



# Program 6 Procedures Manual

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- Vector Truck Washout SOP
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## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Fine-grained sediment  
Organics  
Oil  
Saw-cut slurry  
Trash

## Good Housekeeping

Tarps  
Covered outdoor storage areas  
Secondary containment  
Proper disposal of used fluids and materials  
Spill cleanup materials  
Employee training

## Related Procedures

Material Storage  
Outdoor Fleet Maintenance  
Spill Prevention and Response  
Vehicle Fueling  
Vehicle Washing  
Street, Curb, and Gutter Maintenance

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Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
New Construction SOP Fact Sheet  
Concrete Program SOP Fact Sheet  
Vehicle Fueling SOP Fact Sheet  
Vehicle Washing SOP Fact Sheet  
Outdoor Material Storage SOP Fact Sheet

# Building Maintenance

## Description

This SOP is designed to control the maintenance and construction activities that take place in municipal buildings and their surrounding grounds by promoting procedures to help eliminate the potentially contaminated debris, trash, and water runoff from reaching our stormwater system. This includes the disposal of debris caused by window washers, painters, and building contractors.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### Operations

- Remove paper, trash and other debris from building grounds, (parking lots, landscaped areas, detention ponds and waterways),
- Standard cleaning of property walkways, and windows generate sediment, chemicals and debris that are being collected with the cleaning process, so precautions need to be taken to ensure that contaminants do not enter the stormwater system,
- When maintenance operation requires wash water such as power washing of buildings, temporary protection shall be placed at storm sewer inlets to catch contaminants in the wash water before entering the storm sewer system.
- At no time shall chemicals be allowed to be washed into the storm sewer system.
- Building landscaping activities are to follow procedures in *Arapahoe County SOP –Fertilizer, Herbicide and Pesticide Application*
- Sediment collected from walkways and parking areas needs to be collected, removed and disposed, and not swept or power-washed into stormwater drains.
- Cleaning of equipment and materials needs to be done in designated areas other than parking lots that ultimately lead to stormwater drains,

- Overseeing contractors work when installing or removing equipment, and landscaping is necessary to ensure that potential contaminants are kept to a minimum, and contained,
- Required maintenance contractors need to provide a list of chemicals being used for the job and their procedure for collecting the byproduct before it enters the storm sewer system.

### Debris Handling

- Conduct regular clean-up of property grounds of all trash and debris,
- If a spill should happen refer to *Arapahoe County SOP – Spill Prevention & Control* for proper procedures,
- Contractors such as landscapers, painters and any others are expected to follow proper clean-up procedures to ensure that chemicals, runoff, debris, and excessive sediment will not enter the stormwater system.

### Employee Training

- Train applicable employees who perform building maintenance on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform building maintenance.

### Records

The following records could be used to document activities performed:

- Record of any major spills and the action taken.
- Records of employee training with sign-in sheet.

### References

Partners for a Clean Environment (PACE): *Best Management Practices Library Stormwater Pollution Prevention*, February 2004

Town of Paradise Valley. *URS Draft Storm Water Management Plan*, February 2003

The City of San Diego, *Street Division Storm Drains – Street Sweeping*, September 2004

*California Stormwater BMP Handbook – Municipal*, January 2003

EPA – *Preliminary Data Summary of Urban Storm Water Best Management Practices*.  
August 1999

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Organics  
Chemicals  
Fuel

#### Good Housekeeping

Secondary containment  
Employee training

#### Related Procedures

Heavy Equipment and Vehicle  
Maintenance  
Material Storage  
Parks and open Space  
Maintenance  
Spill Prevention and Response  
Vehicle Fueling  
General Landscape  
Maintenance Fact Sheet in  
English and Spanish

# Fertilizer, Herbicide, and Pesticide Application (General Landscape Maintenance)

## Description

General landscaping maintenance includes the disposal of clippings from mowing, planting, weeding, trees, hedges and shrubs; raking of leaves; spraying of pesticides, fertilizing, and the cleaning / upkeep of park restrooms, buildings and tables. It is important to properly handle, apply, and clean up all fertilizers, herbicides, pesticides, and other landscaping chemicals. These chemicals could cause water pollution. Excessive fertilizer application can also contribute to algae blooms and deplete oxygen from waterways.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All locations where the County is responsible for the upkeep of land and/or property.
- All municipal and County-owned and/or leased facilities or property, and County-contracted operations where pesticides or fertilizers are stored, mixed, applied, recycled or disposed.

## Procedures

### General

- Employees should fully understand their right to know what chemicals they are using through the availability of on-site Material Safety Data Sheets.
- Follow label directions when applying, storing, handling, mixing, recycling, and disposing of chemicals and empty containers.
- Use care to transfer, mix or dispose of chemicals. Never perform these activities near storm drains or drainage areas.
- Have spill cleanup materials available in case of a spill and clean up chemical spills promptly with dry methods, if possible. Refer to the Spill Prevention and Response procedure.

- Rake leaves, pull weeds and dispose of properly.
- Seed and mulch or sod to provided ground cover in areas void of vegetation.
- Dispose of trimmings from plants, lawns, shrubs, hedges, trees, edgings and borders in appropriate containers/dumpsters.
- Sediment from walkways and parking areas should be collected and disposed and not left on landscaped areas that ultimately run into the stormwater drains.
- Cleaning of equipment and materials needs to be done in designated areas other than parking lots that ultimately lead to stormwater drains.

### Debris Handling

- Grass, tree, shrubs, and hedge clippings are to be disposed of properly.
- Ensure that debris from water features are collected and taken to a secure, temporary, storage area or directly to its permanent disposal site.
- Estimate material volume and record types of material collected.
- Test bi-annually for hazardous characteristics in the water, if warranted.

### Chemical Application

- Staff performing chemical applications must wear all appropriate protective garments.
- All chemicals shall be used strictly in accordance with their labels and all applicable federal, state, and local laws, regulations, and ordinances.
- Always follow the manufacturer's recommendation on handling and applying the chemicals.
  - Many chemicals should not be applied right before or during rain storms or while the area is being irrigated.
  - Many chemicals should not be applied right before or during high-wind events.
  - Apply only the recommended amounts of chemicals.
- Be careful not to overspray chemicals onto an impervious surface, such as a sidewalk or roadway. These chemicals will wash into the storm drain inlet during the next rainstorm.
- Clean up all over-sprayed chemicals.
- Do not apply landscape chemicals to frozen ground.
- When watering landscaped areas after fertilizer application, do not allow water to runoff into streets and into storm drains.

### Chemical Storage

- Materials shall be stored in accordance with all current federal, state and local laws, regulations and ordinances.
- Chemicals shall be stored in an enclosed, secure building.

- Recycle or dispose of all spent or excess chemicals properly and promptly.
- Establish chemical inventory controls to minimize storage and disposal of excess chemicals.
- Follow the Outdoor Material Storage procedure.

### Application Equipment

- Sprayers shall be used to apply only materials that are suitable for spraying.
- Spreaders shall be used to apply only materials that are available in granular forms.
- Fertilizers and pesticides should be loaded into application equipment over impervious surfaces, so that any spills can be easily cleaned.
- Properly calibrate application equipment to ensure the proper amount of chemical is applied.
- Keep application equipment clean; do not allow a buildup of chemicals.
- Fuel all equipment following the Vehicle Fueling procedure.
- Maintain (including washing) all equipment by following the Heavy Equipment and Vehicle Maintenance procedure.

### Employee Training

- It is recognized that additional training and certifications exist that describe procedures for chemical application, handling, and storage. The appropriate employees and supervisors must have this certification.
- Train applicable employees who are involved with fertilizer, herbicide, and pesticide application on this written procedure. Information regarding proper storage practices and how to prevent and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who are involved with fertilizer, herbicide, and pesticide application activities.

### Records

The following records could be used to document activities performed:

- Chemical Applicator Certification
- Records of employee training with sign-in sheet.

### References

*City of Golden SOP: Chemical Application and Management Plan*, No Date.

*Colorado Department of Transportation, Fertilizer, Herbicide, and Pesticide Application and Storage*, April 2009.

*Mesa County, Municipal Operation and Maintenance Program*, July 4, 2005.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Fine-grained sediment  
Organics  
Oil  
Saw-cut slurry  
Trash

## Good Housekeeping

Tarps  
Covered outdoor storage areas  
Secondary containment  
Proper disposal of used fluids and materials  
Spill cleanup materials  
Employee training

## Related Procedures

Material Storage  
Spill Prevention and Response  
Vehicle Washing

## Additional Resources for Training

Spill Prevention and Control  
SOP Fact Sheet (English and Spanish)  
Outdoor Material Storage SOP  
Fact Sheet  
General Good Housekeeping  
SOP Fact Sheet

# General Good Housekeeping

## Description

Most storm water pollution occurs as a result of a spill, leak or release when materials or wastes are uncontrolled and exposed to storm water. Some of the most considerable non-specific sources of pollution in urban areas are a direct result of littering, collection of debris, deposition of contaminants, and improper waste disposal on roadways and parking lots. As a result of this pollution, stormwater catch basins become affected with debris and contaminants that have washed off of the roads and parking lots, which can lead to flooding and/or contamination of receiving waters.

Spills and releases often occur when a container is punctured or broken in an accident. Accidents often occur because an employee tripped or had to handle a container in an awkward position and he or she lost control of it. Good housekeeping is simply the practice of keeping all materials, supplies and containers well organized. Storing materials securely when not in use and only having materials that are needed for the current work activity in the work area. Good housekeeping also helps prevent storm water pollution if an accident or release does occur. Small accidents in areas with lots of other materials (some of which may be hazardous) can quickly escalate into a major accident. A well-organized and tidy work area is easier to clean up and lessens the chance of accidents happening than one that is cluttered.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

- Keep all work areas neat and well organized.
- Sweep or pick-up all trash and debris daily or as needed.
- Have spill cleanup material available and in a known, visible and labeled location.
- Spills need to be cleaned up immediately with dry methods if possible.

- Conduct daily onsite inspections to ensure that equipment is being handled, disposed/recycled and stored correctly.
- Have, and review regularly, a contingency plan for spills, leaks, weather extremes etc. Make sure all employees know about it and what their role is so that it comes into force automatically.

