

City of Tacoma Utility Employee Stormwater Quality Best Management Practices Manual (BMP Manual)

October 2017

City of Tacoma
Environmental Services



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VOLUME 1 - BACKGROUND

1.0 Introduction

This manual was created to help City of Tacoma staff achieve compliance with environmental laws and regulations by protecting water quality while accomplishing their routine maintenance tasks. It is based on the Regional Road Maintenance ESA Program Guidelines and is also intended to satisfy the requirements of Section S5.C.9 – Operation and Maintenance Program of the National Pollutant Discharge Elimination System Phase I Municipal Stormwater Permit (Permit). Using this manual will help City staff conduct their work in a manner that prevents or reduces stormwater impacts by minimizing erosion and sedimentation, containing pollutants, and maximizing habitat protection.

This manual contains standard operating procedures (SOPs) designed to eliminate or reduce the pollution caused by routine operation and maintenance activities.

1.1 USE OF THIS DOCUMENT

The activities identified in this document represent common maintenance tasks routinely performed by City staff. Consequently, not all maintenance activities are depicted.

If for any reason the minimization and avoidance measures and/or BMPs are determined to be inappropriate for a particular situation, or there are problems implementing a specific BMP, contact Environmental Services – Environmental Programs Group.

1.2 REGIONAL ROAD MAINTENANCE PROGRAM

The Endangered Species Act of 1973 (ESA) was designed to protect critically imperiled species from extinction resulting from “economic growth and development untempered by adequate concern and conservation.” The ESA is administered by two federal agencies, the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under the National Oceanic and Atmospheric Administration. NMFS administers the ESA as to salmon and other species that spend the majority of their life history in marine waters, while USFWS administers the ESA as to terrestrial species and those, such as bull trout, that spend the majority of their life history in freshwater.

Section 4(d) of the ESA grants the USFWS and NMFS broad administrative discretion to promulgate regulations that are necessary and advisable to provide for the conservation of *threatened* species. Section 4(d) also confers upon the Secretaries, and thus upon the NMFS and USFWS (the Services), discretion to apply to a threatened species any or all of the prohibitions against take that automatically apply to endangered species via ESA Section 9.

In July of 2000, NOAA Fisheries, under section 4(d) of the ESA, adopted a rule (50 CFR 223.203) prohibiting the take of 14 groups of salmon and steelhead listed as threatened. The rule prohibits anyone from taking a listed salmon or steelhead except in cases where the take is associated with an approved program. The rule also included a set of 13 limits on the application of the ESA take prohibitions. The limits represent programs or activities for which NOAA Fisheries will not apply the take prohibitions. NOAA Fisheries has determined that these programs will minimize adverse impacts on threatened salmon and steelhead enough such that additional Federal protections are not needed.

The City of Tacoma (City), by implementing the Regional Road Maintenance Guidelines qualifies for Limit 10: Routine Road Maintenance. The Regional Road Maintenance Guidelines focus on utilizing best management practices (BMPs) to achieve the conservation outcomes of:

- Minimizing erosion/sedimentation
- Containing Pollutants
- Maximizing habitat improvements.

This implementation of the BMPs in this Manual helps meet the goals of the Regional Road Maintenance Guidelines.

1.3 NPDES PHASE I PERMIT – OPERATION AND MAINTENANCE PROGRAM

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA made it unlawful to discharge any pollutant unless a permit was obtained. The Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) permit program controls those discharges. In Washington State, the Washington State Department of Ecology administers NPDES Permits.

The City of Tacoma has a NPDES Phase I Municipal Stormwater Permit (Permit) which allows the City to discharge stormwater to waters of the State.

The Permit requires development and implementation of a Stormwater Management Program (SWMP) "designed to reduce the discharge of pollutants from MS4s to the MEP, meet state AKART requirements, and protect water quality. The SWMP consists of 11 required components. The SWMP Plan is available online at www.cityoftacoma.org/stormwater. Section S5.C.9 of the Permit requires the City to "implement a program to regulate maintenance activities and to conduct maintenance activities by the Permittee to prevent or reduce stormwater impacts".

The Permit requires the implementation of practices, policies, and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. Permittees must include the following activities in the program:

- Pipe Cleaning
- Cleaning of culverts that convey stormwater in ditch systems
- Ditch maintenance
- Street cleaning
- Road repair and resurfacing, including pavement grinding
- Snow and ice control
- Utility Installation
- Maintaining roadside areas, including vegetation maintenance
- Dust control
- Pavement striping maintenance
- Application of fertilizers, pesticides, and herbicides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts
- Sediment and erosion control
- Landscape maintenance and vegetation disposal
- Trash and pet waste management

- Building exterior cleaning and maintenance

Implementation of the BMPs in the manual will help meet the Permit goals by ensuring maintenance activities performed by the City are completed in such a manner as to prevent stormwater pollution.

1.4 TACOMA MUNICIPAL CODE

In addition to State and Federal regulations, the City of Tacoma Municipal Code 12.08.080 contains language prohibiting any materials other than stormwater from entering the stormwater system. The use of this manual will help ensure the provisions of TMC 12.08 are met.

