. improved application technologies
    e. application equipment maintenance
    f. vehicle washing
    g. sensitive ecosystems or priority waterbody considerations (PWL, Section 303(d) List / TMDL, other)
    h. drinking water well considerations, including private wells

2. Winter road maintenance staff have been trained regarding these elements and stormwater management principles.

IMPLEMENTATION

1. Salt storage structures have been inspected for structural integrity and necessary repairs have been scheduled or completed.

2. All deicing materials, including salt-sand mixed abrasives, have been stored under permanent or temporary cover.

3. Application technology components (spreaders, road-weather systems, etc.) have been tested, calibrated and maintained at manufacturer recommended intervals.

4. Modified deicing methods (material selection, improved technology, application strategy, training) have resulted in decreased overall annual salt usage accounting for seasonal weather variability. Estimated reduction (tons).

5. Winter road maintenance staff training or continuing education activities related to policies, procedures, BMPs, and stormwater management.

6. Winter road maintenance policies, procedures or BMP updates or revisions.

Table 3.3

Stormwater Drainage, Conveyance and Treatment System Maintenance Sample Measurable Goals

(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for maintenance of the stormwater drainage, conveyance and treatment system which address:

    a. priority setting for different portions of the system which considers waterbody impacts and other factors (PWL, Section 303(d) List, other)
    b. inspection of system components, and record-keeping and frequency tracking
    c. technology improvements and installation
    d. maintenance, repair and cleanout of system components
    e. public education and communications
    f. maintenance of open drainage ditches

2. Staff responsible for the system have been trained regarding these elements and stormwater management principles.

IMPLEMENTATION

1. Approximate quantity (tons or cubic yards) of material cleaned from structures in the stormwater drainage, conveyance and treatment system.

2. Length of storm drain pipe cleaned.

3. Number of outfalls cleaned.

4. Upgrades or technology improvements implemented in overall system (specify).

5. Stormwater system maintenance staff training or continuing education activities related to policies, procedures, BMPs, and stormwater management.

6. Stormwater system maintenance policies, procedures or BMP updates or revisions.

7. Approximate length of open drainage ditches maintained with enhanced implementation of erosion control practices in ditch (e.g. hydroseeding).

Table 3.4

Vehicle and Fleet Maintenance
Sample Measurable Goals
(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for vehicle and fleet maintenance which address:

   a. wastewater disposal and treatment from vehicle washing
   b. site drainage system maintenance and cleanout
   c. recycling (including oil and antifreeze)
   d. hazardous materials storage
   e. spill prevention and response (petroleum and other substances)
   f. solid waste disposal
   g. alternative product usage

2. Fleet maintenance staff have been trained regarding these elements and stormwater management principles.

IMPLEMENTATION

1. Number of cleanouts of oil and grit separators or similar maintenance operations for site drainage structures.

2. Recycling program results:
   Oil
   Antifreeze
   Other (specify)

3. Proper treatment and disposal of wastewater from vehicle washing has been implemented. Number of facilities implemented.

4. Fleet maintenance staff training or continuing education activities related to policies, procedures, BMPs and stormwater management.

5. Vehicle and fleet maintenance policies, procedures or BMP updates or revisions.

Table 3.5

Parks and Open Space Maintenance
Sample Measurable Goals
(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for different components of parks and open space maintenance which address:

   a. Grounds Maintenance
      - integrated pest management
      - use of pesticide alternatives
      - fertilizer use, alternatives and reductions
      - erosion control practices
      - solid waste: waste reduction, recycling and litter control
      - hazardous materials storage
      - pesticide and fertilizer usage records

   b. Golf Course Maintenance
      - same elements as Grounds Maintenance, above.

   c. Marina Maintenance
      - fuel storage and spill prevention and response
      - boat cleaning and painting operations
      - pumpouts and haul-out pit maintenance
      - hazardous material storage
      - solid waste: waste reduction, recycling and litter control

   d. Municipal Pool Maintenance
      - hazardous materials storage
      - alternative discharge options for chlorinated water

   e. Onsite Septic Systems
      - inventory of existing systems
      - inspections and record keeping
      - pumpouts and maintenance

f. Animal Waste Management
   - pet waste control, education and enforcement
   - bird waste control
   - domestic animals (fairgrounds, municipal farms, equestrian center)
   - wildlife
   - public education and communication

2. Staff responsible for each of these categories of parks and open space maintenance have been trained regarding the appropriate elements and stormwater management principles.

IMPLEMENTATION

1. Grounds Maintenance

   a. Percent of staff applying pesticides who are NYS Certified Applicators

   b. Reduction in pesticide usage and/or adoption of alternative post control approaches (less toxic or persistent products, integrated pest management)

   c. Reduction in fertilizer usage

2. Golf Maintenance

   a. Percent of staff applying pesticides who are NYS Certified Applicators

   b. Reduction in pesticide usage and/or adoption of alternative post control approaches (less toxic or persistent products, integrated pest management)

   c. Reduction in fertilizer usage

3. Marina Maintenance

   a. Program established for hull wash-down debris control.

   b. Program established for sanding and painting debris and dust control.

   c. Waste tank pumpout system is available and maintained.

   d. Continuous boater education program, including printed material distribution.

   e. Solid waste program in place at marina, including litter control, recycling, and waste oil/antifreeze recovery.

f. Petroleum spill prevention and response program is in place.

4. Municipal Pool Maintenance

   a. Procedures in place for proper drainage and discharge of pool water.

   b. Hazardous materials stored in secure structures to prevent exposure or illicit entry.

5. Onsite Septic Systems

   a. Date of most recent inspection (month/year).

   b. Date of most recent pumpout (month/year).

   c. Documented problems in operation.

6. Animal Waste Management

   a. Ordinance in place for proper collection and disposal of pet wastes (from parks, public sidewalks and streets).

   b. Program in place for control of concentrated sources of bird waste or other animal wastes.

7. (GENERAL - applies to all parks/open space categories) Parks/open space maintenance staff training or continuing education activities related to policies, procedures, BMPs and stormwater management.

8. (GENERAL - applies to all parks/open space categories) Parks/open space maintenance policies, procedures or BMP updates or revisions.

Table 3.6

Municipal Building Maintenance
Sample Measurable Goals
(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for municipal building maintenance which address:

    a. petroleum bulk storage spill prevention and response
    b. hazardous material storage (including pesticides)
    c. onsite septic system inspection and maintenance
    d. grounds maintenance (pesticides, fertilizers, erosion control)
    e. erosion control for new construction or other land disturbance
    f. waste disposal and recycling
    g. alternative product usage
    h. building site drainage, roof drainage system, infiltration

2. Building maintenance staff have been trained regarding these elements and stormwater management principles.

IMPLEMENTATION

1. Number of onsite septic system inspections or maintenance operations (pumpout, etc.).

2. Number of alternative products adopted for use.

3. Reduction (if any) in fertilizer usage.

4. Pesticide usage changes, including any of the following: (a) adoption of integrated pest management program, (b) reductions in pesticide usage, or (c) conversion to alternative less toxic or persistent pest control products.

5. Implementation of recycling program.

6. Building site drainage, including roof drainage system, modifications to manage “clean water” and prevent or minimize contact with pollutant sources and maximize infiltration.

7. Municipal building maintenance staff training or continuing education activities related to policies, procedures, BMPs and stormwater management.

8. Municipal building maintenance policies, procedures or BMP updates or revisions.

Table 3.7

Solid Waste Management
Sample Measurable Goals
(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for elements of a solid waste management program which address:

   a. prevention of illicit dumping
   b. litter control
   c. animal waste controls (pets, birds, wildlife, domestic animals)
   d. waste reduction and recycling
   e. household hazardous waste collection (including from municipal buildings)

2. Staff responsible for relevant portions of the solid waste program and enforcement have been trained regarding these elements and stormwater management principles.