## Operations

- Dispose of wash water, sweepings, and sediments, properly – not in the stormsewer.
- Recycle or dispose of all wastes properly and promptly. Do not let waste accumulate at or around the work place. Referrer to *the Arapahoe County BMP – Waste Management* for details on proper waste management
- Do not transfer, pour or dispose of materials outdoors, near or in storm drain inlets or drainage ditches.
- Do not wash down or hose down any outdoor work areas or trash/waste container storage areas except where wash water will only enter the sanitary sewer (if approved).
- Use dry clean-up methods only.
- Clean up all spills or releases promptly and use the practices described in the *Arapahoe County BMP – Spill Prevention and Clean-Up* for details.
- Do not handle containers alone if awkward or required over-exertion. Use powered equipment or get assistance.
- Post waste disposal charts in appropriate locations detailing for each waste its hazardous nature (poison, corrosive, flammable), prohibitions on its disposal (dumpster, drain, sewer) and the recommended disposal method (recycle, sewer, burn, storage, landfill).
- Provide a designated vehicle maintenance area designed to prevent stormwater interaction.
- Move vehicles and equipment in need of maintenance or repairs indoors whenever possible or to a designated area.
- Store idle equipment undercover.
- Keep equipment clean; don't allow excessive build-up of oil and grease.
- Monitor parked vehicles closely for leaks. Pans should be placed under any leaks to collect the fluids for proper disposal or recycling.
- Clean yard storm drain inlets(s) regularly and especially after large storms.
- Cover work areas to limit exposure to rain.

## Employee Training

- Train applicable employees on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees.

## Records

The following records could be used to document activities performed:

- Record of any major spills and the action taken.
- Records of employee training with sign-in sheet.



## References

Partners for a Clean Environment (PACE). *Best Management Practices Library Stormsewer Pollution Prevention*, February 2003

Watershed Protection Division, Los Angeles, CA Department of Public Works. *Best Management Practices Guidebook for Vehicle Maintenance Facilities*, February 2004

CASQA, California Stormwater Quality Association, *California Stormwater BMP Handbook*, January 2003

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Fine-grained sediment  
Organics  
Oil  
Saw-cut slurry  
Trash

## Good Housekeeping

Tarps  
Covered outdoor storage areas  
Secondary containment  
Proper disposal of used fluids and materials  
Spill cleanup materials  
Employee training

## Related Procedures

Material Storage  
Outdoor Fleet Maintenance  
Spill Prevention and Response  
Vehicle Fueling  
Vehicle Washing  
Street, Curb, and Gutter Maintenance

## Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
New Construction SOP Fact Sheet  
Concrete Program SOP Fact Sheet  
Vehicle Fueling SOP Fact Sheet  
Vehicle Washing SOP Fact Sheet  
Outdoor Material Storage SOP Fact Sheet

# Gravel Road Maintenance Guideline

## Description

Regular maintenance of gravel roads prolongs the life of the municipality's assets. Collecting and disposing of debris, wastes, oil, gas and excessive sediments prevents them from reaching the stormwater system and other water supplies

The BMPs listed in this SOP are to be used as guidance, measures that should be implemented to the maximum extent practicable (MEP) to achieve the intent of this SOP: *reducing and eliminating pollutants to the stormwater system.*

**NOTE:** A substantial amount of information has been a result of Rural Home Tech's write up *A Ditch in Time... Gravel road maintenance and erosion control*, written by Russ Lanoie of Conway, New Hampshire, 1997-2006.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### Operations

- Grading consist of smoothing or reshaping gravel/dirt roads, which should be done in early spring when the ground is soft but not unstable, or immediately after a rain. Never work dry roads, especially if it contains large amounts of fines.
- Roads should be crowned, or pitched, to promote drainage of surface water from the road into roadside ditches to minimize the detrimental effects of stormwater runoff.
- Neither the reshaping nor smoothing process should ever allow the formation of a berm or ridge beyond the work area at the edge of the road above the ditch. Even the tiniest "false berm" acts as a barrier to surface water drainage, particularly on hills, and prevents water from properly draining.

- When a road has been regraded, the surface must be re-compacted to strengthen it. Regular vehicle traffic usually can accomplish this adequately and show imperfections immediately and allowing rework to be done prior to new potholes redeveloping. Whereas steel rollers can bridge imperfections and loaded dump trucks should be considered for final compaction if there is a solid base for heavy vehicles, compaction of the roadway also helps minimize loose material that can be carried away by stormwater runoff.

### Application

- A rule of thumb for gravel roads is  $\frac{1}{2}$  to  $\frac{3}{4}$  inches of pitch per foot of width. The steeper the road the more pitch is desired. Roads with greater than  $\frac{3}{4}$  inches per foot are difficult to maintain and drive over, however. Pitch should continue over the entire road width from one shoulder to the other. Curved road sections often maintain this single pitch across the whole road by sloping only toward the inside of the curve. Most roads, however, break the pitch in the middle, resulting in the “A” shaped or “teepee” crown... and not the rounded crown that is so common. The problem with a rounded crown is that it allows the formation of potholes in the middle of the road where the surface is the flattest and wheels going both directions tend to drive.
- Note that single lane roads and driveways do not require the “A” shaped crown because vehicle wheels seldom touch the center of the road. Although it is still critical to provide a crown, it is acceptable for it to be rounded in the center.

### Material Handling

- Reshaping, smoothing and restoring crown each require cutting into the road surface and redistributing the gravel. Also, because reclaimed material often contains significant amounts of debris it is important to be able to separate it and maximize the amount of material reclaimed. There must always be a proper balance of stone, sand, fines and moisture in a properly crowned surface for good stability. When any one of these is missing or present in the wrong proportions, problems will occur.
- Regrading a road usually involves cutting into the road surface and scraping the edge into the center to remove the false berm. Reclaim material, and reconstruct the crown. Debris must then be separated from reclaimed material and pushed into piles and loaded out where it will not obstruct the flow of water or get washed from the ditches into drainage channels. Debris can range from rocks and vegetation to discarded rubbish and occasional car parts that have fallen off cars bouncing over potholes.
- Debris in roadside ditches need to be picked up and disposed of to prevent them being carried away into nearby drainage channels.
- Application of gravel materials should be applied at a rate that will help ensure that excess doesn't exist to get deposited in the roadside ditches and ultimately in the drainage channels.
- If excess gravel material is observed in the roadside ditches, it should be picked up to prevent this material from getting washed into the drainage channels.

### Debris Handling

- Ensure that debris from roadways are collected and taken to a secure, temporary storage area or directly to permanent disposal sites.

- Measure the volume and types of material collected when cleaning up spills.
- Test for hazardous characteristics when necessary.

### Employee Training

- Train applicable employees who perform heavy equipment and vehicle maintenance on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform heavy equipment and vehicle maintenance.

### Records

The following records could be used to document activities performed:

- Record of any major spills and the action taken.
- Records of employee training with sign-in sheet.
- Heavy equipment and vehicle maintenance logs

### References

*California Stormwater BMP Handbook* – Municipal, January 2003

Partners for a Clean Environment (PACE): *Best Management Practices Library Stormwater Pollution Prevention*, February 2004

Rural Home Technology: *Road & Driveway Maintenance: A Ditch In Time*, by Lanoie, Russ. Retrieved 5/30/2006 from <http://www.ruralhometech.com/fr/ditch/php?Printable=1>

Tennessee BMP Manual. *Stormwater Treatment*, July 2002

Town of Paradise Valley. *URS Draft Storm Water Management Plan*, February 2003

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Metals  
Toxins  
Solvents (degreasers, paint thinners, etc.)  
Antifreeze  
Brake fluid and brake pad dust  
Battery acid  
Motor oil  
Fuel (gasoline, diesel, kerosene)  
Lubricating grease

## Good Housekeeping

Drip pans  
Tarps  
Covered outdoor storage areas  
Secondary containment  
Proper disposal of used fluids  
Spill cleanup materials  
Dry cleanup methods  
Employee training

## Related Procedures

Material Storage  
Outdoor Fleet Maintenance  
Spill Prevention and Response  
Street Sweeper Cleaning and Waste  
Vehicle Fueling  
Vehicle Washing  
Vehicle Maintenance SOP Fact Sheet

# Heavy Equipment and Vehicle Maintenance

## Description

Regular maintenance of municipal vehicles and equipment, or municipality-contracted vehicles and equipment prolongs the life of the municipality's assets and prevents the leaking of hazardous fluids commonly associated with normal wear and tear of vehicles and equipment.

Potential pollutants generated at vehicle maintenance facilities include oil, antifreeze, brake fluid and cleaner, solvents, batteries and fuels.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All County vehicles and equipment or County-contracted vehicle and equipment (i.e. Street Sweepers, Snow plows, other County-contracted Vehicles)
- Vehicles and Equipment maintenance shops

## Procedures

Maintenance activities should be performed inside a maintenance building unless the equipment is too large to fit inside or temporary repairs need to be made before the equipment can be moved to the maintenance building. Consult the [Outdoor Fleet Maintenance](#) procedure when it is necessary to perform repairs outside of the facility (breakdowns, service calls, etc.).

## Vehicle Storage

- Monitor vehicles and equipment closely for leaks and use drip pans as needed until repairs can be performed.
- When drip pans are used, check frequently to avoid overflowing and properly dispose of fluids.
- Drain fluids from leaking or wrecked vehicles and from motor parts as soon as possible. Dispose of fluids properly.



## Vehicle Maintenance

- Conduct routine inspections of heavy equipment and vehicles to proactively identify potential maintenance needs.
- Perform routine preventive maintenance to ensure heavy equipment and vehicles are operating optimally.
- Recycle or dispose of all wastes properly and promptly.
- Do not dump any liquids or other materials outside, especially near or in storm drains or ditches. Sweep and pick up trash and debris as needed.

## Body Repair and Painting

- Whenever possible, conduct all body repair and painting work indoors.
- Use dry cleanup methods such as vacuuming or sweeping to clean up all metal filings, dust, and paint chips from grinding, shaving, and sanding, and dispose of the waste properly. Debris from wet sanding can be allowed to dry overnight on the shop floor, then swept or vacuumed. Never discharge these wastes to the storm or sanitary sewer system.
- Minimize waste from paints and thinners by carefully calculating paint needs based on surface area and using the proper sprayer cup size.
- Do not use water to control over-spray or dust in the paint booth unless this wastewater is collected. This water should be treated and permission granted by the wastewater treatment plant prior to discharge into the sanitary sewer system.
- Do not dispose of spray gun cleaner waste in the storm drain.
- Use sanding tools equipped with vacuum capability (if available) to pick up debris and dust.

## Material Management

- Store maintenance materials and waste containers (e.g., used oil and antifreeze) in labeled containers under cover or in secondary containment (e.g., double-walled tanks). Chemicals should not be combined in containers.
- All hazardous wastes must be labeled and stored according to hazardous waste regulations.
- Carefully transfer fluids from collection devices to designated storage areas as soon as possible. Do not store the transferred fluids adjacent to the containers (for example, oil drip pans with used oil in them should not be placed next to the used oil tank).
- Store new batteries securely to avoid breakage and acid spills.
- Store used batteries indoors or in secondary containment to contain potential leaks. Recycle used batteries.
- Conduct periodic inspections of storage areas to detect possible leaks.