VOLUME 2: MAINTENANCE ACTIVITIES

CHAPTER 1 - MAINTENANCE ACTIVITY #1: PIPE CLEANING

Introduction:

Pipe cleaning includes the cleaning of stormwater pipes, potable water pipes (line flushing), and cleaning wastewater pipes. Cleaning of the stormwater pipe system is conducted on a regular basis to remove trash, sediment, and debris from the pipe system before it reaches these waterbodies. Water main flushing is conducted to improve drinking water quality by flushing the sediment from the system and to detect leaks in the system. Cleaning of the wastewater system is conducted to remove blockages and allow for video inspections of the pipe system to check for damage.

STORMWATER PIPE CLEANING

ACTIVITY DESCRIPTION:

The majority of the runoff conveyed in the City of Tacoma stormwater system discharges untreated into receiving waterbodies. Cleaning is completed on regular basis to remove trash, sediment, and debris from the pipe system before reaching the waterbodies.

BMP SELECTION CRITERIA

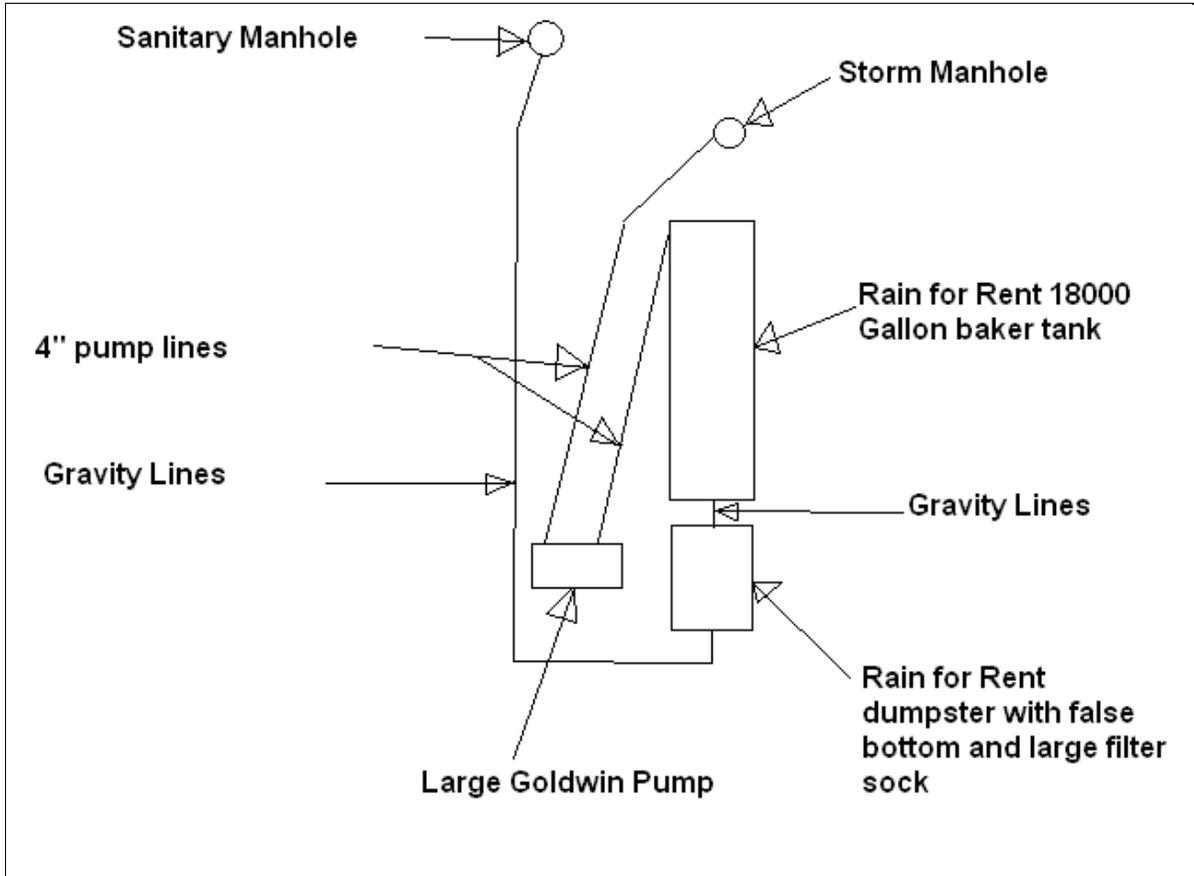
Suggested BMP Strategies	Recommended BMPs
Keep Water Away from Area	Conduct Work During Dry Weather. Cover stockpiles. Berm around work area with sandbags, etc.
Filter Process Water	Pretreatment Tank/Downstream Storage
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

STANDARD OPERATING PROCEDURES

1. Follow SAD permit requirements.
2. Schedule pipe cleaning for dry weather when possible.
3. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
4. Plug downstream end of pipe network to ensure sediment from cleaning cannot reach receiving waterbody.
5. From a manhole at the upstream end of the pipe, using an educator truck, jet the lines with a high velocity hose. Some turbid water will be drawn into the educator truck holding tank, the rest will continue to the downstream plugged manhole. When the educator tank is full, the decanted liquid portion will flow to the downstream plugged manhole.
6. Pump or otherwise collect process water into a pretreatment system before discharging treated process water into the wastewater system. The pretreatment may be a baffled

sediment tank connected to a fabric filter lined box (see figure below) or by letting pollutants settle out in the pipe near the plugged manhole.

