

Street and Road Repair and Maintenance BMPs

SCVURPPP Muni Ops AHTG

MRP Required BMPs

- Activities
 - Parking lot installation
 - Road Repaving
 - Road Repair
 - Road Maintenance



MRP Required BMPs

- Implement appropriate BMPs to **control** site debris and waste materials
- Example BMPs
 - Cover materials not in use (protect from wind and rain)
 - Secondary containment
 - Berms
 - Store materials off the ground
 - Block storm drain inlets
 - Good housekeeping

MRP Required BMPs

- Proper management of materials on site to **avoid discharge** to storm drains
- Example BMPs
 - Drip pans where equipment can leak
 - Contain concrete slurry/washout, allow to harden and dispose (don't place on ground/soil)
 - Contain water used when saw cutting
 - Minimize water used for dust control and street sweeping to avoid discharge to storm drains

- Asphalt
- Concrete slurry
- Pavement cutting
- Wastewater

Concrete Waste



MRP Required BMPs

- Coordinate with **sanitary sewer agencies** if discharging wastewater generated from activities in sanitary sewer
 - Approvals
 - Pretreatment standards
- Sweep and/or vacuum to **remove debris** from work sites upon completion of work
 - Concrete
 - Sediment
 - Asphalt



MRP Required BMPs

- **Cleanup** all construction debris, spills, and leaks using dry methods
- Example BMPs
 - Sweep
 - Vacuum
 - Absorbent materials for spills/leaks
 - Don't wash materials down the storm drain

CASQA Fact Sheet SC-70 Road and Street Maintenance

Road and Street Maintenance

SC-70



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

- Sediment
- Nutrients

Description

Streets, roads, and highways are subject to stormwater discharges, and (O&M) practices, if not conducted properly, can contribute to stormwater pollution. Stormwater pollution maintenance should be addressed through the procedures outlined below. Regular repair, bridge and structure maintenance will reduce pollutants in stormwater.

- ✓ Regularly inspect and maintain equipment
- ✓ Schedule pavement marking activities for dry weather

Approach

Pollution Prevention

- Use the least toxic materials, 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.

Suggested Protocols

Street Sweeping and Cleaning

- Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of curbed streets.
- Perform street cleaning during dry weather if possible.



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Road and Street Maintenance

- 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.

- 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.

• **During concrete installation & repair**

- ✓ Protect nearby storm drains
- ✓ Mix only what is needed onsite
- ✓ Do not wash sweepings from exposed aggregate concrete into the street or storm drain (collect and return to stockpile or dispose in trash)

• **When saw cutting pavement**

- ✓ Cover nearby storm drain inlets completely
- ✓ Contain liquid
- ✓ Shovel or vacuum slurry residue and remove from site
- ✓ Onsite vacuum can pick up slurry as generated

sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams 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.

equipment, and then washing 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.



- Develop paint handling procedures for proper use, storage, and disposal of paints.

Patching, resurfacing, and surface sealing

- **Patching, resurfacing, and surface sealing**
 - ✓ Schedule for dry weather
 - ✓ Stockpile materials away from streets, gutters, storm drain inlets
 - ✓ Cover stockpiles
 - ✓ Cover nearby storm drain inlets completely
 - ✓ Minimize water for dust control to avoid runoff
 - ✓ Sweep up
 - ✓ Place drip pans/absorbents under paving equipment to catch drips
- **Equipment**
 - ✓ Inspect for leaks
 - ✓ Perform repairs, refueling and cleaning at your corporation yard (not onsite)

inlets.

- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

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 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 vacu

Repair Work

- Captu
- Recyc
- Sched
- 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 SC-71 Plaza & Sidewalk Cleaning fact sheet.

- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- If construction takes place, see the Construction Activity BMP Handbook.
- 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.

- ✓ Thoroughly clean up the job site when work is completed
- ✓ Use appropriate construction activity BMPs

Non-Stormwater Discharges

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

- Refer to SC-10 Non-Stormwater Discharges
- Identify 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

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Densely populated areas or heavily used streets may require streets for cleaning.
- No currently available conventional sweeper is effective: Mechanical sweepers are not effective at removing finer particles.
- Limitations may arise in the location of new bridges. The other economic and political factors may dictate where they occur. Better design of the bridge to control runoff is recommended for sensitive waters.