- Do not wash or hose down storage areas except where wash water will enter the sanitary sewer as an approved discharge. Use dry clean-up methods whenever possible.
- Keep lids on waste barrels and containers, and store them indoors or under cover to reduce exposure to rain.
- Periodically inspect and maintain all pretreatment equipment, including sumps, separators, and grease traps to ensure proper functioning.

### Parts Cleaning

- Use designated areas for engine, parts, or radiator cleaning. Do not wash or rinse parts outdoors. If parts cleaning equipment is not available, use drip pans or other containment to capture parts cleaning fluids.
- Use steam cleaning or pressure washing of parts whenever possible instead of solvent cleaning.
- When steam cleaning or pressure washing, only discharge wastewater to an oil/water separator connected to the sanitary sewer.
- When using solvents to clean parts, rinse and drain parts over the designated solvent tank so that fluids will not drip or spill onto the floor. Use drip boards or pans to catch excess solutions and divert them back to the tank. Allow parts to dry over the hot tank.
- Recycle cleaning solution when it becomes too dirty to use. Never discharge cleaning waste to the sanitary sewer or storm sewer.

### Vehicle and Equipment Washing

- Vehicles should be washed in the municipality's vehicle and equipment wash area/bay or taken to a commercial car wash.

### Employee Training

- Train applicable employees who perform heavy equipment and vehicle maintenance on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform heavy equipment and vehicle maintenance.

### Records

The following records could be used to document activities performed:

- Record of any major spills and the action taken.
- Records of employee training with sign-in sheet.
- Heavy equipment and vehicle maintenance logs



## References

Center for Watershed Protection, *Municipal Pollution Prevention/Good Housekeeping Practices: Version 1.0*, September 2008.

City of Golden. *Fleet Maintenance Standard Operating Procedure*, July 29, 2007.

*City of Lafayette Standard Operating Procedure: Vehicle and Equipment Maintenance Repair*, March 2009.

*City of Lafayette Standard Operating Procedure: Vehicle and Equipment Washing*, March 2009.

Mesa County, *Municipal Operation and Maintenance Program*, July 4, 2005.

Partners for a Clean Environment. *Stormwater Protection: Vehicle Repair*. Spring 2009.

USEPA Menu of BMP: Municipal Vehicle and Equipment Maintenance, [cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed May 27, 2009.

USEPA Menu of BMP: Municipal Vehicle and Equipment Washing, [cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed May 27, 2009.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Sediment  
Chemicals  
Organics  
Trash

## Good Housekeeping

Waste Management  
Employee/Contractor Training  
Proper Cleanup and Disposal  
Procedures

## Related Procedures

Heavy Equipment and Vehicle  
Maintenance  
Parks and Open Space  
Maintenance  
Spill Prevention and Response  
Street, Curb, and Gutter  
Replacement and  
Construction  
Utilities and Storm Sewer  
System Replacement and  
Construction  
Vehicle Fueling  
New Construction SOP Fact  
Sheet  
Spill Prevention and Response  
SOP Fact Sheet (Spanish and  
English)

# New Construction Activities for Municipalities

## Description

This fact sheet covers new construction activities disturbing less than one acre not subject to a CDPS Construction permit. New construction includes, but is not limited to buildings, structures, capital improvements, roadways, and recreational components such as trails, restrooms, and other structures. Procedures provided are general in nature and can be applied to any scale or type of municipal construction.

The GESC Program assigns responsibility to the contractor for planning (submittal of a GESC Report, submittal of collateral), all site controls, including initial installation of BMPs, maintenance of BMPs, and final BMPs (per the GESC Plan), and final site closeout (Final Acceptance and return of collateral). The Permanent BMP Program process provides for the design, construction, and maintenance of permanent BMPs after site construction is completed to provide treatment of stormwater before it leaves a site.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

The Contractor shall be responsible for ensuring that the construction operations and activities do not cause any pollutants (including sediment) to impact the stormwater system. The Contractor will be required to implement structural and nonstructural BMPs as necessary to ensure that the stormwater system is not contaminated. Examples of structural BMPs include inlet protection, erosion control logs, silt fence, etc. Examples of nonstructural BMPs include construction work sequencing (given impending weather conditions), and good housekeeping and pollution prevention practices. The Contractor shall be required to comply with the requirements of the Arapahoe County GESC Manual and with the County Stormwater Management Manual as they apply to Permanent BMP construction.

## Budget, Planning, and Design

Any new “facility” under consideration for construction will be required to go through the SEMSWA Land Development referral process so that any potential structural BMPs that may be required at a site to minimize pollution to stormwater runoff are included in the project design from the beginning, and especially at the conceptual planning stages. This coordination will ensure that the budget for construction will include the necessary components to comply with this Pollution Prevention and Good Housekeeping program, as well as other Permit program areas, including GESC and Permanent BMPs; that no retrofit is necessary on a new “facility” to meet Permit requirements; and that the final Runoff Control Plan (RCP) can be completed at the same time as the building or “facility” construction.

## Stormwater Permits

- Obtain all applicable federal, state, and local permits for construction projects.
- Colorado Department of Public Health and Environment (CDPHE) Construction Permit
  - The Colorado Stormwater Construction General permit applies to construction sites disturbing one acre or more, or less than one acre but part of a larger common plan of development.
  - A larger common plan of development is defined as a **contiguous area** where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
  - The Contractor will be required to obtain and comply with the requirements of a CDPHE General Permit for Stormwater Discharges Associated with Construction Activity for this project. In accordance with the permit requirements, the contractor must prepare a Stormwater Management Plan (SWMP). The SWMP shall be prepared in accordance with good engineering, hydrologic and pollution control practices. The plan shall identify potential sources of pollution (including sediment) which may reasonably be expected to affect the quality of the stormwater discharges associated with construction activity from this project.
  - The contents and implementation of the SWMP must be in accordance with the CDPHE General Permit requirements, and with the *CDPHE Construction Guidance Document: Preparing a Stormwater Management Plan* available online at <http://www.cdphe.state.co.us/wq/permitsunit/stormwater/construction.html>
- GESC (Grading, Erosion and Sediment Control) Permit
  - The Contractor is required to comply with the requirements of the GESC Manual. SEMSWA will enforce the GESC requirements through the construction contract and these project specifications.
- Other Arapahoe County Permits Required
  - These permits may include, but are not limited to, Public Use and Right-of-Way permits. Check with the County for other permits that may be required for a “facility” construction site.

- A dewatering permit may be required if construction activities require the removal and discharge of groundwater offsite.
- A U.S. Army Corp of Engineers (USACE) Section 404 Permit may be needed if the work will be conducted in or impact waters of the United States, including wetlands, washes, drainages, ditches, creeks, streams, and rivers.

### General Construction Practices

- Applicable sediment and erosion controls may be installed, such as inlet protection, silt fence, sediment traps, erosion control logs, check dams, and vehicle tracking control. Sediment and erosion controls will be installed and maintained in accordance with approved design criteria and/or industry standards.
- Material stockpiles will not be stored in stormwater flow lines. Temporary sediment control will be used during temporary, short-term placement while work is actively occurring.
- Where feasible, grading activities should be scheduled during dry weather.
- Identify all storm drains, drainage swales and creeks located near the construction site and make sure all subcontractors are aware of their locations to prevent pollutants from entering them.
- When making saw-cuts in pavement (asphalt or concrete), use as little water as possible. Cover each storm drain inlet per the inlet protection detail during the sawing operation and contain the slurry. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove it from the site.
- Make sure portable toilets are in good working order. Check frequently for leaks, service regularly, and ensure that they are adequately anchored so as to prevent them from tipping over.
- Equipment:
  - Designate one area for auto parking, equipment/vehicle refueling, and routine maintenance. The designated area should be well away from gutters, storm drains, and creeks.
  - Maintain all vehicles and heavy equipment. Inspect frequently for leaks and repair as necessary.
  - Perform major equipment / vehicle repairs off-site.
  - Washing of equipment and machinery shall not be allowed on site.
  - Do not use diesel oil to lubricate equipment or parts.
- Spills:
  - Clean up leaks, drips, and other spills immediately.
  - Never hose down dirty pavement or surfaces. Clean up all spills and leaks using “dry” methods (with absorbent materials and/or rags). If spills occur on dirt areas, dig up and remove contaminated soil.

- Catch drips from paving equipment with drip pans, absorbent material (cloth, rags, etc.), heavy cardboard or plywood placed under the machine when not in use.
- Asphalt Construction and Removal:
  - Provide approved storm drain inlet protection at all nearby inlets at the beginning of construction.
  - After breaking-up old pavement and concrete, remove all chunks and pieces to avoid contact with rainfall and runoff.
  - Shovel or vacuum saw-cut slurry and remove from the site.
  - Throughout the workday, especially when precipitation (rain or snow) is in the forecast, sweep and remove materials from surfaces that drain to storm drain inlets, creeks, channels, etc.
  - Concrete flow line sections and/or street sections that have been removed and have been left open and have collected rain/irrigation water shall not be pumped/drain directly into the flow line. The water must be filtered and then discharged. The inlet(s) that will receive the filtered water shall have approved inlet protection installed. The appropriate de-watering permits shall be obtained from CDPHE prior to discharging stormwater.
  - Tack oil shall not be sprayed if rain is “on the horizon”. Care shall be taken not to over-spray tack onto adjacent surfaces not intended to be paved. The amount of tack to be applied shall be monitored so as not to apply excessive amounts.
  - Streets must be completely swept immediately following milling operations. All areas that are not accessible to the street sweeper must be hand broomed.
  - Excess asphalt is to be removed from the site not stockpiled or broadcast on open areas of the site.
  - Projects that stockpile material outside of County Right-of-Way shall obtain a Low-Impact GESG Permit in accordance with the GESG Manual.
- Inlet Protection
  - Inlet Protection must be provided for all stormwater inlets which may be impacted by the project activities.
  - Inlet protection shall be as shown in the detail provided in this specification
  - The contractor will be responsible for periodic inspection and maintenance of the inlet protection to ensure that it functions as intended.
  - Failure to provide appropriate inlet protection and/or maintenance may result in the contractor being required to clean the inlet and downstream storm drainage system.



- Offsite Stockpiling/Staging Areas

- Any site(s) to be used for this project (outside of County right-of-way) for stockpiling, staging, storage of materials, etc., shall be permitted in accordance with the requirements of the local jurisdiction in which the site lies. Sites within unincorporated areas of Arapahoe County, shall be permitted by a GESC permit, and/or a Right-of-way use permit when appropriate. Check with SEMSWA on permits needed for stockpiling.
- Off-site areas shall be required to provide BMPs given the intended use of the site and in accordance with the local jurisdiction requirements.