7. Remove plug from downstream end of pipe when cleaning is complete.
8. Sweep area around both the upstream and downstream manholes.
9. Empty eductor truck at the City of Tacoma Decant Facility.



WATER MAIN FLUSHING

ACTIVITY DESCRIPTION:

- Unidirectional Water Main flushing must occur regularly throughout distribution system to ensure potable water is free of sediment and to check the system for leaks and damage
- Water main flushing is completed to clean the distribution system after repairs are completed.

BMP SELECTION CRITERIA

Utilize BMP A714: Water reservoir, transmission mainline, wellhead, and hydrant flushing activities.

Suggested BMP Strategies	Recommended BMPs
Keep Water Away from Area	Schedule work for dry weather.
Keep Chlorinated Water Out of Stormwater System	Ascorbic acid drip; Discharge to Wastewater System, where feasible
Prevent Erosion	CB socks, Coconut mats, Straw waddles, Biobags (wood chip filter)
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills</u> immediately.

STANDARD OPERATING PROCEDURES

1. Schedule water main flushing for dry weather.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Follow the discharge conditions outlined in the existing Environmental Services Special Approved Discharge (SAD) Permit. Notify Environmental Services at (253) 502-2222 two days prior to planned discharge.
4. Remove and properly dispose of garbage and debris along the downstream path to prevent from washing into stormwater system.
5. Install BMPs to direct water away from easily erodible areas. Any sediment that impacts the stormwater or wastewater system must be cleaned by sewer transmission and cleaning fee will be charged to the Water Department.
6. Use a diffuser on the discharge line, if possible, to reduce the erosive force of the water.
7. Dechlorinate water if discharging to the stormwater system. Test for turbidity, pH, and chlorine levels per the SAD permit.
8. Open fire hydrants to flush the water lines.
9. Check the upstream and downstream systems while discharging to make sure discharge is not impacting the stormwater or wastewater system. If it appears there are impacts to the system, contact Environmental Services at (253) 502-2222.
10. Sweep areas that may have accumulated sediment from water main flushing.

CHAPTER 2 - MAINTENANCE ACTIVITY #2: CLEANING OF CULVERTS THAT CONVEY STORMWATER IN DITCH SYSTEMS

Introduction:

Cleaning of culverts should be conducted on a regular basis to remove trash, sediment, and debris from the pipe system before it reaches these waterbodies and to ensure stormwater is flowing freely. In the City of Tacoma, culverts are maintained both by private entities and the City of Tacoma. Property owners whose driveways are served by the culvert system are typically responsible for maintaining these culvert systems. All other culverts are maintained by City crews.

CULVERT CLEANING

ACTIVITY DESCRIPTION:

Culverts must be cleaned to ensure the stormwater conveyance system is functioning properly and to ensure pollutants do not reach the downstream receiving waterbodies.

BMP SELECTION CRITERIA

Utilize BMP A712: Maintenance of Roadside Ditches and Culverts

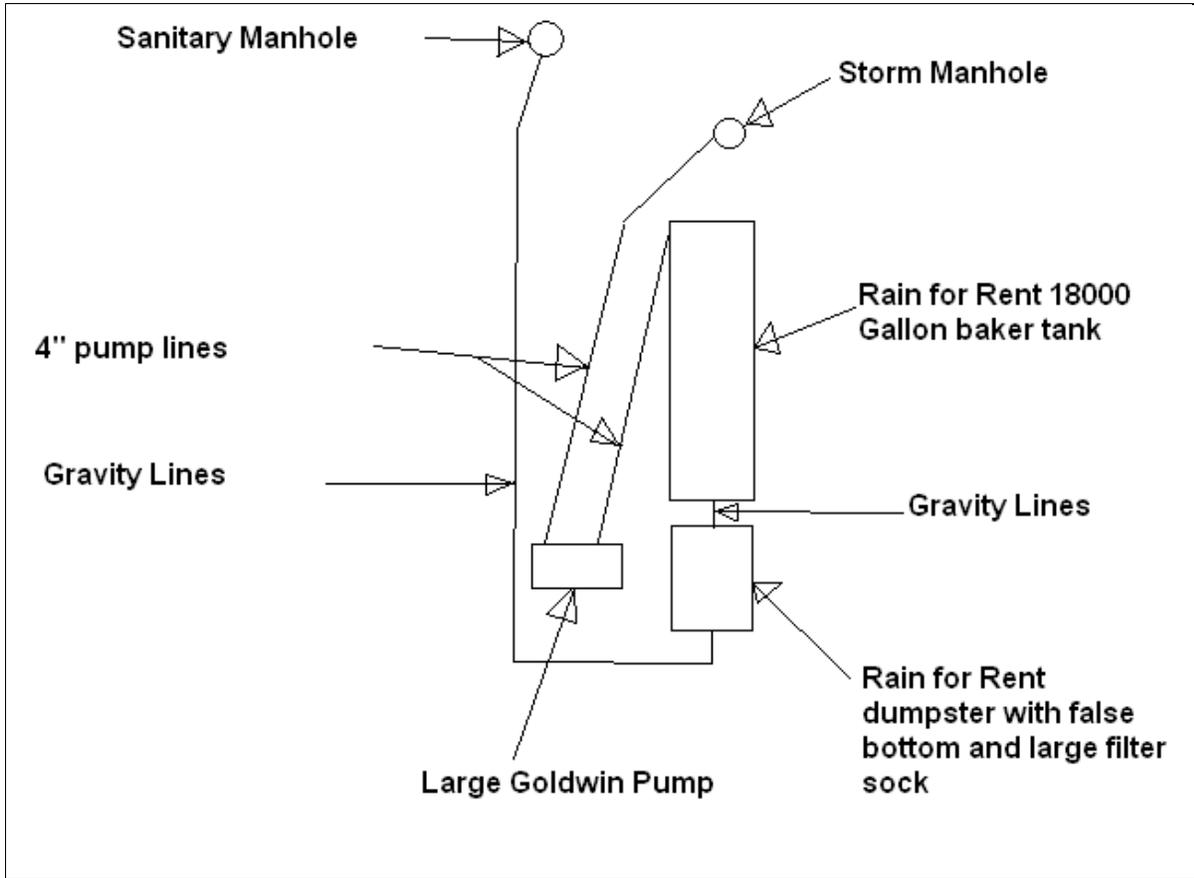
BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Keep Water Away from Area	Conduct Work During Dry Weather. Cover stockpiles. Berm around work area with sandbags, etc.
Filter Process Water	Coir Logs
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