IMPLEMENTATION

1. Frequency of hazardous material collection events.

2. Sites been identified where illegal dumping is known to occur.

3. Number of sites that have been modified to discourage illegal dumping.

4. Number of litter reduction events conducted or endorsed by municipality (including stream/streambank cleanup and beach cleanup).

5. Municipal recycling program results (tons or cubic yards) for glass, metal, paper, plastic, organic materials.

6. Solid waste management staff training or continuing education activities related to policies, procedures, BMPs and stormwater management.

7. Solid waste management policies, procedures or BMP updates or revisions.

Table 3.8

Streambank Stabilization and Hydrologic Habitat Modification
Sample Measurable Goals

(Detailed Municipal Operation Resources)

POLICIES AND PROCEDURES

1. Policies and procedures have been developed for streambank stabilization, pond maintenance, and hydrologic habitat modification which address:

    a. priority setting for streambank stabilization projects
    b. opportunities for alternative, soft-engineering approaches for erosion control
    c. priority setting for sediment removal and pond maintenance
    d. opportunities for hydrologic habitat improvements
    e. application of fluvial geomorphic assessments in erosion control projects
    f. opportunities for community sponsored volunteer stream walks

2. Staff responsible for streambank, pond and hydrologic habitat maintenance have been trained regarding these elements and stormwater management principles.

IMPLEMENTATION

1. Linear feet of streambank stabilized by:

    a. "Hard" Engineering Methods (rock, rip-rap, etc.)
    b. "Soft" Engineering Methods (plantings, alternative materials, etc.)

2. Linear feet of pond/lake shoreline stabilized by:

    a. Hard Engineering Methods
    b. Soft Engineering Methods

3. Number of ponds/lakes having siltation/sediment forebays.

4. Cubic yards of material removed from siltation/sediment forebays.

5. Streambank/pond/hydrologic habitat maintenance staff training or continuing education activities related to policies, procedures, BMPs and stormwater management.

6. Streambank/pond/hydrologic habitat maintenance policies, procedures or BMP updates or revisions.

7. Linear distance of stream/riverbank walked (staff/volunteers) including GPS identification and visual records for identified problem areas.

Section 4

Pollution Prevention and Good Housekeeping Assistance Documents for Municipal Operations

4.1 Introduction

This section highlights several of the principal BMP references that support implementation of Minimum Control Measure 6. Comprehensive references which address many operations associated with Minimum Control Measure 6, along with several references that may address only a single category of operation or a special topic are included. Potentially useful assistance documents have been published by other states and have been included as selected references.

NYSDEC does not exclusively endorse or mandate one specific BMP publication for meeting Minimum Control Measure 6 requirements, because many groups across the country are actively developing BMP descriptions and municipalities across New York have different capabilities, needs and management priorities.

The organization of the remaining sections is as follows:

- *Section 4.2 Key Best Management Practice References for Minimum Control Measure 6*

  The principal BMP references that are relevant to Minimum Measure 6 are very briefly described and sources for print copies and web page editions are listed.

- *Section 4.3 Overview of Best Management Practice References for Municipal Operations*

  To assist municipalities and lead users to the more beneficial sections of published references, a summary assessment of the usefulness and applicability of the references is presented.

- *Section 4.4 Expanding the Assistance Network - Other Resources for Minimum Control Measure 6 Assistance*

  Outside of published BMP descriptions, there are other resources for Minimum Control Measure 6 assistance, both within and outside New York State. This section provides an introduction to these professional institutional and organizational resources.

4.2 Key Best Management Practice References for Minimum Control Measure 6

The baseline references for pollution prevention and good housekeeping in municipal operations are comprised of a series of publications by the New York State Department of Environmental Conservation (DEC) and the United States Environmental Protection Agency (USEPA). DEC recognizes that other states and organizations have published useful reference documents and endorses them as alternative sources of management practice recommendations.

This section lists the baseline references and selected alternative references for activities related to Minimum Control Measure 6. Brief descriptions of the references are provided and sources of the documents (print and/or internet, where available) are listed.

This listing of baseline BMP references and selected alternatives is not exhaustive. Some of the other available references, from other states or professional organizations, overlap considerably with these listed references. The actual field effectiveness of some of these BMPs is still being evaluated across the nation. As additional information on effectiveness is developed, New York will consider establishing a peer review process to provide more up-to-date information on recommended municipal pollution prevention and good housekeeping practices.

Section 4.3 provides further information on selected portions of these references, guiding users to elements that are more relevant to specific categories of municipal operations.

Each of the key references is addressed in a separate subsection, as follows:

4.2.1 *Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State*

(Municipal Operations Addressed by Reference)

This catalogue is comprised of nine individual documents, available separately, which address different aspects of nonpoint source pollution prevention, grouped by the source category. The more useful documents are listed below in relative priority order:

- Urban/Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State (February 2002)
- Roadway and Right-of-Way Maintenance (June 1994)
- Onsite Wastewater Treatment Systems (December 1996)
- Hydrologic Habitat Modification (June 2002)

- Environmental Compliance, Pollution Prevention, and Self Assessment Guide for the Marina Industry (March 2004)

- Construction Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State (June 2000)

The remaining documents in the series will have limited relevance to most municipalities except those that manage forested land, agricultural operations, or resource extraction. Pesticide management practices, included in these documents, are also addressed in other documents in the series listed above. The remaining documents in the series are:

- Agriculture (May 1996)

- Silviculture (October 1993)

- Resource Extraction (April 1995)

These documents are available individually in print form from the following DEC office. They are not currently available in electronic form on the internet. Alternative internet sources that address many of the same practices are described in the following sections.

Nonpoint Source Management Section
Division of Water
NYSDEC
625 Broadway
Albany, NY 12233-3502

4.2.2 *Pollution Prevention/ Good Housekeeping for Municipal Operations (USEPA)* (Municipal Operations Addressed by Reference)

This guidance document is available only in electronic form from the USEPA at the following web address:

http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

The document, most recently updated in 2002, includes a series of Best Management Practice (BMP) fact sheets on various source controls and materials management topics directly related to Minimum Control Measure 6. In the menu page at this web address, links are also provided to a series of EPA Stormwater Management Fact

Sheets (published in 1999) that are relevant to Minimum Control Measure 6.

The organization of these EPA Best Management Practice Fact Sheets is similar to those in the NYS Nonpoint Source Management Practices Catalogue. The following are discussed in each fact sheet:

- Description of practice
- Applicability
- Design considerations
- Limitations
- Maintenance considerations
- Effectiveness
- Cost Considerations
- References

The USEPA Guidance on Pollution Prevention/Good Housekeeping for Municipal Operations includes fact sheets, ranging from 3 to 9 pages each, on the following topics:

Source controls

- Pet waste collection
- Automobile maintenance
- Vehicle washing
- Illegal dumping control
- Landscaping and lawn care
- Pest control
- Parking lot and street cleaning
- Roadway and bridge maintenance
- Septic system controls
- Storm drain system cleaning
- Alternative discharge options for chlorinated water

Materials management

- Alternative products
- Hazardous materials storage
- Road salt application and storage
- Spill response and prevention
- Used oil recycling
- Materials management

Additional Fact Sheets

- Airplane Deicing Fluid Recovery System
- Catch Basin Cleaning
- Coverings
- Employee Training
- Flow Diversion
- Handling and Disposal of Residuals
- Environmental Effects from Highway Ice and Snow Removal Operations
- Internal Reporting
- Materials Inventory
- Preventative Maintenance
- Record Keeping
- Spill Prevention Planning
- Storm Water Contamination Assessment
- Visual Inspections

4.2.3 *New York State - Pollution Prevention Guidance for Small Business and Local Government*

(Municipal Operations Addressed by Reference)

This guidance manual is most valuable as a reference guide to New York State Rules and Regulations related to pollution prevention. It also includes a very useful introduction to the concepts and principles of pollution prevention that may be applied to Minimum Control Measure 6 activities. However, it does not include specific BMP recommendations or procedures for representative municipal operations.