### Employee Training

- Train applicable employees who perform new construction activities on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform new construction activities.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.
- 

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Sediment  
Organics  
Oil and Grease  
Trash  
Metals  
Toxins

#### Good Housekeeping

Employee/Contractor Training  
Proper cleanup and disposal procedures  
Dry cleaning methods

#### Related Procedures

Salt and Sand Storage  
Spill Prevention and Response  
Waste Management

#### Additional Resources

Spill Prevention and Response SOP Fact Sheet (English and Spanish)  
Vehicle & Equipment Storage SOP Fact Sheet  
Materials Storage SOP Fact Sheet

# Outdoor Material and Equipment Storage

## Description

The responsible management of automotive products, fertilizers, pesticides, paints, chemicals, and other materials at a municipal facility can significantly reduce polluted stormwater runoff. All materials should be handled properly including unloading, use, storage, and disposal. Proper management of materials can also reduce the likelihood of accidental spills or releases.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All municipal facilities, including County-owned and leased facilities.

## Procedures

### General

- Establish material storage and inventory controls to minimize the amount of materials used and stored.
- Periodically inspect material and equipment storage areas to ensure that all materials are being stored properly when not in use.
- Clean the material storage area when necessary using dry clean up methods.
- Properly dispose of unused materials.
- Store materials in a manner that reduces the potential for transport in stormwater flows.

### Materials Stored in Containers

- Whenever possible, containerize and cover stored materials to prevent stormwater from coming in contact with materials. Secondary containment may be required.
- Store containers in a location where they will not be accidentally damaged by equipment or vehicles.

- Provide tight-fitting lids for all containers.
- Follow the Spill Prevention and Response procedure to respond to and clean up any spills or leaks.
- Inspect storage containers regularly for signs of leaking or deterioration.
- Replace or repair leaking storage containers.
- Use care to avoid spills when transferring materials from one container to another.
- Use powered equipment or get assistance when moving materials to and from a storage area. Handle containers appropriately and get help if needed. Use care to prevent punctures in the containers from equipment.

### Loose Materials

- Consolidate loose material (gravel, mulch, etc.) and berm where needed to prevent run-on of stormwater.
- Follow the Salt and Sand Storage procedure for piles of salt and sand.
- Large inert materials such as piping and road signs can be stored outside without a protective covering. These materials do not impact stormwater quality.
- Rusting iron is a potential source for stormwater pollution and should not come in contact with stormwater.

### Hazardous Materials

- Identify all hazardous materials stored at the facility.
- Maintain a Material Safety Data Sheet (MSDS) for each hazardous chemical.
- Clearly label all containers with the name, chemical, unit number, expiration date, handling instructions, and health and environmental standards.
- Provide special handling, storage (e.g., metal lockers), and disposal for all hazardous materials.

### Employee Training

- Train applicable employees on this written procedure. Information on how to respond to spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform outdoor material storage activities.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.
- MSDSs.
- Log recycling pick-ups and disposal (i.e. when, where, how)



## References

Mesa County, *Municipal Operation and Maintenance Program*, July 4, 2005.

USEPA Menu of BMP: *Materials Management*, [cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed July 1, 2009.

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Organics  
Chemicals  
Sediment  
Fuel

#### Good Housekeeping

Secondary containment  
Employee training

#### Related Procedures

New Construction  
Fertilizer, Herbicide, and  
Pesticide Application  
Material Storage  
Snow and Ice Control  
Snow Storage  
Vehicle Fueling

#### Additional Resources for Training

Spill Prevention and Control  
SOP Fact Sheet (English and  
Spanish)  
Fertilizer, Herbicide, and  
Pesticide Application SOP  
Fact Sheet (English and  
Spanish)

## Parks and Open Space Maintenance

### Description

Parks and open space maintenance activities involve the operation of equipment such as mowers and tractors; disposal of waste from mowing, planting, weeding, raking, pruning and trash collection; application of pesticides, herbicides and fertilizers, cleaning and maintenance of park amenities such as play equipment, restrooms, and structures; and snow removal.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

### Affected Facilities

- All municipal parks, open space, greenbelts, greenways, and green space where the County is responsible for the upkeep of property.

### Procedures

#### General

- Repair damage to landscaped areas or mulch or vegetate bare areas to minimize erosion.
- Remove (sweep or shovel) materials such as soil, mulch and grass clippings from parking lots, streets, curbs, gutters and sidewalks.
- Collect and dispose of trash.
- Do not attempt to clean up any unidentified or possibly hazardous materials found on or around landscaped areas during maintenance; notify the supervisor immediately upon discovery of hazardous materials.
- Refer to the Fertilizer, Pesticide, and Herbicide Application procedure for information on the application of landscape chemicals.

## Maintenance

- Wastewater from power washing signs, structures, or bleachers cannot be discharged into the storm sewer system. Refer to the [Power Washing](#) procedure for more information.
- A Permit must be obtained from the Colorado Department of Public Health and Environment for washing outdoor structures including stadium seating and bleachers.
- When painting park equipment, use a drop cloth and clean up any spills immediately. Do not leave open containers on the ground where they may accidentally tip over.
- Sweep parking lots with a street sweeper, or if using a hand sweeper, collect the sweeping debris and dispose of it in the trash. Never wash ambient dust from parking lots into the storm drain.

## Mowing

- Remove paper, debris, and trash from the landscaped and surrounding areas prior to mowing.
- Collect grass clippings and leaves. Do not blow or wash them into the street, gutter or drainage ways.
- Properly recycle or dispose of organic wastes after mowing, weeding, and trimming.

## Irrigation

- Repair broken sprinkler heads as soon as possible.
- Only irrigate at a rate that can infiltrate into the soil to limit run-off.

## Landscape Equipment

- Brush off mowers (reels and decks) and tractors over grassy areas or in contained washout areas.
- Leave clippings on grassy areas or dispose of in trash or by composting. Do not hose off mowers over paved areas that drain to the storm drain system.
- Fuel all equipment following the [Vehicle Fueling](#) procedure.
- Maintain (including washing) all equipment by following the [Heavy Equipment and Vehicle Maintenance](#) procedure.
- Do not allow grease from the grease zirks on mowers to fall onto areas where they can be washed into the storm drain.

## Snow Removal

- Conduct snow and ice removal operations using the [Snow and Ice Control](#) procedure.
- Store all salt or sand that will be used on walks inside or under a roof or in a covered container.

## Other Activities

- Utilize pet waste stations with bags and trash receptacles.

- All portable toilets should be staked down in flat, secure locations where they are less likely to be knocked or blown over. All portable toilets should be in a location that would retain any spillage opposed to washing into storm sewer or waterway. Ensure routine maintenance and cleaning is conducted.

### Employee Training

- Train applicable employees who are involved with parks and open space maintenance activities on this written procedure. Information regarding proper storage practices and how to prevent and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who are involved with parks and open space maintenance activities.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

*City of Greeley SOP: Vegetation Management Program SOP, No Date.*

*City of Lafayette SOP: Grounds Maintenance SOP, No Date.*

*Partners for a Clean Environment, Parks and Golf Course Maintenance, No Date.*

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Fine-grained sediment  
Oil  
Paint  
Trash

## Good Housekeeping

Waste Management  
Employee/Contractor Training  
Proper Cleanup and Disposal  
Procedures

## Related Procedures

Spill Prevention and Response  
Street Sweeper Cleaning and  
Waste

## Additional Resources for Training

Spill Prevention and Control  
SOP Fact Sheet (English and  
Spanish)  
Building Maintenance SOP Fact  
Sheet  
Good Housekeeping SOP Fact  
Sheet (Spanish and English)

# Power Washing

## Description

Wastewater from power washing must not be allowed to enter the storm sewer system and must be disposed of properly. Power washing combined with proper wastewater collection can prevent or reduce fine-grained sediment particles, anti-freeze, oil, paint, or trash from polluting stormwater.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

- Use dry methods for surface pre-cleaning, such as using absorbent on small oil spots and sweeping up trash, debris, dirt, and used absorbent before power washing.
- Minimize the amount of water used during power washing activities.
- Avoid using cleaning products that contain hazardous substances (e.g., hydrofluoric acid, muriatic acid, sodium hydroxide, bleach) that can turn wastewater into hazardous waste.

### Wastewater Collection

- Identify the locations of all storm drains in the area and place inlet protection or drain covers at all locations, as needed.
- Locate high and low spots on the property to determine the area where wastewater will be pooled for collection.
- Equipment to contain and collect wastewater generated by power washing includes: vacuum pumps, booms, berms, portable containment areas, weighted storm drain covers, inflatable plumber's plugs, oil and water separators, holding tanks, portable sump pumps, hoses, and absorbent pads.

- Avoid mixing non-hazardous wastewater with wastewater known to contain hazardous substances or hazardous levels of pollutants. Mixing these wastes may increase the characteristic and/or total volume of waste, resulting in more expensive disposal and additional regulatory requirements.
- Place an oil-absorbent mat or pad on top of collected wastewater to help reduce the amount of oil re-deposited on the surface of the collection area.
- Wastewater can be filtered through an oil absorbent boom or oil/water separator and a filter to decrease the concentration of oil in the liquid and the amount of solids in the wastewater.
- Once wastewater has been collected, visible solids remaining in the collection area after liquids have evaporated must be swept up and properly disposed to prevent future discharges to the storm sewer system.

### Wastewater Disposal

- Do not dispose of power washing wastewater into the storm sewer system.
- Power washing wastewater may be disposed of in an inside drain connected to the sanitary sewer system with the permission of the wastewater treatment plant (may require a permit) and the facility owner where the work is being performed. Collected wastewater can also be discharged to the sanitary sewer system at the power washer's place of business with the permission of the wastewater treatment plant, or can be taken directly to a wastewater treatment plant.
- Do not remove sewer manhole covers to dispose of wastewater to the sanitary sewer system without prior approval.
- Power washing wastewater may be discharged to landscaped areas if it is not harmful to vegetation, there is no ponding, and there is no runoff from the site to the storm sewer system.

### Employee Training

- Train applicable employees who perform power washing activities on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform power washing.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

City of Fort Collins, Regulatory and Government Affairs Division, *Power Washing Guidance*, No Date.

City of Golden, *BMPs for Pressure Washing*, January 2004.

Partners for a Clean Environment, *Water Protection Guide: Pressure Washers*, No date.

Colorado Department of Public Health and Environment, *Discharge of Process Wastewater from Power Washing Operations*, No Date.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Sediment  
Chemicals

## Good Housekeeping

Covered outdoor storage areas  
Dry clean up methods  
Employee training

## Related Procedures

Heavy Equipment and Vehicle Maintenance  
Material Storage  
Salt and Sand Storage  
Snow and Ice Control  
Snow Storage  
Spill Prevention and Response  
Street Sweeping  
Vehicle Fueling

## Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
Material Storage SOP Fact Sheet

# Salt and Sand Storage

## Description

Deicers, including salt and sand, are commonly used during snow removal activities. Improper handling of deicers, salt and sand can contribute pollutants to waterways.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All municipal facilities, including County-owned and leased facilities where salt and/or sand storage occurs.