STANDARD OPERATING PROCEDURES

1. Schedule pipe cleaning for dry weather when possible.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Plug downstream end of culvert to ensure sediment from cleaning cannot reach receiving waterbody.
4. From a manhole at the upstream end of the pipe, using an educator truck, jet the culvert with a high velocity hose. Some turbid water will be drawn into the educator truck holding tank.
5. Remove plug from downstream end of pipe when cleaning is complete.
6. Sweep area around both the upstream and downstream manholes.
7. Empty educator truck at the City of Tacoma Decant Facility.

Note: If water is flowing through ditch/culvert if there has not been rain in 24 hours or if ditch/culvert discharges to a vegetated area nearby, the work may impact a stream or wetland system. Before starting work, check if any special permits are required.



CHAPTER 3 - MAINTENANCE ACTIVITY #3: DITCH MAINTENANCE

Introduction:

Ditch maintenance should be conducted on a regular basis to remove trash, sediment, and debris from the stormwater conveyance system before it reaches these waterbodies and to ensure stormwater is flowing freely. Ditch maintenance may include mowing, planting, sediment removal, and maintenance of associated structures. Ditches may be concrete, asphalt, gravel, or vegetated. Stormwater conveyance systems should never contain bare soil.

DITCH CLEANING

ACTIVITY DESCRIPTION:

Ditches must be maintained to ensure the stormwater conveyance system is functioning properly and to ensure pollutants do not reach the downstream receiving waterbodies.

BMP SELECTION CRITERIA

Utilize BMP A712: Maintenance of Roadside Ditches and Culverts

Suggested BMP Strategies	Recommended BMPs
Keep Water Away from Work Area	Conduct Work During Dry Weather
Prevent Erosion	Berms, Coir Logs
Stabilize exposed and unworked soil	Erosion Blankets, Seed Mix or Hydroseeding
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

STANDARD OPERATING PROCEDURES

1. Schedule cleaning for dry weather.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Block downstream end of ditch with berms, coir logs, etc. to prevent sediment from leaving the system.
4. Use ditchmaster or excavator to regrade ditch to maintain flowline.
5. Stabilize bare soil using straw or mulch for low velocity areas. Install erosion control blankets and check dams for steep or high velocity areas.
6. Spread seed or hydroseed to re-establish ground cover within the ditch line.
7. Sweep area around ditch line and downstream.

DITCH MOWING

ACTIVITY DESCRIPTION:

Ditches must be maintained to ensure the stormwater conveyance system is functioning properly and to ensure pollutants do not reach the downstream receiving waterbodies.

BMP SELECTION CRITERIA

Utilize BMP A712: Maintenance of Roadside Ditches and Culverts

Suggested BMP Strategies	Recommended BMPs
Keep Water Away from Work Area	Conduct Work During Dry Weather
Prevent Erosion	Berms, Coir Logs
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

STANDARD OPERATING PROCEDURES

1. Schedule cleaning for dry weather.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Mow vegetation. Rake and collect cut vegetation, load in truck and dispose properly.
4. Sweep area around both the upstream and downstream structures, as needed.

CHAPTER 4 - MAINTENANCE ACTIVITY #4: STREET CLEANING

Introduction:

Street cleaning activities include the sweeping and flushing of roadways, curbs, and bridge decks to remove dirt and debris. Streets cleaning is performed to provide a safe roadway surface for the public. Regular sweeping of the roadway reduces sediment loading to the stormwater system and receiving waterbodies.

STREET SWEEPING

ACTIVITY DESCRIPTION:

Street sweeping is done to provide a safe roadway surface for the traveling public and to reduce the volume of trash and other debris (i.e. soil, organic material, and dust) that contacts the stormwater system, surface waters, watercourses, streams or other waterbodies.

BMP SELECTION CRITERIA

Utilize BMP A709: Urban Streets from the City of Tacoma SWMM.