This document organized the review of existing rules and regulations according to the major program organization of the NYS Department of Environmental Conservation (e.g., air resources, water, spill prevention and response, solid and hazardous materials, natural resources, etc.)

The document was most recently revised in 1998, and is available in print form from:

Pollution Prevention Unit
Division of Environmental Permits
NYSDEC
625 Broadway
Albany, NY 12233

The document is also available electronically online at the following web address:
http://www.dec.state.ny.us/website/ppu/eppgsblg.pdf

4.2.4 *New York State Bulk Storage Program Guidance*

A series of guidance documents is available from the DEC Division of Environmental Remediation regarding petroleum and chemical bulk storage and spill response. These are key issues for municipally owned or operated petroleum or chemical bulk storage. The most common applications will be for gasoline facilities, but they may also apply to heating oil storage or special chemical storage cases. Although most municipal operations storing chemicals may not qualify as "bulk storage," some of the pollution prevention principles may be relevant.

The series of guidance documents related to operation of petroleum or chemical bulk storage may be downloaded or accessed electronically at the following web address:

http://www.dec.state.ny.us/website/der/bulkstor/guidance

These address such issues as: secondary containment, spill prevention, testing, site assessment, and permanent closure.

Additional useful information and web-links related to petroleum and chemical storage and spill prevention, including regulations, DEC and county contacts, and other frequently asked questions can be accessed at the following web address:

http://www.dec.state.ny.us./website/der/bulkstor/index.html

4.2.5 *California Stormwater Quality Association - Best Management Practice Handbook - Municipal*
(Municipal Operations Addressed by Reference)

This handbook, published in 2003 and revised in 2004, expands on concepts and BMP recommendations that are addressed in the DEC and USEPA documents. Though it includes certain cross-references to California municipalities and programs, it is broad in scope and is generally applicable in most states.

This document includes a particularly useful expanded listing of key recommendations for a broad range of Minimum Control Measure 6 activities. These recommendations are organized for each BMP category into the following highlighted sections:

- Approach
- Pollution Prevention Principles
- Suggested Protocols
- Training

- Spill Response and Prevention (or other special considerations)
- Costs
- Maintenance
- Supplemental Information

The document is available electronically online at the following web address:

http://www.cabmphandbooks.com/Municipal.asp

The handbook is also available in a print form ($85.00 members; $95.00 non-members) from the following address:

California Stormwater Quality Association
PO Box 2105
Menlo Park, CA 94026-2105

Order forms or online purchases may be accessed at the following web address:

http://www.cabmphandbooks.com

The electronic format of this handbook and companion stormwater handbooks may also be downloaded through links from this web address.

4.2.6 *Center for Watershed Protection - Urban Subwatershed Restoration Manual Series*

The Center for Watershed Protection has published 5 of a projected series of 11 guidance manuals on techniques to restore small urban watersheds. These manuals are closely related to stormwater management. Two of these are related to Minimum Control Measure 6 activities.

The most directly useful document, ***Manual 9 - Municipal Practices and Programs*** is in development and not yet published. It will focus on five principal topics:

- improved street and storm drain maintenance practices
- development/redevelopment standards
- stewardship of public land
- delivery of municipal stewardship services
- watershed education and enforcement

Another Center for Watershed Protection document relevant to Minimum Control Measure 6 is ***Manual 8 - Pollution Source Control Practices***, is published. This document is primarily targeted at pollution prevention in neighborhoods and residential properties and is not fundamentally related to municipal operations and

facilities. However, it includes clear and well-organized BMP profile sheets in a section on "Hotspot Pollution Prevention" that may be beneficial to Minimum Control Measure 6 activities, addressing many relevant topics, including:

- Vehicle Maintenance and Repair
- Vehicle Fueling
- Vehicle Washing
- Vehicle Storage
- Loading and Unloading
- Outdoor Storage
- Spill Prevention and Response
- Dumpster Management
- Building Repair and Remodeling
- Building Maintenance
- Parking Lot Maintenance
- Turf Management
- Landscaping/Grounds Care
- Swimming Pool Discharges
- Unique Hotspot Operations

This document, and Manual 9 when completed, is available electronically and may be downloaded at the following web address in a link titled "USRM Manuals" (Urban Subwatershed Restoration Manual)

http://www.cwp.org

Printed copies ($30.00 each manual) may be ordered through that web address or at:

Center for Watershed Protection
8390 Main Street, 2nd Floor
Ellicott City, MD 21043

4.2.7 *Guidance for Highway Drainage and Unpaved Road Maintenance*
(Municipal Operations Addressed by Reference)

Several guidance documents have been published related to maintenance of unpaved roads, with particular attention to water quality protection. These documents address road drainage and ditch maintenance practices that are also applicable to paved road drainage.

THESE REFERENCES CONTAIN SUGGESTIONS TO INSTALL BARRIERS IN AREAS OF CONCENTRATED FLOW (SILT FENCES OR BALES ACROSS DITCHES). THESE PRACTICES HAVE BEEN DEMONSTRATED TO INCREASE EROSION AND ARE STRONGLY DISCOURAGED.

These documents do contain other beneficial recommendations and include:

● ***The Massachusetts Unpaved Roads BMP Manual: A Guidebook on How to Improve Water Quality While Addressing Common Problems*** **(Berkshire Regional Planning Commission, 2001)**

This manual is available on the web at the following address:
http://www.mass.gov/dep/images/dirtroad.pdf

● ***Recommended Practices Manual - A Guideline for Maintenance and Service of Unpaved Roads*** **(Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority, Alabama, 2000)**

This manual was prepared with special emphasis on water quality protection, and is available through a link at the following United States Environmental Protection Agency web address:
http://www.epa.gov/owow/nps/unpavedroads.html

● ***Great Lakes Better Backroads Guidebook - Clean Water By Design*** **(Huron Pines Resource Conservation & Development Area Council, Grayling, Michigan, 2000)**

This manual on unpaved road maintenance was prepared with special emphasis on water quality protection. It is available through a link on the Huron Pines RC&D Council webpage on the Better Backroads Program at the following web address:
http://www.huronpines.org/overview.php?programId=10

A direct link to the version published in 2000 is at the following web address:
http://www.huronpines.org/upload/File/Better%20Backroads.pdf

This guidance document is being revised in 2006. Information on the status of the revised document will be available by contacting the Huron Pines RC&D Council through the first listed web address.

4.3 Overview of Best Management Practice References for Municipal Operations

The key BMP references for assistance for Minimum Control Measure 6 are highlighted in Table 4.1 and briefly described in the detailed annotated resources section following the table. Key references include numerous recommendations to the different categories of municipal operations.

To assist municipalities, Table 4.1 is intended to highlight the more directly relevant reference materials (solid circles in the table) and other potentially useful materials (open circles in the table). However, some reference materials that are not highlighted for a particular

municipal operation category may contain certain relevant assistance for specific operations in that category (for example, outdoor container storage may be relevant for fuels or chemicals stored at parks and open space management facilities, but it is not highlighted).

The notes that follow Table 4.1 are intended to provide further analysis of the highlighted references in the table, giving annotated remarks, and providing key page references or subdocument numbers in the references (as in the California document numbers).