## Procedures

### Solid Deicer Storage

- Deicers should be stored under cover, such as inside a covered structure or under a tarp.
- Containment barriers should be placed to prevent transport of the material beyond the storage area unless stored inside a structure.
- Whenever possible, storage areas should be outside of the 100-year floodplain for protection against flooding.
- Any temporary salt and sand storage areas should be protected from erosive forces of wind and rain.
- Do not overload material spreaders.
- Sweep the area outside of the material storage area after loading and unloading.

### Liquid Deicer Storage

- Establish liquid deicer inventory controls to minimize the amount of deicer used and stored.
- Store tanks/containers in a location where they will not be accidentally damaged by equipment or vehicles.
- Periodically inspect storage tanks/containers to ensure that all materials are being stored properly when not in use.
- Clean the storage tank/container area when necessary using dry cleanup methods.

- Follow all State and Federal above-ground and underground storage tank requirements. When receiving bulk deliveries or when loading liquid deicers into truck mounted tanks minimize leaks and clean up spills as soon as they occur.

### Employee Training

- Train applicable employees who are involved in salt and sand storage activities on this written procedure. Information on proper storage practices and on how to prevent and report spills will be presented during training.
- Periodically conduct refresher training on the SOP for applicable employees who are involved in salt and sand storage activities.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

City of Greely, *Snow and Ice Control Plan*, No Date.

City of Lafayette *Standard Operating Procedure: Salt Chemical Storage SOP*, March 2009.

USEPA Menu of BMP: *Municipal Vehicle and Equipment Maintenance*,

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=106&minmeasure=6>, accessed June 19, 2009.

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Sediment  
Toxics

#### Good Housekeeping

Dry cleanup methods  
Employee training

#### Related Procedures

Heavy Equipment and Vehicle Maintenance  
Material Storage  
Salt and Sand Storage  
Spill Prevention and Response  
Vehicle fueling

#### Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
Snow Removal SOP Fact Sheet

# Snow and Ice Control and Snow Storage

## Description

Deicers can contaminate surface and ground water and damage vegetation adjacent to roadways. Salt will change the chemical balance of local waterways and sand can be picked up by stormwater resulting in higher dissolved and suspended sediment loads in waterways. Sand also presents an air quality concern.

Snow may have to be stored during major winter storms to increase street accessibility. It is possible for pollutants such as sediment, organics, oil, and grease to be concentrated at snow storage locations and to impact stormwater quality.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All municipal roads, streets, medians, bridges, tunnels and right-of-way where snow removal activities occur.
- All municipal parking lots, sidewalks and other municipally-owned large outdoor paved surfaces that have regularly scheduled snow removal activities.
- All locations where snow removal debris is transferred from plows or temporarily stored prior to permanent disposal.

## Procedures

### Plowing

- Inspect plowing equipment for leaks prior to use. Follow the Heavy Equipment and Vehicle Maintenance procedure for responding to leaking vehicles.
- Take care when connecting or releasing plow shovels and clean up any hydraulic fluid that may leak onto the pavement.

- Wash snow removal equipment only at approved washing stations following the Outdoor Vehicle Maintenance procedure.
- Do not pile snow in front of storm sewer inlets to allow inflow of snowmelt runoff.

### Snow Storage

- Snow should be stored away from storm sewer inlets and waterways.
- When possible, snow should be stored on a pervious surface to allow infiltration.
- Snowmelt runoff should be routed through a best management practice (e.g., stormceptor, extended detention basin, oil/water separator, vegetated buffer) prior to reaching a waterbody.
- Sweep or vacuum impervious snow storage areas once snow has melted

### Deicing Application

- Apply only the recommended amount of deicer to roadways.
- Spreaders should be calibrated at the beginning of each season and inspections for maintenance or repair should be conducted after each storm.
- As soon as weather conditions allow, follow-up with street sweeping to remove remaining deicer from roadways.

### Ice Cutting

- Gutters and storm sewer inlets should be cleared of ice to allow drainage of snowmelt or ice-melt.

### Employee Training

- Train applicable employees who are involved in snow and ice control on this written procedure. Information regarding proper storage practices and how to prevent and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who are involved in snow and ice control.

### Records

The following records may be used to document activities performed:

- Designated snow storage areas.
- Records of employee training with sign-in sheet.

### References

*City of Golden, Snow and Ice Control Action Plan, Winter 2008-2009.*

*City of Greeley: Snow and Ice Control Plan, No Date.*

*City of Lafayette SOP: Salt Chemical Storage SOP, March 2009.*

*Mesa County, Municipal Operations and Maintenance Program, July 2005.*

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Chemicals  
Toxics  
Oil  
Paint  
Fuel

#### Good Housekeeping

Waste Management  
Employee/Contractor Training  
Proper cleanup and disposal procedures

#### Related Procedures

Fertilizer, Pesticide, and Herbicide Application  
Heavy Equipment and Vehicle Maintenance  
Outdoor Material Storage  
Material Storage  
Materials Management  
Outdoor Vehicle Maintenance  
Vehicle Fueling

#### Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
Material Storage SOP Fact Sheet

# Spill Prevention and Response

## Description

Due to the type of work and the materials involved, many activities that occur either at a municipal facility or as part of municipal operations have the potential for accidental spills. Some municipal facilities operate under Spill Prevention Control and Countermeasures (SPCC) plans that include procedures for spill response. Proper spill response planning and preparation enables employees and contractors to effectively respond to problems and minimize the discharge of pollutants to the storm sewer system.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### Spill Prevention

- Keep work areas neat and well organized.
- Maintain a Material Safety Data Sheet (MSDS) for each hazardous chemical. Follow the Outdoor Material Storage procedures.
- Provide tight fitting lids for all containers.
- Keep containers clearly labeled. Labels should provide name and type of substance, stock number, expiration date, health hazards, handling suggestions and first aid information.
- Store containers, drums, and bags away from direct traffic routes to prevent accidental spills.
- Inspect storage containers regularly for signs of leaking or deterioration.
- Replace or repair leaking storage containers.
- Use care to avoid spills when transferring materials from one container to another.

- Use powered equipment or get assistance when moving materials to and from a storage area. Use care to prevent puncturing containers with the equipment.
- Do not wash down or hose down any outdoor work areas or trash/waste container storage areas except where wash water is captured and discharged into the sanitary sewer (if approved).
- Conduct periodic inspections to ensure that materials and equipment are being handled, disposed/recycled, and stored correctly.
- Provide adequate spill kits or lockers with sufficient equipment and supplies necessary for each work area where the potential for spills or leaks exists.
- Inspect each spill kit or locker regularly and after each spill response. Replace any spent supplies or repair any equipment that is worn or not suitable for service.
- Stock adequate personal protective equipment.

## Spill Response

### *Safety*

Consider safety at all times. Anticipate and avoid all likely hazards. Never approach, contact, or sample an unknown substance. If a highly toxic or flammable substance is discovered, staff should leave the immediate area and contact the appropriate identified response authority, such as the fire department. If there is any question about a substance, contact the appropriate identified response authority or other designated representative.

### *Procedures*

- Stop the leading edge of the spill. Block or divert the spill to avoid discharge to the storm sewer system and to minimize the area requiring cleanup.
- Determine the source of the spill and stop the spill at its source by closing a valve, plugging a leak, or setting a container upright. Transfer material from a damaged container.
- Identify the material and volume spilled. Contact the appropriate identified response authority or other designated representative if you cannot identify the material and its properties.
- Refer to the MSDS to determine appropriate personal protective equipment, such as gloves and safety glasses and appropriate cleanup methods.
- Clean up spills immediately to prevent spreading of wastes by wind, rain, and vehicle traffic and potential safety hazards.
- Use sand absorbents or socks, pillows, or pads to quickly capture spilled liquid and properly dispose of all clean-up materials. Use dry clean-up methods only.
- Complete all necessary reports.

## Spill Reporting

- A spill of any chemical, oil, petroleum product, or sewage that enters waters of the state of Colorado (that include surface water, ground water, and dry gullies and storm sewers leading to surface water) must be reported immediately to the Colorado Department of Public Health and Environment (877) 518-5608.
- Release of a substance into a storm drain, or onto a parking lot or roadway as part of a storm sewer leading to surface water, is reportable. However, if the material can be contained and cleaned within the storm sewer system to the degree that a subsequent flow in the storm sewer will not flush the substance to waters of the State, it may not need to be reported.
- Contact the appropriate identified response authority within the municipality or other designated representative and be prepared to provide details needed to report the spill to the necessary agencies.
- Detailed spill reporting guidance can be found at <http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf> and <http://www.cdphe.state.co.us/hm/spillsandreleases.htm>

## Employee Training

- Train applicable employees who perform spill prevention and response on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform spill prevention and response activities.

## Records

The following records could be used to document activities performed:

- Records of any major spills and the action taken.
- Records of employee training with sign-in sheet.

## References

City of Golden, *Stormwater Quality Pollution Prevention Guide for Municipal Operations: Parks Department Golf Course*, January 2004.

City of Lafayette, *Spill Clean Up*, No Date.

Colorado Department of Public Health and Environment, *Environmental Spill Reporting*, January 2009.

Mesa County, *Municipal Operation and Maintenance Program*, July 4, 2005.

USEPA Menu of BMP: *Spill Response and Prevention*, [cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed July 5, 2009.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Fine-grained sediment  
Organics  
Oil  
Saw-cut slurry  
Trash

## Good Housekeeping

Dumpster/Waste Management  
Employee/Contractor Training  
Proper cleanup and disposal procedures  
Dry cleaning methods

## Related Procedures

Spill Prevention and Response  
Street Sweeping  
Street Sweeper Cleaning and Waste  
Concrete truck washout BMP specifications  
Gravel Road Maintenance Guideline

## Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
Concrete Program SOP

# Street, Curb, and Gutter Maintenance

## Description

Street, curb, and gutter activities include concrete and asphalt installation, maintenance, repair, and replacement; bridge maintenance; and painting and striping. Procedures involving the maintenance of streets, curbs, and gutters have the potential to impact stormwater quality. Materials involved in these activities should be used efficiently and disposed of properly.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

- Protect storm drain inlets and drains with curb socks, rock berms, inlet protection, or drain covers/mats prior to any maintenance activity.
- When saw cutting ensure that no slurry enters the storm drain, let the slurry dry, sweep it up, and properly dispose of the sweepings.
- Do not perform concrete or asphalt patch work during wet conditions whenever possible.
- Leaking material containers should be properly discarded and replaced.
- Store materials in containers under cover when not in use and away from any storm drain inlet.
- Monitor equipment for leaks and use drip pans as necessary.
- Sweep or vacuum the roadway once maintenance activities are complete.