Suggested BMP Outcomes	Recommended BMPs
Dust Control	Light application of water
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule street sweeping to occur during dry weather or after a rainfall when practicable.
 - a. Street sweeping may be done during light rainfall but should be avoided during storm events or when runoff is present.
 - b. Adequate moisture is necessary to avoid making excessive dust.
 - c. Use water spray system on sweeper to reduce dust when adequate moisture is not otherwise available.
 - d. Control speed of sweeper to minimize airborne particulates and remove maximum amount of debris.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.

Empty sweepers at Environmental Service's Cleveland Way Eductor and Decant Facility. (2101 Cleveland Way)

Use regenerative air sweepers when possible as they provide better removal than mechanical brooms.

STREET FLUSHING

ACTIVITY DESCRIPTION:

Flushing for the purpose of cleaning the street, parking lot, or other paved surfaces should only be done after the pavement has been swept. Flushing should only be done if when the water can be collected and disposed of properly.

BMP SELECTION CRITERIA

Suggested BMP Outcomes	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Keep Water from Work Area	Sandbags, Coir Logs
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Sweep pavement to remove as much sediment as possible. Use regenerative air sweepers when possible.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before flushing. Prior to flushing bridge decks, it is necessary to plug all scuppers, weep holes, and direct drains to prevent discharge to waters of the state.
4. Plug outlet pipe in nearest downstream catch basin to contain cleaning washwater.
5. Use water tank to flush the sediment out of the street and into the catch basin.
6. Use an eductor truck to capture washwater and remove sediment from catch basin.
7. Dispose of eductor waste at approved decant facility.
8. Remove storm drain inlet protection BMPs after flushing.

CHAPTER 5 - MAINTENANCE ACTIVITY #5: ROAD REPAIR AND RESURFACING, INCLUDING PAVEMENT GRINDING

Introduction:

The roadway system includes both paved and unpaved surfaces, the subgrade or base, road shoulders, bridges, and ramps. Runoff from hard roadway surfaces (asphalt, concrete, gravel, bituminous surface treatment, hard-packed dirt) eventually enters the City stormwater system and carries with it any pollutants (sediment, oil, heavy metals, trash, etc.) on that roadway surface.

Road maintenance temporarily reduces or eliminates surface water impacts of vehicle use on the roadway surface. If the roadway system is not regularly maintained, increased pollutants, especially sediment would reach the stormwater system and ultimately receiving waterbodies. The roadway system is maintained:

- To provide a safe roadway surface for the traveling public
- To protect the investment of public funds
- To prevent premature deterioration or failure of infrastructure
- To reduce adverse impacts from sediment entering waterbodies.

Road repair and resurfacing activities include but are not limited to the following:

- Cutting and Coring
- Pothole and Square Cut Patching
- Paving
- Asphalt Wedge Curb
- Grind and Pave
- Overlays
- Bituminous Surface Treatment
- Chip Sealing
- Crack Blowing and Sealing
- Repair/Removal of Pavement Base
- Concrete Panel Repair/Replacement
- Concrete Curb and Gutter
- Sidewalks
- Road Grading

POTHOLE AND SQUARE CUT PATCHING

ACTIVITY DESCRIPTION:

Pothole and square cut patching includes both permanent and temporary patching of pavement with Hot Mix Asphalt (HMA) or Cold Mix Asphalt (CMA). The goal is to repair the pavement and preserve a safe driving surface while protecting stormwater from potential pollutants such as release agents.

Release agents are used to prevent asphalt from sticking to equipment and tools or to soften and remove asphalt that has already become stuck. Use environmentally-sensitive release agents such as vegetable oil or soy-based products to clean tools or prevent asphalt from sticking to truck bed.

Maintenance activities on porous asphalt shall follow these same procedures, utilizing the use of HMA or CMA.

Never use diesel fuel as a release agent!

BMP SELECTION CRITERIA

Stabilize exposed and unworked soil by application of effective BMPs that protect the soil from the erosive forces of raindrop impact, flowing water, and wind.

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Log
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and clean up spills immediately.
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

STANDARD OPERATING PROCEDURES

1. Schedule asphalt repair work for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses as necessary before starting work.
4. If sawcutting concrete, vacuum slurry and dispose at the decant facility at the Asphalt Plant.
5. Remove and properly dispose of standing water from potholes prior to filling with patching material.
6. Prepare holes and level the base when practicable.
7. After breaking up old pavement, sweep and properly dispose of sediment to avoid contact with rainfall and stormwater runoff.
8. Install patching material, (HMA or CMA), compact, and seal edges (when practicable).
9. Sweep up excess materials and dispose of properly. When adjacent to permeable pavement vacuum with a regenerative air sweeper.
10. Remove storm drain inlet protection BMPs after sweeping.

ASPHALT PAVING AND RESURFACING

ACTIVITY DESCRIPTION:

Paving produces a surface suitable for roadways, driveways, parking lots, walkways and other uses. Paving with Hot Mix Asphalt (HMA) or Porous Hot Mix Asphalt (PHMA) usually requires specialized equipment such as track pavers and vibratory rollers. Track pavers, in particular, have a high potential to cause pollution because they require the use of release agents for cleaning and preparation of the machine for use. Extra care is required when using this equipment. Use environmentally-sensitive release agents such as vegetable oil or soy-based products to clean tools or prevent asphalt from sticking to truck bed.

Never use diesel fuel as a release agent!