Table 4.1. Relevance of Best Management Practice References for Municipal Operations (**Key:** ● - directly related to BMPs for this municipal operation category; ○ - indirectly or partially related to BMPs for this municipal operation category).

	Municipal Operation Activities							
Resource	Street and Bridge Maintenance	Winter Road Maintenance	Stormwater Drainage, Conveyance and Treatment System Maintenance	Vehicle and Fleet Maintenance	Parks and Open Space Maintenance	Municipal Building Maintenance	Solid Waste Management	Streambank Stabilization and Hydrologic Habitat Modification
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State (Back to Document Summary)								
Hydrologic and Habitat Modification								●
Marina Industry					●			
Onsite Wastewater Treatment Systems					○	○		
Roadway and Right-of-Way Maintenance	○	●	○					
Urban/Stormwater Runoff Management Practices	○		○		●		○	
New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series								
In-Water and Riparian Management of Sediment and Dredged Material								●

Table 4.1 (cont'd). Relevance of Best Management Practice References for Municipal Operations (**Key:** ● - directly related to BMPs for this municipal operation category; ○ - indirectly or partially related to BMPs for this municipal operation category).

	Municipal Operation Activities							
Resource	Street and Bridge Maintenance	Winter Road Maintenance	Stormwater Drainage, Conveyance and Treatment System Maintenance	Vehicle and Fleet Maintenance	Parks and Open Space Maintenance	Municipal Building Maintenance	Solid Waste Management	Streambank Stabilization and Hydrologic Habitat Modification
Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA) (Back to Document Summary)								
Alternative Discharge Options for Chlorinated Water					●			
Alternative Products		●		●		●		
Automobile Maintenance				●				
Hazardous Materials Storage		○		●	●	○	●	
Illegal Dumping Control			●				○	
Landscaping and Lawn Care					●	●		
Materials Management		●		●	●			
Parking Lot and Street Cleaning	●						●	
Pest Control					●	●		
Pet Waste Collection					●		●	
Road Salt Application and Storage		●						
Roadway and Bridge Maintenance	●	○						
Septic System Controls					●	●		
Spill Response and Prevention	○	●	○	●	●	●	○	
Storm Drain System Cleaning			●					
Used Oil Recycling				●				
Vehicle Washing		○		●				

Table 4.1 (cont'd). Relevance of Best Management Practice References for Municipal Operations (**Key:** ● - directly related to BMPs for this municipal operation category; ○ - indirectly or partially related to BMPs for this municipal operation category).

	Municipal Operation Activities							
Resource	Street and Bridge Maintenance	Winter Road Maintenance	Stormwater Drainage, Conveyance and Treatment System Maintenance	Vehicle and Fleet Maintenance	Parks and Open Space Maintenance	Municipal Building Maintenance	Solid Waste Management	Streambank Stabilization and Hydrologic Habitat Modification
New York State – Pollution Prevention Guidance for Small Business and Local Government (Back to Document Summary)								
Hazardous Waste							●	
Pesticides					●	●		
Pollution Prevention	●	●		●	●	●	●	
Spill Prevention and Response	○	●	○	●	●	●	●	
California Stormwater Quality Association – Best Management Practice Handbook – Municipal (Back to Document Summary)								
Building & Grounds Maintenance					●	●		
Drainage System Maintenance			●				●	
Fountain & Pool Maintenance					●			
Housekeeping Practices		●		●	●	●	●	
Landscape Maintenance					●	●		
Non-Stormwater Discharges			○					
Outdoor Container Storage				●		●		
Outdoor Equipment Maintenance				●				
Outdoor Loading/Unloading		○				○		
Outdoor Storage of Raw Materials		●		○		○		
Over Water Activities					●			

Table 4.1 (cont'd). Relevance of Best Management Practice References for Municipal Operations (**Key:** ● - directly related to BMPs for this municipal operation category; ○ - indirectly or partially related to BMPs for this municipal operation category).

	Municipal Operation Activities							
Resource	Street and Bridge Maintenance	Winter Road Maintenance	Stormwater Drainage, Conveyance and Treatment System Maintenance	Vehicle and Fleet Maintenance	Parks and Open Space Maintenance	Municipal Building Maintenance	Solid Waste Management	Streambank Stabilization and Hydrologic Habitat Modification
California Stormwater Quality Association – Best Management Practice Handbook – Municipal (continued) (Back to Document Summary)								
Parking/Storage Area Maintenance	●	●		●		●	○	
Plaza & Sidewalk Cleaning	●							
Road & Street Maintenance	●	●						
Safer Alternative Products		●		●	●	●		
Spill Prevention, Control & Cleanup	○	●	○	●	●	●		
Vehicle and Equipment Cleaning		○		●	○			
Vehicle and Equipment Fueling				●	●			
Vehicle and Equipment Repair				●				
Waste Handling & Disposal	○			●	●	●	●	
Waste Handling and Disposal – Reuse/Recycle			●	○	○	○	●	
Water & Sewer Utility Maintenance			●					

Table 4.1 (cont'd). Relevance of Best Management Practice References for Municipal Operations (**Key:** ● - directly related to BMPs for this municipal operation category; ○ - indirectly or partially related to BMPs for this municipal operation category).

	Municipal Operation Activities							
Resource	Street and Bridge Maintenance	Winter Road Maintenance	Stormwater Drainage, Conveyance and Treatment System Maintenance	Vehicle and Fleet Maintenance	Parks and Open Space Maintenance	Municipal Building Maintenance	Solid Waste Management	Streambank Stabilization and Hydrologic Habitat Modification
Massachusetts Unpaved Roads BMP Manual (Back to Document Summary) **Great Lakes Better Backroads Guidebook** (Back to Document Summary) **Recommended Practices – A Guideline for Maintenance and Service of Unpaved Roads** (Back to Document Summary) (All three of the above manuals contain similar material)								
Road Surface Maintenance	○							
Ditch Maintenance			●					
Culvert Maintenance			●					
Outlet Protection			●					
Bank Stabilization	●		●					
Erosion and Sediment Control	●		●					

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1

Street and Bridge Maintenance

Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Roadway and Right-of-Way Maintenance Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

- **Control of Bridge Paint Residuals** – describes methods for avoiding the transport of paint chips and dust to waterbodies from road resurfacing projects (p. 15 – 16)

Urban/Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State

- **Street and Pavement Sweeping** – explains the benefits of street sweeping (p. 81 – 82)

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Parking Lot and Street Cleaning** – discusses the advantages and disadvantages of cleaning parking lots and streets to reduce the amount of potential stormwater pollutants (p. 38 – 41)
- **Roadway and Bridge Maintenance** – describes how maintenance activities can decrease the sources of stormwater pollutants from roadways and bridges (p. 42 – 46)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Pollution Prevention** – explains how pollution can be prevented by utilizing practices to reduce waste generation and pollutant sources, discusses the advantages of pollution prevention, and provides a list of pollution prevention publications and technical assistance information (p. 1 – 6)
- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Street and Bridge Maintenance (continued)

California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Spill Prevention, Control & Cleanup** – describes components of a spill response and control plan (SC – 11)

- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
  - **Parking/Storage Area Maintenance** (SC – 43)
  - **Plaza and Sidewalk Cleaning** (SC – 71)
  - **Road and Street Maintenance** (SC – 70)
  - **Waste Handling & Disposal** (SC – 34)

NOTE: The next three references on unpaved road maintenance contain suggestions to install barriers in areas of concentrated flow (e.g. silt fences or hay / straw bales across ditches). These practices have been demonstrated to increase erosion and are strongly discouraged.