### Bridge Maintenance

- Do not transfer or load any materials directly over waterways.
- Secure lids and caps on all containers when on bridges.
- Suspend drop cloths or nets below any bridgework where wastes, scraps, or drips might be spilled into a waterway.

### Concrete Maintenance

- Minimize the drift of chemical cure on windy days by using the curing compound sparingly and applying it close to the concrete surface.
- Ensure there is a concrete truck washout area available or require the contractor to wash out at the batch plant.
- Whenever possible, recycle concrete rubble; otherwise, dispose of it as solid waste.

### Asphalt Maintenance

- Sweep to minimize sand and gravel from new asphalt from getting into storm drains, streets, and creeks.
- Do not allow asphaltic concrete grindings, pieces, or chunks used in embankments or shoulder backing to enter any storm drain or watercourses. Apply temporary perimeter controls. Install silt fence until the structure is stabilized or permanent controls are in place.
- Whenever possible, recycle broken asphalt. If impossible, dispose of as solid waste.
- Drainage inlet structures shall be covered with inlet protection during application of seal coat, tack coat, slurry seal, and/or fog seal.

### Painting and Striping

- If possible, schedule painting and striping projects during dry weather.
- Use thermoplastic or epoxy markings in place of paint whenever feasible.
- The pre-heater for thermoplastic striping and the melting tanks used during pavement marking must be filled carefully to prevent splashing or spilling of materials. Leave 6 inches at the top of pre-heater and the melting tanks to allow room for material to move and splash when vehicles are deadheaded.

### Employee Training

- Train applicable employees who perform street, curb, and gutter maintenance on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform street, curb, and gutter maintenance.



## Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

## References

PACE, *Stormwater Best Management Practices: Street Maintenance*, No Date.

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Fine-grained sediment  
Organics  
Oil  
Saw-cut slurry  
Trash

#### Good Housekeeping

Dumpster/Waste Management  
Employee/Contractor Training  
Proper cleanup and disposal procedures  
Dry cleaning methods

#### Related Procedures

Spill Prevention and Response  
Street Sweeping  
Street Sweeper Cleaning and Waste  
Street, Curb and Gutter Maintenance  
Gravel Road Maintenance Guideline  
Concrete truck washout BMP specifications  
Annual GESC Permit for routine maintenance activities

#### Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
New Construction SOP Fact Sheet  
Concrete Program SOP Fact Sheet

# Street, Curb, and Gutter Replacement, and Construction

## Description

Procedures involving the replacement and construction of streets, curbs, and gutters have the potential to impact stormwater quality. Materials involved in these activities should be used efficiently and disposed of properly.

For Gravel Road Maintenance Guidelines, see the [Gravel Road Maintenance Guideline](#) procedure.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

- Obtain all applicable federal, state, and local permits for construction projects.
  - The Colorado Stormwater Construction General permit applies to construction sites disturbing one acre or more, or less than one acre but part of a larger common plan of development.
  - A larger common plan of development is defined as a **contiguous area** where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
  - A dewatering permit may be required if construction activities require the removal and discharge of groundwater offsite.

- A U.S. Army Corp of Engineers (USACE) Section 404 Permit may be needed if the work will be conducted in or impact waters of the United States, including wetlands, washes, drainages, ditches, creeks, streams, and rivers.
- Applicable sediment and erosion controls may be installed, such as inlet protection, silt fence, sediment traps, erosion control logs, check dams, and vehicle tracking control. Sediment and erosion controls will be installed and maintained in accordance with approved design criteria and/or industry standards.
- When saw cutting, ensure that no slurry enters the storm drain. Let the slurry dry, sweep it up, and properly dispose of the sweepings or vacuum while saw cutting.
- Do not perform concrete or asphalt paving work during wet conditions whenever possible.
- Monitor construction equipment for leaks and use drip pans as necessary.
- Leaking material containers should be properly discarded and replaced.
- Store materials in containers under cover when not in use and away from any storm drain inlet.
- Wash out mixers, delivery trucks, or other equipment in the designated concrete washout area only.
- Locate concrete washout, portable toilets, and material storage away from storm drain inlets.
- Material stockpiles will not be stored in stormwater flow lines. Temporary sediment control will be used during temporary, short-term placement while work is actively occurring.
- Sweep or vacuum the roadway as needed, during construction and once construction is complete.
- Best management practices will be periodically inspected and maintained as necessary.
- Where practicable, non-structural controls will be used, such as phased construction, dust control, good housekeeping practices, and spill prevention and response procedures.
- Where practicable, non-structural controls will be used, such as phased construction, dust control, good housekeeping practices, and spill prevention and response.

### Bridge Construction

- Do not transfer or load any materials directly over waterways.
- Suspend drop cloths or nets below any bridgework where wastes, scraps, or drips might be spilled into a waterway.

### Concrete Work

- Minimize the drift of chemical cure on windy days by using the curing compound sparingly and applying it close to the concrete surface.
- Ensure there is a concrete truck washout area available or require the contractor to wash out at the batch plant.
- Whenever possible, recycle concrete rubble; otherwise, dispose of it as solid waste.

### Asphalt Work

- Control the placement of road base or asphalt used in embankments or shoulder backing; do not allow these materials to fall into any storm drain or watercourses.
- Whenever possible, recycle asphalt. If recycling is not possible, dispose of as solid waste.

### Painting and Striping

- If possible, schedule painting and striping projects during dry weather.
- Use thermoplastic or epoxy markings in place of paint whenever feasible.
- Use care to prevent splashing or spilling of any liquid material. Follow the Spill Prevention and Response procedure should a spill occur.

### Employee Training

- Train applicable employees who perform street, curb, and gutter construction on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform street, curb, and gutter construction.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

PACE, *Stormwater Best Management Practices: Street Maintenance*, No Date.

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Fine-grained sediment  
Organics  
Oil and Grease  
Trash  
Road Salt  
Metals  
Toxins

#### Good Housekeeping

Temporary covers/tarps  
Employee/Contractor Training  
Proper cleanup and disposal procedures  
Dry cleaning methods

#### Related Procedures

Heavy Equipment/Vehicle Maintenance  
Spill Prevention and Response  
Street Sweeping  
Vehicle Fueling

#### Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
Parking Lot Sweeping and Waste SOP Fact Sheet  
Street Sweeping SOP Fact Sheet

# Street Sweeper Cleaning and Waste

## Description

The operation and maintenance of street sweepers, if not conducted properly, can contribute to stormwater pollution. In addition, all sweeper waste must be disposed of properly. All sweeper waste must be taken directly to a permanent disposal site or to a secure temporary storage area at the municipal yard.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

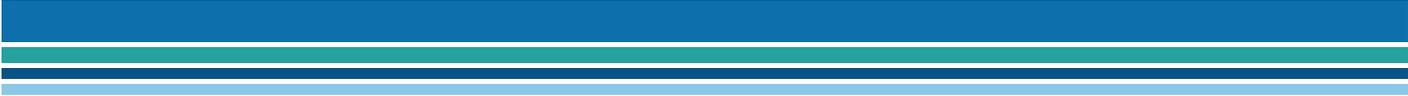
## Procedures

### Sweeper Debris Disposal

- Do not empty sweeper hoppers, even temporarily, onto areas near storm drains or surface water bodies or where wind or rain could wash the debris into the storm sewer system or scatter the debris.
- Dispose of sweeper debris at a designated dump site or at the designated area at the municipal facility. The temporary storage area for debris is protected from wind, rain, and surface runoff (when applicable).
- If unusual sweeping materials are identified, bring the issue to the attention of a supervisor for evaluation and proper disposal.
- If dirt or traffic accident debris is swept up, it must be disposed of properly.

### Sweeper Wash Out

- Sweepers must be washed every day at the end of the day (or other frequency as determined by the municipality). Follow the Heavy Equipment and Vehicle Maintenance procedure for vehicle washing procedures.



## Employee Training

- Train applicable employees who perform street sweeping on this written procedure. Information on how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform street sweeping.

## Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

## References

Center for Watershed Protection, *Municipal Pollution Prevention/Good Housekeeping Practices: Version 1.0*, September 2008.

*City of Golden Street Sweeping Plan*, no date.

*City of Greeley, Department of Public Works: Street Sweeping Program*, June 2008.

*City of Lafayette Standard Operating Procedure: Street Sweeping*, March 2009.

Mesa County, *Municipal Operation and Maintenance Program*, July 4, 2005.

USEPA Menu of BMP: Parking Lot and Street Cleaning,  
[cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed May 27, 2009.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Fine-grained sediment  
Organics  
Oil and Grease  
Trash  
Road Salt  
Metals  
Toxins

## Good Housekeeping

Employee/Contractor Training  
Proper cleanup and disposal procedures  
Dry cleaning methods  
Stormwater retrofits

## Related Procedures

Heavy Equipment/Vehicle Maintenance  
Large Outdoor Festivals and Events  
Pressure Washing  
Street Sweeper Cleaning and Waste  
Spill Prevention and Response  
Vehicle Fueling

## Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)

# Street Sweeping

## Description

Street sweeping gives the County an overall clean appearance, and aids in helping reduce traffic accidents and air pollution caused by fine dust particles. Street sweeping can prevent pollutants such as sediment particles, organics, oil, grease, trash, road salt, and trace metals from entering and plugging the storm sewer system.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All municipal roads, streets, medians, bridges, tunnels and right-of-way.
- All municipal parking lots, sidewalks and other municipally-owned large outdoor paved surfaces.
- All locations where debris is transferred from sweepers or temporarily stored prior to permanent disposal.

## Procedures

### General

- Operate all sweepers according to manufacturer's recommended settings and standards.
- Do not conduct street sweeping during or immediately after rainstorms.
- Conduct regular maintenance of sweepers in accordance with the master schedule or as needed (see written procedure Heavy Equipment/Vehicle Maintenance).
- Prior to operating the sweeper, perform a routine inspection, including checking for leaks. Follow procedures outlined in the Spill Prevention and Response procedure if a leak is observed.
- Do not wash down any streets or curbs for routine cleaning. If medians or signs are washed seasonally, follow the Pressure Washing procedure.

- Immediately contain and properly clean up all spills (see the Spill Prevention and Response procedure).
- Handle sweeper debris as detailed in written procedure Street Sweeper Cleaning and Waste.

### Frequency

- Streets are swept in accordance with the master schedule.
- Increase the frequency of street sweeping in areas prone to litter and dust/dirt accumulation, sensitive areas (i.e., adjacent to a sensitive waterbody), and areas that have a history of storm drain plugging.
- Schedule additional sweeping, where feasible.
  - Construction conducted by the municipality where there is temporary storage of construction materials like dirt, sand, and road base along the roadway.
  - Special events (e.g., street fairs, art shows, and parades) where additional debris is likely to have accumulated.
  - Median grass cutting.
  - Landscape planting.
  - After snows melt where large coarse sediments and garbage have been left behind.