BMP SELECTION CRITERIA

Stabilize exposed and unworked soil by application of effective BMPs that protect the soil from the erosive forces of raindrop impact, flowing water, and wind.

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Log
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and clean up spills immediately.
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule paving work for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
4. Establish a staging area for trucks and paving equipment away from storm drain inlets or watercourses.
5. Spray exposed dirt or base material for dust prevention.
6. Stockpile materials away from catch basins and nearby waterbodies. Cover stockpiles with plastic tarps and berm around them during wet weather to prevent sediment transport.
7. Catch drips from paving equipment (when not in use) with absorbent material or pads placed under the machines. Dispose of collected material and absorbents properly.
8. Apply emulsified tack coats carefully, avoiding overspray and contact with stormwater.
9. Install HMA or PHMA material, compact, and seal edges (when practicable).
10. Sweep up excess materials and dispose of properly.
11. Remove storm drain inlet protection BMPs after sweeping.

When saw-cutting or grinding pavement, you MUST prevent slurry from leaving worksite. Use a wet /dry vacuum to contain pollutants.

Do NOT apply emulsified oil during rainfall or when rain is imminent. If it rains unexpectedly, take appropriate action to prevent pollution of stormwater runoff (e.g. divert runoff around work area.

CONCRETE PAVING AND REPAIR

ACTIVITY DESCRIPTION:

Repair/replacement of concrete panels may become necessary for a variety of reasons. Panels may sink or rise out of alignment due to freeze/thaw conditions, root growth, improper compaction, or other factors. Also, concrete panels must be replaced or repaired when maintenance or repair of underground utilities requires them to be removed for access.

BMP SELECTION CRITERIA

Stabilize exposed and unworked soil by application of effective BMPs that protect the soil from the erosive forces of raindrop impact, flowing water, and wind.

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Logs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Good Housekeeping	Sweep or vacuum area when job is complete.
pH treatment	Outpak® Washout System or designated washout
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule concrete panel repair/replacement work for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
 - a. If saw-cutting concrete, slurry must not enter storm drain inlets or watercourses. Use the concrete saw trailer to vacuum up the slurry. Follow environmental SOPs as described in Concrete Cutting and Coring. Dispose of slurry at the decant/washout facility at the Asphalt Plant.
4. After breaking up old concrete, sweep up debris to avoid contact with rainfall and stormwater runoff. Recycle or dispose of concrete rubble properly.
 - a. It may be necessary to divert stormwater away from the excavation with a temporary cold-mix asphalt berm or sandbags, particularly if the excavation will remain open overnight or longer.
5. Install concrete and apply finish.
 - a. Do not send wash water from exposed aggregate concrete finishes onto the street or into the storm drain system. Collect wash water with a wet/dry vacuum and dispose of properly.
6. Washout concrete delivery trucks and finishing tools offsite or in designated areas only. Do not washout concrete trucks into storm drains, open ditches, or any watercourse. Do not allow excess concrete to be dumped onsite, except in designated areas.
7. Locate designated washout areas away from storm drains, open ditches, or watercourses. Contain washout water in a temporary dead-end sump, pit, or level bermed area large enough to contain both liquid and solid wastes. An alternative to establishing designated washout areas is to use plastic-lined drop boxes to hold and dispose of wastes.

8. Sweep up excess materials and dispose of properly. If large enough, call out a Street Sweeper or Power Broom truck to assist.
9. Remove storm drain inlet protection BMPs after concrete has set.

When saw-cutting or grinding pavement, you MUST prevent slurry from leaving worksite. Use a wet /dry vacuum to contain pollutant

CRACK BLOWING AND SEALING

ACTIVITY DESCRIPTION:

Sealing and filling asphalt and concrete pavement cracks is a common road maintenance activity. Crack sealing is used as a first defense against pavement deterioration because it offers several important benefits. Effective crack sealing prevents water from entering and weakening the roadway base. It also helps to preserve the pavement adjacent to the cracks by preventing sand, stone, and dirt from making its way into open cracks causing compressive stresses.

For Porous Hot Mix Asphalt (PHMA) please contact Environmental Services Science and Engineering.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Logs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Dust Control	Light water application
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule crack blowing and sealing work for dry weather when practicable.
 - a. Crack blowing may be done during light rainfall but should be avoided during storm events or when runoff is present.
 - b. Some moisture is desirable to avoid making excessive dust.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect all storm drain inlets and adjacent watercourses before starting work.
4. Sweep street prior to start of work.
5. Use a propane torch and compressed air to clean out cracks in the pavement.
6. Use a vacuum sweeper to pick up dislodged sediment and vegetative debris.
7. Fill cracks with sealing material. It may be necessary to cover the sealant with fine sand to prevent tracking.
8. Remove storm drain inlet protection BMPs after sweeping.

Clean any spills immediately. Do NOT apply emulsified oil during rainfall or when rain is imminent. If it rains unexpectedly, take appropriate action to prevent pollution of stormwater runoff (e.g. divert runoff around work area.)

REPAIR/REPLACE PAVEMENT BASE

ACTIVITY DESCRIPTION:

The pavement base may need repair/replacement when the paved surface fails due to the inability of the base to support traffic loading. This is usually the result of at least two deficiencies; inferior base materials and infiltration of water. Repair/replacement usually requires removal of the inferior base materials, such as wet clay, and replacement with large aggregate or quarry spalls over a geotextile fabric. The geotextile fabric prevents the clay from pumping up into the aggregate.