Massachusetts Unpaved Roads BMP Manual (Massachusetts DEP)

- **Road Surface Maintenance** – explains road surface maintenance practices (p. 7 – 14)
- **Bank Stabilization / Erosion and Sediment Control –** explains importance to water quality and describes BMPs (p. 45 – 65)

Great Lakes Better Backroads Guidebook (Huron Pines RCDAC)

- **Road Surface Maintenance** – explains road surface maintenance practices (p. 5 – 10)
- **Bank Stabilization / Erosion and Sediment Control –** explains importance to water quality and describes BMPs (p. 37 – 60)

Recommended Practices Manual – A Guideline for Maintenance and Service of Unpaved Roads (CPYWMA)

- **Road Surface Maintenance** – explains road surface maintenance practices (p. 1 – 9)
- **Bank Stabilization / Erosion and Sediment Control –** explains importance to water quality and describes BMPs (p. 25 – 45)

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DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)

Winter Road Maintenance

Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Roadway and Right-of-Way Maintenance Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

- **Abrasive and Deicing Material Application and Cleanup** – addresses the proper way to apply and clean up abrasives and deicing materials (p. 1 – 2)
- **Deicing Material Mixing and Handling** – explains how to mix and handle deicing materials to prevent transport to surface or ground waters (p. 3 – 4)
- **Salt Storage Systems** – describes criteria for salt storage systems to prevent contamination of surface and ground waters; criteria include drainage, foundation/floor, shelter/cover and site location selection (p. 5 –12)

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Alternative Products** – provides examples of alternative product usage that could contribute to fewer stormwater pollutants (p. 57 – 59)
- **Hazardous Materials Storage** – explains management considerations for hazardous materials storage (p. 60 -62)
- **Materials Management** – describes steps for management of stored chemicals to decrease the potential for stormwater pollution (p. 72 – 73)
- **Road Salt Application and Storage** – discusses the benefits of proper road salt application and storage as well as alternatives to road salt application (p. 62 – 63)
- **Roadway and Bridge Maintenance** – describes how maintenance activities can decrease the sources of stormwater pollutants from roadways and bridges (p. 42 – 46)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)
- **Vehicle Washing** – explains impacts of outdoor vehicle washing and how to keep polluted stormwater out of the storm sewer (p. 15 – 18)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Pollution Prevention** – explains how pollution prevention can be achieved by utilizing practices to reduce waste generation and pollutant sources, discusses the advantages of pollution prevention, and provides a list of pollution prevention publications and technical assistance information (p. 1 – 6)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Winter Road Maintenance (continued)
Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Housekeeping Practices** – describes housekeeping practices that can be used when handling potentially harmful materials (SC – 60)
- **Safer Alternative Products** – promotes the use of less potentially harmfully materials in municipal operations (SC – 61)
- **Spill Prevention, Control & Cleanup** – describes the components of a spill response and control plan (SC – 11)

- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
  - **Outdoor Loading/Unloading** (SC – 30)
  - **Outdoor Storage of Raw Materials** (SC – 33)
  - **Parking/Storage Area Maintenance** (SC – 43)
  - **Road and Street Maintenance** (SC – 70)
  - **Vehicle and Equipment Cleaning** (SC – 21)

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Stormwater Drainage, Conveyance and Treatment System Maintenance
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Roadway and Right-of-Way Maintenance Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

- **Catch Basin Cleaning** – describes the need and process for cleaning catch basins (p. 13 – 14)
- **Proper Road Ditch Maintenance** – explains how to keep ditches stable while cleaning and removing sediment (p. 23 – 24)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Stormwater Drainage, Conveyance and Treatment System Maintenance (continued)
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Urban/Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State

- **Collection and Treatment of Stormwater** – basic explanation about the collection and treatment of stormwater (p. 3 – 4)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Illegal Dumping Control** – explains steps that municipalities can follow to create an illegal dumping control program (p. 19 - 22)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)
- **Storm Drain System Cleaning** – describes the basics of storm drain system maintenance (p. 53 – 54)

California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Drainage System Maintenance** – describes drainage system maintenance activities to ensure proper functioning of the system (SC – 74)
- **Non-Stormwater Discharges** – explains the sources of non-stormwater discharges to storm sewer systems, how to investigate/detect sources and supplemental information about non-stormwater discharges (SC – 10)
- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
    - **Waste Handling and Disposal** – Recycling/Reuse (SC – 75)
    - **Water & Sewer Utility Maintenance** (SC – 76)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Stormwater Drainage, Conveyance and Treatment System Maintenance (continued)

NOTE: The next three references on unpaved road maintenance contain suggestions to install barriers in areas of concentrated flow (e.g. silt fences or hay / straw bales across ditches). These practices have been demonstrated to increase erosion and are strongly discouraged.

Massachusetts Unpaved Roads BMP Manual (Massachusetts DEP)

- **Ditch Maintenance –** explains importance of ditch maintenance to water quality and describes BMPs (p. 15 – 25)
- **Culvert Maintenance –** explains importance of culvert maintenance to water quality and describes BMPs (p. 27 – 36)
- **Outlet Protection –** explains importance of outlet protection to water quality and describes BMPs (p. 37 – 43)
- **Bank Stabilization / Erosion and Sediment Control –** explains importance to water quality and describes BMPs (p. 45 – 65)

Great Lakes Better Backroads Guidebook (Huron Pines RCDAC)

- **Ditch Maintenance –** explains importance of ditch maintenance to water quality and describes BMPs (p. 11 – 15)
- **Culvert Maintenance –** explains importance of culvert maintenance to water quality and describes BMPs (p. 26 – 32)
- **Outlet Protection –** explains importance of outlet protection to water quality and describes BMPs (p. 33 – 36)
- **Bank Stabilization / Erosion and Sediment Control –** explains importance to water quality and describes BMPs (p. 37 – 60)

Recommended Practices Manual – A Guideline for Maintenance and Service of Unpaved Roads (CPYWMA)

- **Ditch Maintenance –** explains importance of ditch maintenance to water quality and describes BMPs (p. 11 – 13)
- **Culvert Maintenance –** explains importance of culvert maintenance to water quality and describes BMPs (p. 15 – 20)
- **Outlet Protection –** explains importance of outlet protection to water quality and describes BMPs (p. 21 – 24)
- **Bank Stabilization / Erosion and Sediment Control –** explains importance to water quality and describes BMPs (p. 25 – 45)

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DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)

Vehicle and Fleet Maintenance

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Alternative Products** – provides examples of alternative product usage that could contribute to fewer stormwater pollutants (p. 57 – 59)
- **Automobile Maintenance** – explains how to design an outreach/education program to decrease stormwater pollutants targeting groups that perform automobile maintenance (p. 10 – 14)
- **Hazardous Materials Storage** – explains management considerations for hazardous materials storage (p. 60 - 62)
- **Materials Management** – describes steps for management of stored chemicals to decrease the potential for stormwater pollution (p. 72 – 73)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)
- **Used Oil Recycling** – explains the benefits and limitations of recycling used motor oil (p. 67 – 71)
- **Vehicle Washing** – explains impacts of outdoor vehicle washing and how to keep polluted stormwater out of the storm sewer (p. 15 – 18)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Pollution Prevention** – explains how pollution prevention can be achieved by utilizing practices to reduce waste generation and pollutant sources, discusses the advantages of pollution prevention, and provides a list of pollution prevention publications and technical assistance information (p. 1 – 6)
- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Vehicle and Fleet Maintenance (continued)
California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Housekeeping Practices** – describes housekeeping practices that can be used when handling potentially harmful materials (SC – 60)
- **Safer Alternative Products** – promotes the use of less potentially harmfully materials in municipal operations (SC – 61)
- **Spill Prevention, Control & Cleanup** – describes the components of a spill response and control plan (SC – 11)

- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
  - **Outdoor Container Storage** (SC – 31)
  - **Outdoor Equipment Maintenance** (SC – 32)
  - **Outdoor Storage of Raw Materials** (SC – 33)
  - **Parking/Storage Area Maintenance** (SC – 43)
  - **Vehicle and Equipment Cleaning** (SC – 21)
  - **Vehicle and Equipment Fueling** (SC – 20)
  - **Vehicle and Equipment Repair** (SC – 22)
  - **Waste Handling & Disposal** (SC – 34)
  - **Waste Handling and Disposal** – Recycling/Reuse (SC – 75)

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Parks and Open Space Maintenance
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Environmental Compliance, Pollution Prevention, and Self-Assessment Guide for the Marina Industry

- Following are pertinent regulations addressed in this document:
  - **Hazardous Waste Regulations** (p. 30 – 37)
  - **Solid Waste Regulations** (p. 43 – 44)
  - **Bulk Storage Regulations** (p. 45 – 48)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Parks and Open Space Maintenance (cont'd)
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State (cont'd)

On-Site Wastewater Treatment Systems Management Practices Catalogue

- **Administration, Operation and Maintenance – Inspection and Pumping**: basic explanation about the need for septic tank and drainfield inspections and septic tank pumping (p. 35 – 36)
- **Operation and Maintenance for Septic Tanks and Standard Absorption Systems**: basic explanation of on-site septic system inspection and maintenance requirements (p. 33 – 34)

Urban/Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State

- **Integrated Pest Management** – describes a variety of methods for pest control (p. 35 –36)
- **Irrigation Water Management, Scheduling** – explains the need for scheduling irrigation (p. 37 – 38)
- **Nutrient Management** – explains the need for managing nutrient applications and components of nutrient management programs (p. 39 – 40, 43 – 46)
- **Pathogen and Nutrient Management Control** – provides information about controlling pathogens and nutrients from nuisance birds, pet and waterfowl waste (p. 47 – 52)
- **Pesticide Management** – gives information about proper equipment usage and pesticide application (p. 55 – 62)

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Alternative Products** – provides examples of alternative product usage that could contribute to fewer pollutants in stormwater (p. 57 – 59)
- **Hazardous Materials Storage** – explains management considerations for hazardous materials storage (p. 60 -62)
- **Landscaping and Lawn Care** – explains how stormwater pollution can be decreased and prevented by using less lawn care materials and modifying landscaping practices (p. 23 – 31)
- **Materials Management** – describes steps for management of stored chemicals to decrease the potential for stormwater pollution (p. 72 – 73)
- **Pest Control** – explains how changing pest control practices can contribute to improved water quality (p. 32 – 37)
- **Pet Waste Collection** – explains environmental problems associated with pet waste and what can be done to address pet waste problems (p. 4 – 9)
- **Septic System Controls** – describes proper septic system maintenance (p. 47 – 52)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Parks and Open Space Maintenance (continued)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Pesticides** – summarizes regulations about pesticide handling, storage, disposal and safety and about disposal of pesticide containers and unwanted pesticides (p. 22)
- **Pollution Prevention** – explains how pollution prevention can be achieved by using practices to reduce waste generation and pollutant sources, discusses the advantages of pollution prevention, and provides a list of pollution prevention publications and technical assistance information (p. 1 – 6)
- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Housekeeping Practices** – describes housekeeping practices that can be used when handling potentially harmful materials (SC – 60)
- **Safer Alternative Products** – promotes the use of less potentially harmfully materials in municipal operations (SC – 61)
- **Spill Prevention, Control & Cleanup** – describes the components of a spill response and control plan (SC – 11)

- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
    - **Building & Grounds Maintenance** (SC – 41)
    - **Fountain & Pool Maintenance** (SC – 72)
    - **Landscape Maintenance** (SC – 73)
    - **Over Water Activities** (SC – 50)
    - **Vehicle and Equipment Cleaning** (SC – 21)
    - **Vehicle and Equipment Fueling** (SC – 20)
    - **Waste Handling & Disposal** (SC – 34)
    - **Waste Handling and Disposal** – Recycling/Reuse (SC – 75)

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DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)

Municipal Building Maintenance

Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

On-Site Wastewater Treatment Systems Management Practices Catalogue

- **Administration, Operation and Maintenance – Inspection and Pumping**: basic explanation about the need for septic tank and drainfield inspections and septic tank pumping (p. 35 – 36)
- **Operation and Maintenance for Septic Tanks and Standard Absorption Systems**: basic explanation of on-site septic system inspection and maintenance requirements (p. 33 – 34)

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Alternative Products** – provides examples of alternative product usage that could contribute to fewer stormwwater pollutants (p. 57 – 59)
- **Hazardous Materials Storage** – explains management considerations for hazardous materials storage (p. 60 -62)
- **Landscaping and Lawn Care** – explains how stormwater pollution can be decreased and prevented by using less lawn care materials and modifying landscaping practices (p. 23 – 31).
- **Materials Management** – describes steps for management of stored chemicals to decrease the potential for stormwwater pollution (p. 72 – 73)
- **Pest Control** – explains how changing pest control practices can contribute to improved water quality (p. 32 - 37)
- **Septic System Controls** – describes proper septic system maintenance (p. 47 – 52)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Pesticides** – summarizes regulations about pesticide handling, storage, disposal and safety and about disposal of pesticide containers and unwanted pesticides (p. 22)
- **Pollution Prevention** – explains how pollution prevention can be achieved by using practices to reduce waste generation and pollutant sources, discusses the advantages of pollution prevention, and provides a list of pollution prevention publications and technical assistance information (p. 1 – 6)
- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Municipal Building Maintenance (continued)
California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Housekeeping Practices** – describes housekeeping practices that can be used when handling potentially harmful materials (SC – 60)
- **Safer Alternative Products** – promotes the use of less potentially harmfully materials in municipal operations (SC – 61)
- **Spill Prevention, Control & Cleanup** – describes the components of a spill response and control plan (SC – 11)

- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
    - **Building & Grounds Maintenance** (SC – 41)
    - **Landscape Maintenance** (SC – 73)
    - **Outdoor Loading/Unloading** (SC – 30)
    - **Outdoor Container Storage** (SC – 31)
    - **Outdoor Storage of Raw Materials** (SC – 33)
    - **Parking/Storage Area Maintenance** (SC – 43)
    - **Waste Handling & Disposal** (SC – 34)
    - **Waste Handling and Disposal** – Recycling/Reuse (SC – 75)

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Solid Waste Management
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Urban/Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State

- **Proper Use and Disposal of Household Hazardous Substances** – explains how to properly use and dispose of household hazardous chemicals (p. 65 – 66)

DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Solid Waste Management (continued)

Pollution Prevention/Good Housekeeping for Municipal Operations (USEPA)

- **Illegal Dumping Control** – explains steps that municipalities can follow to create an illegal dumping control program (p. 19 - 22)
- **Hazardous Materials Storage** – explains management considerations for hazardous materials storage (p. 60 -62)
- **Parking Lot and Street Cleaning** – discusses the advantages and disadvantages of cleaning parking lots and streets to reduce the amount of potential stormwater pollutants (p. 38 – 41)
- **Pet Waste Collection** – explains environmental problems associated with pet waste and what can be done to address pet waste problems (p. 4 – 9)
- **Spill Response and Prevention** – states the basic requirements of a spill response and prevention plan (p. 64 – 65)

Pollution Prevention Guidance for Small Business and Local Government (NYS)