### Employee Training

- Train applicable employees who perform street sweeping on this written procedure. Information on how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform street sweeping.

### Records

The following records could be used to document activities performed:

- Annually updated master schedule with priority areas for sweeping indicated.
- Annually updated master schedule with priority areas for sweeping municipal parking lots, sidewalks, and other municipally-owned large outdoor paved surfaces areas.
- Log of the number of curb-miles swept each year.
- Records of employee training with sign-in sheet.

### References

Center for Watershed Protection, *Municipal Pollution Prevention/Good Housekeeping Practices: Version 1.0*, September 2008.

*City of Golden Street Sweeping Plan*, no date.

*City of Greeley, Department of Public Works: Street Sweeping Program*, June 2008.

*City of Lafayette Standard Operating Procedure: Street Sweeping*, March 2009.

Mesa County, *Municipal Operation and Maintenance Program*, July 4, 2005.

USEPA Menu of BMP: Parking Lot and Street Cleaning,  
[cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed May 27, 2009.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Sediment  
Nutrients  
Metals  
Hydrocarbons  
Trash

## Good Housekeeping

Waste Management  
Employee/Contractor Training  
Proper Cleanup and Disposal  
Procedures

## Related Procedures

Heavy Equipment and Vehicle  
Maintenance  
Parks and Open Space  
Maintenance  
Spill Prevention and Response  
Street, Curb, and Gutter  
Replacement and  
Construction  
Utilities and Storm Sewer  
System Replacement and  
Construction  
Vehicle Fueling

## Additional Resources for Training

Spill Prevention and Control  
SOP Fact Sheet (English and  
Spanish)  
Detention Pond Maintenance  
SOP Fact Sheet  
Inlet, Pipe and Vault Cleaning  
and Disposal SOP Fact Sheet

# Utility and Storm Sewer System Maintenance

## Description

This procedure addresses utility and storm sewer system maintenance. Utilities include sanitary sewer, water conveyance systems, and the storm sewer system.

The sanitary sewer system is cleaned as part of routine maintenance and on an emergency basis. Without proper maintenance, sanitary sewer back-ups and overflows may occur and can result in potential property damage and significant health concerns if not properly managed.

Water conveyance systems are flushed and pressure tested as part of routine maintenance. Potable water systems must be properly maintained to ensure delivery of water that meets State and Federal health standards. Failures result in water main breaks that can cause property damage including erosion.

The storm sewer system is cleaned as part of routine maintenance and on an emergency basis in the event of flooding. Maintenance will remove pollutants and ensure the system functions properly to avoid flooding. Flooding, ponding, and uncontrolled sheet flow can result in property damage and increased soil erosion.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

- Conduct routine inspection and maintenance on utility and storm sewer systems.
- Where feasible, schedule maintenance activities during dry weather.
- Monitor the jet/vacuum truck closely for leaks and use a drip pan as needed.
- Wash and fuel the jet/vacuum truck per the Heavy Equipment/Vehicle Maintenance procedure.
- Properly dispose of vac truck contents.
- Stay alert for any signs of illicit discharges. This includes “dry weather” flows or pipes or hoses emptying directly into waterways or the storm sewer system.
- Report any suspicious discharges or dumping to your supervisor.
- Restore landscaped or hardscaped areas promptly, if necessary.

### Potable Water Line Flushing

- Remove any debris from the gutter that could wash away with the water. If possible, sweep the flow line before flushing the line.
- Direct the water so that it is not flowing over exposed soil areas in order to minimize erosion.

### Water Line Breaks

- Contain spoils by building berms or installing rock socks around the area of disturbance.
- Dewater the excavation by using a vac truck.
- Discharge high chlorine water to the sanitary sewer via the nearest manhole, to a water truck, through a dechlorinating diffuser, or other method of dechlorination.
- Remove sediment from the street, curb, gutter and storm inlets as needed immediately following the repair.
- Where needed, install a temporary patch or repave as soon as practicable following the repair.
- If necessary, revegetate areas as soon as practicable following the repair.

### Sanitary Sewer Backup

- Clear line stoppage to prevent backup into house basements and manhole overflows.
- Contain overflows by using emergency generator, pump and/or a vac truck to intercept flows. It may be necessary to construct additional containment.
- Clean up spills by washing and vacuuming the affected areas. Lime may need to be applied for disinfection of affected areas. Lime must be removed once disinfection is complete.

### Storm Sewer System Pipes, Catch Basins, Inlet and Outlet Structures, and Culverts

- Clean storm sewer system by manual cleaning or jetting the pipes using a jet/vacuum truck to remove the material.

- Replace or maintain “no dumping” stencils or plaques as necessary.
- Remove trash from trash racks and grated openings. Remove debris, wastes and rubbish from storm drain inlets, sumps, catch basins and drainage ditches regularly.
- If oil, antifreeze or other wastes are discovered in any catch basins, the wastes removed may be hazardous or require special disposal.
- Do not store wastes collected from cleaning of sumps, catch basins, drainage ditches or line flushing in areas where they might be washed back into the sewer system by the next rain fall.
- Remove all waste for permanent disposal at an approved site as soon as possible and dispose according to applicable state and federal regulations.
- If temporary storage is required before pick-up, store waste in containers or at least 100 feet from or at a lower elevation than any storm drain inlets or ditches.
- Contaminated wastewater must be disposed at an approved disposal facility depending on the type and concentration of contaminants.
- Do not discharge any contaminated stormwater or storm sewer flush water into surface waters.
- Discharge line-flushing wastewater in areas where sediment and debris can be easily separated and collected for proper disposal.
- Report any suspected illegal connections or dumping to SEMSWA.

### Detention and Retention Ponds

- Inspect the outlet works and remove trash or vegetation from the trash racks and grates.
- Inspect side slopes of the pond for erosion and reestablish vegetation as needed.
- Remove and service fountains and aerator motors as recommended.
- Report any suspected water quality problems such as a change in growth or appearance of vegetation.
- Report excessive sediment accumulation, standing water beyond the designed drain down time or damage requiring additional maintenance.

### Drainageways

Drainageways include drainage channels, ditches, grass swales, and washes.

- Inspect drainageways for erosion and repair if necessary.
- Remove and properly dispose of trash and debris from the drainageways. Remove sediment which could impede flow in drainageways.
- Inspect drainage channels for erosion on banks and bottom and either repair or make plans for future project funding. Inspect trickle channels and/or rundowns for deteriorating concrete or missing rip rap rock and schedule replacement, as applicable.
- Clean out sediment from culverts locate in ditches and swales. Entire ditch or swale may need to be regraded if invert has filled in with silt as indicated at culverts.

- Report locations of bare ground needing re-vegetation. Seed and mulch as necessary.
- Report locations where grass clippings or other wastes are being placed in or along drainage ways. Remove dumped materials. Assist in plan for public and/or employee education in this area.
- Leave a riparian fringe when mowing drainageways to catch pollutants before reaching the drainageway.
- Identify noxious weeds and apply treatment to eliminate, or notify the appropriate Weed Control Manager to put on the schedule for routine treatment and mowing.
- Leave an unmown buffer when mowing adjacent to drainageways to filter pollutants. Do not leave grass clippings in or next to the drainageway. Do not apply landscape chemicals in the buffer area.

### Employee Training

- Train applicable employees who perform utility and storm sewer system activities on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform utility and storm sewer system activities.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

Center for Watershed Protection, *Municipal Pollution Prevention/Good Housekeeping Practices: Version 1.0*, September 2008.

*City of Golden Stormwater Drainage Maintenance Plan*, February 2008.

*City of Greeley, Department of Public Works: Storm Water Drainage Program*, January 2008.

*City of Greeley, Department of Public Works: Ditch Program*, No Date.

*City of Lafayette Standard Operating Procedure: Ditch Cleaning*, March 2009.

*City of Lafayette Standard Operating Procedure: Cleaning Storm Drain System*, March 2009.

*City of Lafayette Standard Operating Procedure: Manhole Cleaning*, March 2009.

*City of Lafayette Standard Operating Procedure: Potable Line Flushing*, March 2009.

*City of Lafayette Standard Operating Procedure: Sanitary sewer Backup*, March 2009.

*City of Lafayette Standard Operating Procedure: Waterline Breaks*, March 2009.

*Mesa County, Municipal Operations and Maintenance Program*, July 2005.

Partners for a Clean Environment, *Storm Drain Maintenance*, No date.

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Sediment  
Chemicals  
Organics  
Trash

#### Good Housekeeping

Waste Management  
Employee/Contractor Training  
Proper Cleanup and Disposal  
Procedures

#### Related Procedures

Heavy Equipment and Vehicle  
Maintenance  
Parks and Open Space  
Maintenance  
Spill Prevention and Response  
Street, Curb, and Gutter  
Replacement and  
Construction  
New Construction  
Vehicle Fueling

#### Additional Resources for Training

Spill Prevention and Control  
SOP Fact Sheet (English and  
Spanish)  
New Construction SOP Fact  
Sheet  
Concrete Program SOP Fact  
Sheet

# Utility and Storm Sewer System Replacement and Construction

## Description

This procedure covers utility and storm sewer system replacement and construction. Utilities include power, storm sewer, sanitary sewer, water conveyance systems.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Procedures

### General

- Obtain all applicable federal, state, and local permits for construction projects.
  - The Colorado Stormwater Construction General permit applies to construction sites disturbing one acre or more, or less than one acre but part of a larger common plan of development.
  - A larger common plan of development is defined as a **contiguous area** where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
  - A dewatering permit may be required if construction activities require the removal and discharge of groundwater offsite.
  - A U.S. Army Corp of Engineers (USACE) Section 404 Permit may be needed if the work will be conducted in or impact waters of the United States, including wetlands, washes, drainages, ditches, creeks, streams, and rivers.

- Applicable sediment and erosion controls may be installed, such as inlet protection, silt fence, sediment traps, sediment control logs, check dams and vehicle tracking control. Sediment and erosion controls will be installed and maintained in accordance with approved design criteria and / or industry standards.
- When saw cutting, ensure that no slurry enters the storm drain. Let the slurry dry, sweep it up, and properly dispose of the sweepings or vacuum while saw cutting.
- Where feasible, grading activities will be scheduled during dry weather.
- Do not perform concrete or asphalt paving work during wet conditions whenever possible.
- Monitor construction equipment for leaks and use drip pans as necessary.
- Leaking material containers should be properly discarded and replaced.
- Store materials in containers under cover when not in use and away from any storm drain inlet.
- Wash out mixers, delivery trucks, or other equipment in the designated concrete washout area only.
- Locate concrete washout, portable toilets, and material storage away from storm drain inlets.
- Material stockpiles will not be stored in stormwater flow lines. Temporary sediment control will be used during temporary, short-term placement while work is actively occurring.
- Sweep or vacuum the roadway as needed, during construction and once construction is complete.
- Best management practices will be periodically inspected and maintained as necessary.
- Where practicable, non-structural controls will be used, such as phased construction, dust control, good housekeeping practices, and spill prevention and response procedures.