Requirements

Costs

- The maintenance of local roads and bridges is already a consideration of most community public works or transportation departments. Therefore, the cost of pollutant reducing management practices will involve the training and equipment required to implement these new practices.
- The largest expenditures for street sweeping programs are in staffing and equipment. The capital cost for a conventional street sweeper is between \$60,000 and \$120,000. Newer technologies might have prices approaching \$180,000. The average useful life of a conventional sweeper is about four years, and programs must budget for equipment replacement. Sweeping frequencies will determine equipment life, so programs that sweep more often should expect to have a higher cost of replacement.
- A street sweeping program may require the following.
 - Sweeper operators, maintenance, supervisory, and administrative personnel are required.
 - Traffic control officers may be required to enforce parking restrictions.
 - Skillful design of cleaning routes is required for program to be productive.
 - Arrangements must be made for disposal of collected wastes.

Spill Response

- ✓ Have spill kits available
- ✓ Clean up spills immediately
- ✓ Use dry cleanup methods

- If investing in newer technologies, training for operators must be included in operation and maintenance budgets. Costs for public education are small, and mostly deal with the need to obey parking restrictions and litter control. Parking tickets are an effective reminder to obey parking rules, as well as being a source of revenue.

Maintenance

- Not applicable

Supplemental Information

Further Detail of the BMP

Street sweeping

comparisons to the two common types of sweepers. The best choice depends on the community. Many communities find it useful to have a complement of

mechanical sweepers more effective at picking up large debris and cleaning wet streets. Mechanical sweepers create more airborne dust.

vacuum sweepers are more effective at removing fine particles and associated heavy metals. Vacuum sweepers are noisier than mechanical broom sweepers which may restrict where they can be used. They require an advance vehicle to remove large debris.

Street flushing is the biggest interference to cleaning, parked cars. May remove finer particles from the gutter and stormwater inlets. For this reason, flushing is recommended only after sweeping. Flushing may be effective for combined sewer systems. Presently street flushing is not allowed under most NPDES permits.

Cross-Media Transfer of Pollutants

The California Air Resources Board (ARB) has established state ambient air quality standards including a standard for respirable particulate matter (less than or equal to 10 microns in diameter, symbolized as PM₁₀). In the effort to sweep up finer sediments to remove attached heavy metals, municipalities should be aware that fine dust, that cannot be captured by the sweeping equipment and becomes airborne, could lead to issues of worker and public safety.

Bridges

Bridges that carry vehicular traffic generate some of the more direct discharges of runoff to surface waters. Bridge scupper drains cause a direct discharge of stormwater into receiving waters and have been shown to carry relatively high concentrations of pollutants. Bridge maintenance also generates wastes that may be either directly deposited to the water below or carried to the receiving water by stormwater. The following steps will help reduce the stormwater impacts of bridge maintenance:

- Site new bridges so that significant adverse impacts to wetlands, sensitive areas, critical habitat, and riparian vegetation are minimized.

BMPs When Project Ends

- Clean up area
 - Remove all materials
 - Sweep, vacuum, etc.
- Remove all temporary BMPs
 - Look off site, down the street, around the corner, etc.



Abandoned filter bag and fiber roll months after road repair completed

Storm Drain Inlets: Protect vs Block

- BMPs that filter or allow **sediment** to settle out of stormwater
 - Filter bags
 - Gravel bags
 - Manufactured mats
 - Compost socks
 - Fiber rolls



Storm Drain Inlets: Protect vs Block

- BMPs that prevent non-stormwater discharges from entering storm drain (e.g., saw cut slurry, sealants, wash water)
 - Mats
 - Storm drain plugs
 - Berms



Slide 16

KK0 This inflatable pipe plug is from the internet. Will need another picture
Kristin Kerr, 2024-03-13T23:09:10.289

Contact Information

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