- **Hazardous Waste** – summarized regulations for managing, storing and shipping hazardous wastes (p. 31 – 32)
- **Pollution Prevention** – explains how pollution prevention can be achieved by using practices to reduce waste generation and pollutant sources, discusses the advantages of pollution prevention, and provides a list of pollution prevention publications and technical assistance information (p. 1 – 6)
- **Spill Response and Prevention** – summarizes regulations pertaining to the release of hazardous substances into the environment, explains regulations for the storage of bulk chemicals, and provides a list of spill prevention and response publications (p. 62 – 65)

California Stormwater Quality Association – Best Management Practice Handbook – Municipal

- **Drainage System Maintenance** – describes drainage system maintenance activities to ensure proper functioning of the system (SC – 74)
- **Housekeeping Practices** – describes housekeeping practices that can be used when handling potentially harmful materials (SC – 60)

- These documents describe steps that can be taken to reduce stormwater pollution from the activities referenced below:
    - **Parking/Storage Area Maintenance** (SC – 43)
    - **Waste Handling & Disposal** (SC – 34)
    - **Waste Handling and Disposal** – Recycling/Reuse (SC – 75)

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DETAILED ANNOTATED RESOURCES FOR INFORMATION IN TABLE 4.1 (cont'd)
Streambank Stabilization and Hydrologic Habitat Modification
Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State

Hydrologic and Habitat Modification

- **Streambank and Shoreline Protection** - This chapter describes various methods for streambank and shoreline protection (p. 30 – 56)
- **Water Quality and Habitat Protection** - Improving Instream and Riparian Habitat – describes how to create instream and on-bank structures to improve or create habitat (p. 61 – 63).

New York State Technical & Operational Guidance Series (TOGS)

- **In-Water and Riparian Management of Sediment and Dredge Material** - this document provides guidance on the steps to follow when performing dredging (in-water activities to move or remove sediment) operations (p. 1 – 77)

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4.4 Expanding the Guidance Network - Other Resource for Minimum Control Measure 6 Assistance

A variety of professional and government organizations and associations can provide networking support or assistance to municipalities in their pollution prevention efforts. Connections to other municipal officials across the state or nation that are involved in pollution prevention can also be made through these organizations. This section reviews some of these organizations and provides World Wide Web addresses for them. These complement county and regional organizations and agencies that may also provide pollution prevention support, such as those referenced in Section 2.2 (County Soil and Water Conservation District, County Water Quality Coordinating Committee, Regional Planning Council or other regional planning agencies).

Professional associations exist for nearly every aspect of municipal activity related to Minimum Control Measure 6, from fleet management to parks administration and others. The webpage for the American Public Works Association, serves as a link to many of these and thus the wide range of existing associations are not individually listed.

This listing of professional associations is not complete, and may be augmented in future editions of this guidance.

- **American Public Works Association (APWA)**

  The APWA has an extensive website which provides links to additional web resources on pollution prevention and public works maintenance.

  The most useful directory on this website is the APWA Resource Center which is located at:

  http://www.apwa.net/ResourceCenter/

  This page provides sublinks to a wide variety of professional association resources and publications, including many categories related to Minimum Control Measure 6:

  - Equipment and Fleet Management
  - Facility and Grounds Management
  - Right of Way Management
  - Solid Waste
  - Street Sweeping
  - Transportation
  - Urban Issues
  - Water Resources

- **Cornell Local Roads Program (CLRP)**

The Cornell Local Roads Program serves as New York State's Local Technical Assistance Program Center, as established by the Federal Highway Administration. In addition to the many training events for local highway and public works officials, the CLRP offers direct technical assistance support. The CLRP website is located at:

http://www.clrp.cornell.edu

On the CLRP webpage, tabs at the top of the page provide access to the CLRP technical assistance referral, the CLRP Library and to a wide variety of state and federal resources and links with direct relevance to Minimum Control Measure 6.

- **New York State Department of Transportation**

The New York State Department of Transportation (NYSDOT) is a source of specifications and guidance for various operations related, directly or indirectly, to Minimum Control Measure 6. Among these operations are winter road maintenance, street and bridge maintenance, hazardous materials handling, and various aspects of erosion and sediment control.

The NYSDOT Environmental Procedures Manual is available online at the following web address:

http://www.dot.state.ny.us/eab/epm.html

The Environmental Procedures Manual, in the online version, serves as a compendium, with numerous weblinks to specific guidance on the above topics.

Additional NYSDOT publications may be located through the NYSDOT publications webpage, located at the following address:

http://www.dot.state.ny.us/pubs/publist.html

From this page, links can be made to an extensive series of NYSDOT Standard Specifications (listed as "Standard Specifications" in the publications). These specifications cover numerous topics outside the scope of Minimum Control Measure 6, but some are relevant. Among these topics listed in the Standard Specifications Table of Contents are:

Section 104-06:	Site Housekeeping
Section 106-05:	Storage of Materials
Section 200:	Earthwork (various topics)
Section 570:	Environmental and Groundwater Protection
Section 571:	Treatment and Disposal of Paint Removal Waste
Section 600:	Incidental Construction (various topics)
Section 602:	Rehabilitation of Culvert and Storm Drain Pipes
Section 713:	Landscape Development Materials
Section 740:	Painting Procedures
Section 741:	Paint Removal and Containment

Updated Standard Specifications are also posted, with links to these from the NYSDOT publications listing at the above web address.

The NYSDOT publications webpage (see above address) also includes a series of training materials, some of which are relevant to Minimum Control Measure 6 actions. These are accessed through the publications link titled "Transportation Maintenance Division Training Materials," and then through a second link titled "Equipment Training: Evaluation Guide for Skills Demonstrations." A series of Evaluation Guides and Maintenance Checklists then appears for difference equipment categories. The most relevant categories are Catch Basin Cleaner, Sewer Cleaner, Sweeper, and Herbicide Truck. These may be directly accessed at the following webpage:

http://www.dot.state.ny.us/tmdtraining/evalguides.html

These guides are primarily to ensure proper maintenance and operation of equipment used for BMP implementation, and are not BMP descriptions themselves.

- **New York State County Highway Superintendents Association (NYSCHSA)**

The NYSCHSA hosts two conferences annually and is active in supporting other events by peer organizations such as Cornell Local Roads. A calender of training events and conferences and links to other professional and local government associations is found on their webpage at the following address:

http://www.countyhwys.org

- **Center for Dirt & Gravel Road Studies**

The Center for Dirt & Gravel Road Studies, operated by Pennsylvania State University, provides a range of informational and technical bulletins, which are available from its website (under the tab heading "resources"). The focus of the Center is directly related to stormwater management, with its primary purpose being to mitigate sediment pollution to streams originating from dirt and gravel roads. Although the focus of its education, training and local funding programs are in Pennsylvania, the technical expertise offered may be useful to New York communities. The website for the Center is located at:

www.mri.psu.edu/centers/cdgrs

- **Federal Highway Administration (FHWA)**

The FHWA offers broad support to managers of the nation's roads and highways. The FHWA website provides a wide range of links to resources relevant to Minimum Control Measure 6 and is located at:

http://www.fhwa.dot.gov

Of special interest is technical support to winter maintenance programs and the FHWA provides a guidebook titled "Manual of Practice for an Effective Anti-icing Program" at the following website:

http://www.fhwa.dot.gov/reports/mopeap/eapcov.htm

- **Transportation Association of Canada (TAC)**

The Transportation Association of Canada has developed technical guidance which complements the FHWA guidance. A guidance manual related to winter maintenance, titled "Syntheses of Best Practices-Road Salt Management" can be downloaded in nine separate chapters from the TAC's "Reading Room" webpage at the following:

http://tac-atc.ca/english/informationservices/readingroom.cfm

The TAC has also developed a short guide that highlights environmental principles in establishing policies and procedures titled, "Guide to Integrating Environmental Management Principles Into Operating Codes of Practice." This is available at the TAC Reading Room website listed above.