BMP SELECTION CRITERIA

Stabilize exposed and unworked soil by application of effective BMPs that protect the soil from the erosive forces of raindrop impact, flowing water, and wind.

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Log
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule pavement base repair work for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
4. Remove standing water from low areas prior to grinding asphalt.
5. After grinding or otherwise removing old pavement, sweep up materials to avoid contact with rainfall and stormwater runoff.
6. Remove failed base materials and dispose of properly.
7. Install pavement section.
8. Sweep up excess materials and dispose of properly.
9. Remove storm drain inlet protection BMPs after sweeping.

When saw-cutting or grinding pavement, you MUST prevent slurry from leaving worksite. Use a wet /dry vacuum to contain pollutants.

Do NOT apply emulsified oil during rainfall or when rain is imminent. If it rains unexpectedly, take appropriate action to prevent pollution of stormwater runoff (e.g. divert runoff around work area.)

GRAVEL ROAD AND SHOULDER GRADING

ACTIVITY DESCRIPTION

Gravel roads and alleys are maintained by blading or smoothing, reshaping, and/or adding new aggregate material. Relatively minor surface distresses such as roughness, loose gravel, and ripples are usually the first to appear. Blading or smoothing the road or alley surface frequently to correct these distresses can reduce the need for more extensive reshaping or additional new gravel. Shoulder grading is necessary to restore stormwater flow across the shoulder to eliminate concentrated flows that could cause erosion.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Logs
Reduce Erosion Potential	Cover disturbed areas with gravel
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule road grading to occur after a rainfall when practicable or sprinkle with water truck.
 - a. Road grading may be done during light rainfall but should be avoided during storm events or when runoff is present.
 - b. Adequate moisture is necessary to achieve proper compaction for structural integrity and strength, and to avoid making excessive dust.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
4. If a large amount of ponded water is present, drain into adjacent vegetated areas if safe and practical, or call out vactor truck to remove water prior to grading.
5. Following grading, roll shoulders to compact loose material and reduce sediment transport.
6. Sweep any excess material that has migrated into adjacent paved areas.
7. Remove storm drain inlet protection BMPs after compacting gravel.

CHAPTER 6 - MAINTENANCE ACTIVITY #6: SNOW AND ICE REMOVAL

Introduction:

Snow and ice abatement reduces vehicle accidents that may adversely impact sensitive areas. Post-event cleanup is considered a continuation of the event and removal of sediment from the road surface reduces sediment loading and preserves water quality.

SNOW AND ICE CONTROL

Utilize BMP A707: De-Icing and Anti-Icing Operations for Streets and Highways from the City of Tacoma SWMM.

1. Select deicers and anti-icers that cause the least adverse environmental impact. Typically, a salt brine is mixed and stored in the Upper Yard and applied to roadway prior to snow or freezing events. Road salt is used to reduce ice build-up during snow events. These materials minimize the amount of grit washing into the storm system after snow events.
2. Where feasible and practicable, use roadway deicers, such as calcium magnesium acetate, potassium acetate, or similar materials that cause less adverse environmental impact than urea and sodium chloride.
3. Store and transfer deicing and anti-icing materials on an impervious containment pad in accordance with BMP A401 Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products and A408 Storage of Liquids in Above-Ground Tanks.
4. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
5. Apply deicing and anti-icing materials to designated routes only.
6. Sweep/clean up accumulated deicing and anti-icing materials and grit from roads as soon as possible after the road surface clears.
7. Where a salt/sand mixture is used, coordinate with ES before applying mixture to have sweeper scheduled to sweep area after event.

Clean any spills immediately.

CHAPTER 7 - MAINTENANCE ACTIVITY #7: UTILITY INSTALLATION

Introduction:

Utility installation includes the installation, replacement or repair of any underground utility including stormwater, wastewater, water distribution, and power lines (open trench work). This also includes the installation of catch basins, manholes, utility vaults, and treatment facilities. This section will also cover dewatering of utility vaults.

OPEN TRENCH

ACTIVITY DESCRIPTION

The installation of utility lines typically involves open trench work. Jobs may include:

- New mainline installation
- New service installation
- Pipe/valve repairs

BMP SELECTION CRITERIA

Stabilize exposed and unworked soil by application of effective BMPs that protect the soil from the erosive forces of raindrop impact, flowing water, and wind.

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Coir Logs
Control Sediment	CB socks, Coconut mats, Straw waddles, Biobags (wood chip filter), Hydro-excavate with Vactor truck
Good Housekeeping	Wet / Dry Vacuum , Sweeping
pH treatment	Outpak® Washout System or designated washout
Spill Prevention	Spill Kit
Prevent erosion	Stabilize exposed soil with straw, jute mat, seeding
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule open trench work for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
 - a. When saw-cutting concrete, slurry must not enter storm drain inlets or watercourses. Follow environmental SOPs as described in Concrete Cutting and Coring.
4. Dig trench and install utilities. 1) Use excavator to stockpile trench spoils in truck or 2) Use hydro-excavator and vactor trench slurry using vactor truck.
5. Dewater trench during work into wastewater system if possible. If not possible, install sediment controls including gunny sack on the end of discharge hose from trash pump and

drain to nearest storm drain – only clean water can be discharged into stormwater system..