### Emergency Repair and Replacement

Emergency Discharges are defined as situations in which it is not possible to implement all of the available BMPs due to the uncontrolled nature of the discharge. The primary focus during these events is to identify and mitigate the cause as soon as possible. Clean up of resulting sediment or other pollutants will be performed as soon as practicable following the emergency. Refer to the [Spill Prevention and Response](#) procedure for reporting requirements.

## Employee Training

- Train applicable employees who perform utility replacement and construction activities on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who perform utility replacement and construction activities.

## Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

## References

Center for Watershed Protection, *Municipal Pollution Prevention/Good Housekeeping Practices: Version 1.0*, September 2008.

*City of Golden Stormwater Drainage Maintenance Plan*, February 2008.

*City of Greeley, Department of Public Works: Storm Water Drainage Program*, January 2008.

*City of Greeley, Department of Public Works: Ditch Program*, No Date.

*City of Lafayette Standard Operating Procedure: Ditch Cleaning*, March 2009.

*City of Lafayette Standard Operating Procedure: Cleaning Storm Drain System*, March 2009.

*City of Lafayette Standard Operating Procedure: Manhole Cleaning*, March 2009.

*City of Lafayette Standard Operating Procedure: Potable Line Flushing*, March 2009.

*City of Lafayette Standard Operating Procedure: Sanitary sewer Backup*, March 2009.

*City of Lafayette Standard Operating Procedure: Waterline Breaks*, March 2009.

*Mesa County, Municipal Operations and Maintenance Program*, July 2005.

Partners for a Clean Environment, *Storm Drain Maintenance*, No date.

#### For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

#### Possible Pollutants

Metals  
Hydrocarbons  
Toxins

#### Good Housekeeping

Drip pans  
Secondary containment  
Automatic shutoff nozzles  
Signs  
Spill response plans  
Spill cleanup materials  
Dry cleanup methods  
Employee training

#### Related Procedures

Heavy Equipment/Vehicle  
Maintenance  
Outdoor Fleet Maintenance  
Spill Prevention and Response

#### Additional Resources for Training

Spill Prevention and Control  
SOP Fact Sheet (English and  
Spanish)  
Vehicle Fueling SOP Fact Sheet

# Vehicle and Equipment Fueling

## Description

Spills of gasoline and diesel fuel on the ground or on vehicles during fueling can wash into a storm drain and cause water pollution.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state and federal codes, laws, and regulations.

## Affected Facilities

- All County vehicles and equipment or County-contracted vehicles and equipment (i.e. Street Sweepers, Snow plows, other County-contracted Vehicles)
- Fuel Dispensing Areas
- General Facilities

## Procedures

### General

- Fuel vehicles at approved locations (municipal fueling station or offsite fueling station).
- Provide spill kits near the municipal fueling location.
- If fuel is stored in an above-ground tank, store fuel in enclosed, covered tanks with secondary containment (e.g., concrete barrier or double-walled tanks).
- All fuel tanks will be inspected per State and Federal regulations.
- Periodically inspect municipal fueling locations for the following:
  - For above-ground tanks, inspect tank foundations, connections, coatings, tank walls, and piping systems. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank.
  - Check for spills and fuel tank overfills due to operator error.

- Clean up any leaks or drips. Clean up is not completed until the absorbent is swept up and disposed of properly.
- Report leaking vehicles to fleet maintenance.

### Vehicle Fueling

- Follow all posted warnings.
- Ensure that the nozzle is properly inserted in the filler neck of the vehicle before dispensing any fuel.
- Remain by the fill nozzle while fueling to ensure the nozzle stays in place.
- Do not top off the tank of the vehicle once the nozzle has shut off the fuel.
- Follow the procedures outlined in the Spill Prevention and Response Procedure to respond to any leaks or spills.
- Clean fuel dispensing areas with absorbent material.
- Never use water to clean up a spill.

### Mobile Fuel Truck

- Provide inlet protection (e.g., berms, weighted inlet covers) for nearby storm drain inlets when transferring fuel and fueling a vehicle.
- Use secondary containment when transferring fuel from the tank truck to the fuel tank. All gas cans must be placed in the secondary containment box/pan and remain on the ground when fueling.
- Use a funnel to transfer fuel to vehicles and equipment. After the transfer is complete, the funnel should be dried with a rag or placed in a container to avoid dripping fuel on the ground.

### Inspection

- Aboveground Tank Leak and Spill Control:
  - Check for external corrosion and structural failure.
  - Check for spills and overfills due to operator error.
  - Check for failure of piping system.
  - Check for leaks or spills during pumping of liquids or gases from truck or rail car to a storage facility or vice versa.
  - Visually inspect new tank or container installation for loose fittings, poor welding, and improper or poorly fitted gaskets.
  - Inspect tank foundations, connections, coating, and tank walls and piping system. Looking for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
  - Periodically, a qualified professional should conduct integrity testing.

- Inspect and clean storm drain inlets and catch basins within the facility boundary per master schedule.

### Employee Training

- Train applicable employees who fuel vehicles on this written procedure. Information regarding how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who fuel vehicles.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

Center for Watershed Protection, *Municipal Pollution Prevention/Good Housekeeping Practices: Version 1.0*, September 2008.

*City of Lafayette Standard Operating Procedure: Vehicle and Equipment Fueling*, March 2009.

Mesa County, *Municipal Operation and Maintenance Program*, July 4, 2005.

USEPA Menu of BMPs: Municipal Vehicle Fueling,  
[cfpub.epa.gov/npdes/stormwater/menuofbmps/](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/), accessed June 18, 2009.

## For More Information

Steve Miller  
(303) 795-4578  
smiller@co.arapahoe.co.us

## Possible Pollutants

Construction Debris  
Organics  
Oil and Grease  
Trash  
Metals  
Paint  
Toxins

## Good Housekeeping

Dumpster/waste management  
Employee/Contractor Training  
Proper cleanup and disposal procedures  
Dry cleaning methods  
Stormwater retrofits

## Related Procedures

Large Outdoor Festivals and Events  
Outdoor Material Storage  
Spill Prevention and Response  
Street Sweeper Cleaning and Waste

## Additional Resources for Training

Spill Prevention and Control SOP Fact Sheet (English and Spanish)  
Building Maintenance SOP Fact Sheet  
Good Housekeeping SOP Fact Sheet

# Waste Management

## Description

All solid and liquid wastes must be disposed of properly. Some of the most common sources of pollution at municipal facilities are a result of littering, improper collection of debris, and improper disposal of solid or liquid waste.

When services are contracted, this written procedure should be provided to the contractor so they have the proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes, laws, and regulations.

## Affected Facilities

- All municipal buildings owned and/or leased by the County, and all County property.

## Procedures

### General

- Provide cover, if feasible, for all waste storage areas including keeping dumpster lids closed.
- Provide a low containment berm, if feasible, around waste storage areas.
- Conduct periodic inspections of solid and liquid waste storage areas to check for leaks and spills.
- Conduct periodic inspections of work areas to ensure that all wastes are being disposed of properly.
- Follow the Spill Prevention and Response procedure to respond to and clean up any spills or leaks.
- Clean storage areas when necessary using dry clean up methods (except in areas where the wash water will enter the sanitary sewer and is an approved discharge).
- Return dumpsters to the supplier when cleaning is necessary or if the dumpster is leaking.
- Properly handle and dispose of all hazardous wastes. See the Outdoor Material Storage procedure for more information.

### Solid Waste

- Solid waste that cannot be recycled should be disposed of in the trash dumpster.

- When possible, recycle solid wastes, including the following:
  - Glass
  - Plastic containers
  - Cardboard and Paper
  - Organic material
  - Scrap metal
  - Wood debris
  - Used batteries
  - Used oil filters
  - Light bulbs
- Follow the Street Sweeper Cleaning and Waste procedure for proper disposal of street sweepings.

### Liquid Waste

- Never place liquids in a dumpster.
- If unable to recycle, old latex paints should be mixed with floor dry or other adsorbent material to solidify prior to disposal in the trash.
- If unable to recycle, enamels and other oil-based paints should be applied to cardboard, newspaper, or similar materials and allowed to dry prior to disposal in the trash.
- Recycle liquid wastes, including the following:
  - Used oil
  - Used antifreeze
  - Used solvents

### Employee Training

- Train applicable employees who dispose of wastes on this written procedure. Information on how to avoid and report spills will be presented during the training.
- Periodically conduct refresher training on the SOP for applicable employees who dispose of wastes.

### Records

The following records could be used to document activities performed:

- Records of employee training with sign-in sheet.

### References

*City of Lafayette Standard Operating Procedure: Waste Management and Disposal*, March 2009.

*Mesa County, Municipal Operation and Maintenance Program*, July 4, 2005.

# Arapahoe County Standard Operating Procedures

## List of Applicable SOPs Mandated by the State (with related Fact Sheets)

- Fertilizer, Herbicide and Pesticide Application (General Landscaping Maintenance SOP, Landscape Chemical Application SOP)
- Heavy Equipment and Vehicle Maintenance (Vehicle Maintenance SOP)
- New Construction Activities for Municipalities (New Construction SOP)
- Outdoor Fleet Maintenance (Vehicle Maintenance SOP)
- Outdoor Material Storage (Vehicle & Equipment Storage SOP, Materials Storage SOP)
- Parks and Open Space Maintenance (Open Space Groundskeeping SOP)
- Power Washing (Building Maintenance SOP, Good Housekeeping SOP)
- Salt and Sand Storage
- Snow and Ice Control and Snow Storage (Snow Removal SOP)
- Spill Prevention and Response (Spill Prevention and Control SOP)
- Street, Curb, and Gutter Maintenance (Concrete Program SOP)
- Street, Curb, and Gutter Replacement and Construction (Concrete Program SOP)
- Street Sweeper Cleaning and Waste (Parking Lot Sweeping and Waste)
- Street Sweeping (Street Sweeping SOP)
- Utility and Storm Sewer System Maintenance (Detention Pond Maintenance SOP, Inlet, Pipe and Vault Cleaning and Disposal SOP)
- Utility and Storm Sewer System Replacement and Construction (Concrete Program SOP)
- Vehicle Fueling (Vehicle Fueling SOP)
- Waste Management (Building Maintenance SOP, Good Housekeeping SOP)

## Additional SOPs not Mandated by the State (with related Fact Sheets)

- Gravel Road Guidelines (Gravel Road SOP)
- Building Maintenance (Building Maintenance)
- Vactor Truck Washout SOP
- General Good Housekeeping (General Good Housekeeping SOP)