

ROAD AND STREET MAINTENANCE

OVERVIEW

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis. To reduce or minimize the discharge of pollutants to stormwater during road and street maintenance and operation practices with targeted constituents of sediments, trash, metals, oil and grease, organics and oxygen demanding elements, please review and apply the following approaches and requirements below.

APPROACH

Pollution Prevention

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal).
- Recycle paint and other materials whenever possible.
- Enlist the help of citizens to keep yard waste, used oil, and other wastes out of the gutter.

Street Sweeping and Cleaning-

- Maintain a consistent sweeping schedule.
- Perform street cleaning during dry weather if possible.
- Avoid wet cleaning or flushing of street, and utilize dry methods where possible.
- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc. For example:
 - Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
 - Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
 - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- To increase sweeping effectiveness consider the following:
 - Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.

- Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
- Develop and distribute flyers notifying residents of street sweeping schedules.

- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).
- Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
- Dispose of street sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Keep debris storage to a minimum during the wet season, or make sure debris piles are contained (e.g. by berming the area), or covered (e.g. with tarps or permanent covers).

Street Repair and Maintenance-

Pavement Marking

- Schedule pavement marking activities for dry weather.
- Develop paint handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paint and hot thermoplastic away from storm drain inlets.
- Provide drop cloths and drip pans in paint mixing areas.
- Properly maintain application equipment.
- Street sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.
- Paints containing lead or tributyltin are considered a hazardous waste and must be disposed of properly.
- Use water based paints whenever possible. If using water based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
- Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

Concrete Installation and Repair

- Schedule asphalt and concrete activities for dry weather.
- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place sand bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.

- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain.
- Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel darns around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small onsite vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Patching, Resurfacing, and Surface Sealing

- Schedule patching, resurfacing and surface sealing for dry weather.
- Stockpile materials away from streets, gutter areas, storm drain inlets, or watercourses.
- During wet weather, cover stockpiles with plastic tarps, or berm, around them if necessary to prevent transport of materials in runoff.
- Pre-heat, transfer, or load hot bituminous material away from drainage systems, or watercourses.
- Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered maintenance holes and storm drain inlets when the job is complete.
- Prevent excess material from exposed aggregate concrete or similar treatments from entering streets or storm drain inlets. Designate an area for cleanup and proper disposal of excess materials.
- Use only as much water as necessary for dust control to avoid runoff.
- Sweep, never hose down, streets to clean up tracked dirt. Use a street sweeper or vacuum truck. Do NOT dump vacuumed liquid in storm drains.

- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Equipment Cleaning Maintenance and Storage

- Inspect equipment daily and repair any leaks. Place drip pans or absorbent materials under heavy equipment when not in use.
- Perform major equipment repairs at the corporation yard, when practical.
- If refueling or repairing vehicles and equipment must be done onsite, use a location away from storm drain inlets and watercourses.
- Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mud jacking equipment at the end of each day. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

Bridge and Structure Maintenance-

Paint and Paint Removal

- Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- Do not transfer or load paint near storm drain inlets or watercourses.
- Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Plug nearby storm drain inlets prior to starting painting where there is significant risk of a spill reaching storm drains. Remove plugs when job is completed.
- If sand blasting is used to remove paint, cover any nearby storm drain inlets prior to starting work.
- Perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters if the bridge crosses a watercourse. If sanding, use a sander with a vacuum filter bag.
- Capture all clean-up water and dispose of properly.
- Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of unused paint at an appropriate household hazardous waste facility.

Graffiti Removal

- Schedule graffiti removal activities for dry weather.
- Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.

- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) 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 drains.
- If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and vacuum/pump wash water to the sanitary sewer.
- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Repair Work

- Prevent concrete, steel, wood, metal parts, tools, or other work materials from entering storm drains or watercourses.
- Thoroughly clean up the job site when the repair work is completed.
- When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in the Plaza & Sidewalk Cleaning section.
- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- Recycle materials whenever possible.

Unpaved Roads and Trails

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- Dust suppressants should be used to minimize airborne transfer of fine aggregates into the air.
- Quality aggregates should be used to minimize transfer of fine aggregates onto paved surfaces.
- For roadside areas with exposed soils, the most cost-effective choice is to vegetate the area, preferably 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; a common straw, or gravel as appropriate.
- If sediment is already eroded and mobilized in roadside areas, temporary controls should be installed. These may include the following: sediment control fences, fabric-covered triangular dikes, gravel-filled burlap bags, biobags, or hay bales stacked in place.

Non-Stormwater Discharges-

Field crews should be aware of non-stormwater discharges as part of their ongoing street maintenance efforts.

- Please refer to the Non-Stormwater Discharges section.
- Identify the location, time and estimated quantity of discharges.
- Notify appropriate personnel.

Training

- Train employees regarding proper street sweeping operation and street repair and maintenance.
- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

Spill Response and Prevention

- Please refer to the Spill Prevention, Control & Cleanup section.
- Keep your Storm Water Pollution Prevention Plan (SWPPP) and/or Pollution Incident Prevention Plan (PIPP) up to date and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Clean up spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

REQUIREMENTS

Maintenance

- Not applicable.

MEASURABLE GOALS

- # of staff trained or read this procedure
- Quantities of trash or sediment cleaned from sites annually
- # of sites maintained per year
- Date and types of non-stormwater discharges annually from this procedure
- Street sweeping quantities per year

REFERENCES

GLRC Municipal BMP Handbook
www.mywatersheds.org