

OBJECTIVES

- Reduce polluted discharges associated with roads and streets via sweeping
 - Operational Protocols
 - General Practices
 - Special Considerations
- Reduce specific pollutants that may contribute to receiving waters through proper street sweeping practices
 - Trash
 - Metals
 - Sediment
 - Other Considerations
 - Road Salt
- Implement and conduct activities aimed at pollution prevention
 - Training
 - Enforcement

DESCRIPTION

Daily use of roads and streets (and parking lots) within a municipality can generate a build-up of pollutants including litter and sediment. Regular street sweeping can reduce the amount of pollutants, as well as improve aesthetics of streets.

CONSIDERATIONS

Roads and streets generally comprise a majority portion of municipal infrastructure. Coupled with the fact a majority of a storm sewer system is located within defined boundaries of roads and streets with definitive points of entry (inlets, etc.) for stormwater, a large portion of focus should be afforded to proper road and street maintenance—including street sweeping—to reduce the potential of polluted runoff and direct polluted discharges that would be conveyed to receiving waterways.

A street sweeping program can be limited due to costs associated with equipment. Street sweepers can cost between \$60,000 and \$180,000 based on type.

Consider land uses (e.g. industrial versus residential) along with proximity to waterways when developing schedules (frequency) and observed accumulation of potential pollutants.

A street sweeping program may require any of the following: operators, maintenance of equipment, administration, traffic control officers, waste disposal of hazardous materials, and cleaning route design & notifications.

The average life span of a sweeper is approximately five years. If a new sweeper is needed an array of new technology advanced sweepers are now available, including regenerative air sweepers that maximize pollutant removal. However, there is no data yet to support what is the "best" sweeping equipment or method.

Despite sweepings having the ability to contain pollutants, regulations may allow the reuse of collected sweepings for general fill, road shoulders, and other applications that may not threaten local waterways.

RECOMMENDATIONS AND PROTOCOLS

For the objectives listed, the following represent further recommendations and protocols for street sweeping:

Reduce polluted discharges associated with roads and streets via sweeping

Operational Protocols

- Avoid wet cleaning or flushing (unless combined sewer), and utilize dry methods as possible
- Conduct sweeping during dry weather
- Consider traffic volumes when scheduling sweeping activities
- Keep accurate logs of street sweeping activities
- Properly dispose of collected sweepings. Refer to BMP Fact Sheet GH-7 for waste handling and disposal for more information
- When developing a street sweeping program and schedule: plan for frequency, volume projections, timing, quality, storage of sweepings (including reuse if applicable), routing, and disposal at a minimum

General Practices

- Maintain sweepers or cleaning equipment; repair if leaks are observed
- Maintain a consistent sweeping schedule
- Institute a parking policy to restrict parking in problematic areas to allow full access
- Publish street sweeping schedules; a plausible approach is also providing direct notice to residents or businesses in street sweeping areas
- Do not store sweepings adjacent to waterways or storm drains
- Do not "push" sweepings to storm drains or inlets

Special Considerations

- Increase frequency of sweeping for streets with high pollutant loads
- Vacuum or regenerative air sweepers generally provide more effective pollutant removal in high sediment and trash areas
- A log should be kept calculating debris load intake
- Post permanent signs outlining street sweeping schedules

Reduce specific pollutants

Trash

- Ensure equipment can handle debris and trash and properly remove such items
- In heavy litter areas, follow-up crews may need to be considered to ensure all trash is removed

Metals

- Metals are effectively a part of sediment and debris. Removal of sediment and debris can effectively reduce the potential of certain pollutants such as copper, zinc, and lead from entering receiving waterways

Sediment

- Areas of observed sediment should be treated frequently to reduce the potential of polluting via sediment (including nitrogen, lead, and so on)

BMP Fact Sheet: GH-33 Street Sweeping

Road Salt

- Consider additional sweeping in early spring to remove road salt accumulated through the winter months

Other Considerations

- Contain sweeping debris piles (with temporary-type BMPs if applicable) and away from drains and waterways
- Sweepings may contain hazardous materials due to gasoline spills or similar chemicals

Implement and conduct activities aimed at pollution prevention

Training

- Refer to BMP Fact Sheet GH-1 regarding training for more information
- Additional training considerations should be afforded to operators of equipment
- Train employees regarding proper maintenance activities and recommendations outlined in this BMP fact sheet and related fact sheets

Enforcement

- Consider monetary fines for parking violations in problem areas where frequent sweeping is required

DOCUMENTATION

Proper documentation practices are essential for any municipal SWMP to show compliance with the Clean Water Act, NPDES, and generally the requirements of the permit issued to allow discharges through the defined MS4. As with all sections of an MS4 permit, all documentation should be centralized.

For street sweeping, templates are provided within the BMP manual to assist the municipality with documentation compliance. The templates can be used for compliance; however, the following documents are recommended as a minimum for compliance:

- **Training Record:** This document is used to provide record of a training event or session relative to street sweeping. Two plausible training activities include operator training and recognition of problem areas.
- **Training and Education Log:** Enter a completed training record in the log.
- **Street Sweeping Schedule and Program:** Keep a planned schedule of sweeping activities. Modify as necessary based on observations or load intake.
- **Activity Record:** Complete when maintenance is conducted on sweeping equipment and to note completion of a sweeping activity. When noting sweeping activities, enter a load removed value as well.
- **Inspection Record:** Complete an inspection based on the recommendations in the section titled "INSPECTIONS AND MEASUREMENTS" or as outlined in your SWMP
- **Inspection, Event, and Activity Log:** Enter an inspection or activity record for street sweeping into the log as outlined within this BMP.

INSPECTIONS AND MEASUREMENTS

Frequency of inspections for roads and streets is recommended as follows:

BMP Fact Sheet: GH-33 Street Sweeping

- *Regular Inspection:* Conduct a regular inspection of roads and streets based on an applicable frequency. An applicable frequency should be determined based on the use of the road or street. Focus should be afforded to roads and streets with inlets or direct points of entry to waterways. Inspections will help determine problem areas or if adjustments to frequencies of sweeping is needed.

Items that should be inspected and maintained:

Roads and Streets: Ensure free of "build-up" of debris, sediment, and so on.

Schedule sweeper or adjust frequency if necessary

Street Sweeper: Ensure properly operating and free of leaks

Operational reviews: Ensure observed practices are in line with recommendations outlined in this fact sheet

Temporary-type BMPs: Silt fences, straw "wattles, covers, and so on associated with sweeping storage areas are in working order

Effectiveness can be demonstrated in several ways. Two primary types include "ton per street mile" basis and "pounds per capita" basis. The first method may be easier to calculate, and is generally a more acceptable method to demonstrate effectiveness. A plausible method of calculation includes direct weighing of a sweeper before and after collections or simply calculating the approximate loads removed.

SOURCES

U.S. Environmental Protection Agency Parking Lot and Street Cleaning at <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=99&minmeasure=6>

California Stormwater Quality Association, Municipal Stormwater Best Management Practice Handbook (2004 edition) at <http://www.cabmphandbooks.com/Municipal.asp>

Connecticut Department of Environmental Protection Guideline for Municipal Management Practices for Street Sweepings and Catch Basin Cleaning at http://www.ct.gov/dep/lib/dep/waste_management_and_disposal/solid_waste/street_sweepings.pdf