- **Association of Towns of the State of New York**
- **New York State Conference of Mayors and Municipal Officials (NYCOM)**
- **New York State Association of Counties (NYSAC)**

Each of these associations for municipal, town and county governments provides training and conference opportunities that address a broad range of public concerns and issues. Although they are not as directly or exclusively involved with Minimum Control Measure 6 issues as some of the previously listed organizations, their forums may address them as special topics, and the organizations may cosponsor events that address stormwater issues. Calenders of events, useful directories, and special links may be located on their webpages, as follows:

Association of Towns: http://www.nytowns.org
NYCOM: http://www.nycom.org
NYSAC: http://www.nysac.org

- **Audubon International**

Audubon International is a not-for-profit educational organization that offers three programs that may assist municipalities in their pollution prevention efforts. Audubon International may offer services and work directly in cooperation with a municipality in its following three programs:

- **Audubon Cooperative Sanctuary Programs**
  For existing facilities and properties, such as golf courses, parks and other properties.

- **Audubon Signature Programs**
  For new developments, including new municipal parks, golf courses, etc.

- **Sustainable Communities Program**
  To assist municipalities in merging economic development with protection and enhancement of a community's environment, and for facilitating partnerships.

Detailed descriptions of these programs, and contacts, may be located on the Audubon International webpage located at:

http://www.auduboninternational.org

and accessed through the drop-down tab titled "programs" at the top of the page.

Responsiveness Summary

Municipal Pollution Prevention and Good Housekeeping Program Assistance

NYSDEC

May 2006

The New York State Department of Environmental Conservation (DEC) prepared the Municipal Pollution Prevention and Good Housekeeping Program Assistance document. The document incorporates guidance and references to assist municipalities in developing policies and procedures and establishing measurable goals for maintenance activities for municipal operations and facilities. These can be used to create effective pollution prevention and good housekeeping programs.

DEC distributed this DRAFT assistance document, along with three other draft assistance documents, to regulated Phase II Municipal Separate Storm Sewer System (MS4) municipalities in August 2005. The public comment period ran from August through December 2005. Below are responses to the main issues raised for the Municipal Pollution Prevention and Good Housekeeping Program Assistance document during that comment period.

Comments on Original NOI and Potential New Requirements Suggested in the Guidance

Comments*:*

The document outlines a self-assessment procedure to determine management needs in eight principal pollution prevention/good housekeeping practice categories. It is not clear whether additions to the MS4s program that were not planned in the original NOI are required if they are identified through the self -assessment.

It is a bit difficult to determine whether policies and procedures are adequate in any of the eight areas using this assessment. Without hard and fast requirements, it is not always possible to determine whether the number of staff available for an activity is adequate.

The document does not provide a specific exercise for municipalities to prioritize management practices or geographic areas. Municipalities were given freedom in their NOIs to design their program with a consideration of the pollutants and bodies of water that are of most concern in their municipality. Clarification is needed as to whether new priorities are now required, or if the municipalities should maintain their focus on only those areas they indicated in their NOI.

The "Guiding Principles for Stormwater Pollution Prevention" is helpful in that it actually provides specific examples of types of improvements that need to be made in municipal operations. However, an expansion of this listing into a full checklist of concrete and quantifiable actions, and some measurement of how much is enough to comply, is what is

needed for municipalities to properly assess what improvements they must make in order to achieve compliance.

Response:

MS4s are required to reduce discharges to the maximum extent practicable. The self-assessment procedure described in the guidance is a suggested tool for accomplishing that requirement. However, the self-assessment itself is not required. MS4s are not specifically required to make additions to the program that were not planned in the original Notice of Intent (NOI), or to otherwise refocus their programs as a result of the self-assessment, unless it is determined that the MS4 is not reducing discharges to the maximum extent practicable. Consequently, the self-assessment procedure described in the guidance does not prescribe specific standards for staffing or other internal policies and procedures for MS4s. This is considered to be pragmatic, given the wide variability in MS4 capabilities and the nature of local non-point source issues.

For similar reasons, the guidance does not prescribe a mandatory exercise for determining local priorities, or a mandatory checklist procedure for determining concrete actions and numerical benchmark measures of progress that would apply to all MS4s. The MS4 is required to reduce discharges to the maximum extent practicable, and the focus of the NOI remains unless it is determined that this requirement is not met. New priorities are not specifically required as a result of self-assessment or priority evaluations suggested in the guidance.

Comments on Sample Measurable Goals for Municipal Operation Categories

Comment 1*:*

In the Sample Measurable Goal listings, there are no benchmarks provided regarding what is considered acceptable progress. No suggestions are offered as to how much work needs to be done in order to achieve compliance. Obviously, the amount of effort needed under the various categories will differ widely from one MS4 to the next, but some examples or ballpark figures based on population, area or miles of roads would be very useful.

Response 1:

Benchmarks for Minimum Control Measure 6 - Pollution Prevention/Good Housekeeping are described in the Stormwater Management Program document titled *Critical Path to Compliance*. These benchmarks are described as progressive program development and implementation stages, with annual target dates. New York has determined that establishing quantitative benchmarks (such as tons of sediment or debris cleaned or number of various clean outs) based on MS4 population or other geographic characteristics are not practicable.

Comment 2*:*

The Sample Measurable Goals for "Street and Bridge Maintenance," Table 3.1, should include sample goals relevant to low traffic and unpaved roads addressing road drainage, erosion control and dust control. Section 4 should indicate which references provide guidance on these issues.

Response 2:

Sample measurable goal citations have been added to Table 3.1 for unpaved road maintenance, at a level of detail comparable to other measurable goals. Selected references for guidance on unpaved road maintenance have been added to Section 4.

Comment 3*:*

The Sample Measurable Goals for "Stormwater Drainage, Conveyance and Treatment System Maintenance," Table 3.3, should include sample goals relevant to open ditches addressing stabilization and erosion control for roadside ditches.

Response 3:

Sample measurable goal citations have been added to Table 3.3 for open ditch maintenance, at a level of detail comparable to other measurable goals. Selected references for guidance on open ditch maintenance have been added to Section 4.

Comment 4*:*

The inclusion of Sample Measurable Goals for "Streambank Stabilization and Hydrologic Habitat Modification," Table 3.8, raises questions about whether this is a required part of the MS4 stormwater program. If streambank stabilization and stream maintenance are recommended, rather than required, please state this clearly. The MS4 permit is for discharges from municipal storm sewer systems; in-stream projects are addressed under other permit programs. If stream maintenance is an integral part of a municipality's responsibilities under Minimum Control Measure 6, stream management objectives should be included in the "Guiding Principles for Stormwater Pollution Prevention", with additional references provided in Section 4.

Response 4:

MS4s are required to reduce discharges to the maximum extent practicable. MS4s are not specifically required to make additions to the program that were not planned in the original Notice of Intent (NOI). Streambank stabilization and related management activities are suggested, or recommended, but are not required unless specifically stated in the NOI. Clarification has been added to the Guidance. The "Guiding Principles" described in Section 2.3 are broadly applicable to many municipal operations and pollution prevention activities. At least three of these principles are relevant to Streambank Stabilization and Hydrologic Habitat Modification: (1) Prevent Pollution at its Source; (5) Practice Preventive Maintenance; and (6) Identify Potential Pollution

Sources. The examples listed for these principles are intended for illustration only, and are not comprehensive. To avoid confusion regarding requirements related to streambank management in Minimum Control Measure 6, additional examples relevant to this topic have not been added in Section 2.3. We consider this guidance to be an evolving document. Additional references relevant to streambank stabilization and hydrologic habitat modification will be added as they are published and determined to be appropriate for this document.