6. Cover trench and stabilize any bare soil.
7. Permanently stabilize exposed soil with straw, jute mat, rock, seeding, etc or schedule trench patch paving.
8. For concrete roads, washout concrete delivery trucks and finishing tools offsite or in designated areas only. Do not washout concrete trucks into storm drains, open ditches, or any watercourse. Do not allow excess concrete to be dumped onsite, except in designated areas.
9. Locate designated washout areas away from storm drains, open ditches, or watercourses. Contain washout water in a temporary dead-end sump, pit, or level bermed area large enough to contain both liquid and solid wastes. An alternative to establishing designated washout areas is to use plastic-lined drop boxes to hold and dispose of wastes.
10. Sweep up excess materials and dispose of properly. Schedule sweeper truck with Sewer Transmission to follow-up, if necessary.
11. Remove storm drain inlet protection BMPs after final paving is complete.

When saw-cutting or grinding pavement, you MUST prevent slurry from leaving worksite. Use a wet /dry vacuum to contain pollutants.

UTILITY VAULT DEWATERING

ACTIVITY DESCRIPTION

Utility vaults must be regularly dewatered to ensure the utilities inside are protected and to ensure those utilities can be inspected and maintained. Activities may include:

To clean, inspect or repair:

- Reservoirs
- Water supply mains
- Utility vaults

BMP SELECTION CRITERIA

Utilize BMP A711: Maintenance of Utility Vaults in the SWMM.

Suggested BMP Strategies	Recommended BMPs
Keep Chlorinated Water Out of Stormwater System	Ascorbic acid drip; Discharge to Wastewater System, when feasible
Control Sediment	CB socks, Coconut mats, Straw waddles, Biobags (wood chip filter)
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule utility dewatering for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
4. Inspect water prior to discharge.
 - a. If no odor or sheen or other indicator of water pollution exists; you may dewater vault to the stormwater system or a vegetated area.
 - b. If odor, sheen, or other indicator of water pollution exists; do not discharge. Contact Environmental Services at 253-502-2222. Discharging
5. Direct discharge into adjacent wastewater system. If not available, dechlorinate using ascorbic acid drip (if necessary) and discharge to nearest stormwater system or vegetated area (provided vegetated area is not a critical area).
6. Sweep up excess materials and dispose of properly.
7. Remove storm drain inlet protection BMPs after final paving is complete.

Clean any spills immediately.

CHAPTER 8 - MAINTENANCE ACTIVITY #8: MAINTAINING ROADSIDE AREAS, INCLUDING VEGETATION MAINTENANCE

Introduction:

Vegetation maintenance is necessary to ensure visibility, maintain aesthetics, and protect slopes from erosion. Vegetation maintenance can include minor grading, vegetation removal, pruning, weeding, chemical application, and watering. Stormwater contaminants can include sediment, debris, fertilizers, and pesticides.

VEGETATION MAINTENANCE

ACTIVITY DESCRIPTION

Vegetation maintenance includes any work to maintain vegetation.

BMP SELECTION CRITERIA

Utilize BMP A306: Landscaping and Lawn/Vegetation Management of the SWMM.

Suggested BMP Strategies	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Slope Stabilization	Nets and Blankets
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule vegetation for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
4. Weed, prune, or otherwise maintain vegetation.
5. Install engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
6. Sweep up excess materials and dispose of properly.
7. Remove storm drain inlet protection BMPs after final paving is complete.

Clean any spills immediately.

LANDSCAPE RESTORATION/NEW INSTALLATION

ACTIVITY DESCRIPTION

- New landscape installation (Public Works/TPU)
- Repair roadside vegetation from rutting by service trucks (Public Works/TPU)
- Slope stabilization (Public Works)
- Repair landscape around power poles after vehicle collisions (TPU)
- Stabilize Transmission and Distribution trenches or pole installation sites (TPU)
- Spill response and soil removal* (TPU)

*Spill response containment and contaminated soil removal requires additional BMPs and Personal Protective Equipment (PPE). Please refer to safety training and other documented protocols.

BMP SELECTION CRITERIA

Stabilize exposed and unworked soil by application of effective BMPs that protect the soil from the erosive forces of raindrop impact, flowing water, and wind.

Suggested BMP Strategies	Recommended BMPs
Keep Water from Work Area	Plastic Covering, Sandbags (washed sand or pea gravel), Berms
Control Sediment	CB socks, Coconut mats, Straw waddles, Biobags (wood chip filter), Hydro-excavate with Vactor truck
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>
Prevent erosion	Stabilize exposed soil with straw, jute mat, seeding
Seasonal Limitations	Oct. 1-Apr. 30 – No soils exposed more than 2 days. May 1-Sept. 30 – No soils exposed for more than 7 days.

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Schedule work for dry weather when practicable.
2. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
3. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
4. Permanently stabilize exposed soil with straw, jute mat, rock, seeding, etc.
5. Sweep up excess materials (including all leaves and clipping – do not blow into street) and dispose of properly. Schedule sweeper truck with Sewer Transmission to follow-up, if necessary.
6. Remove storm drain inlet protection BMPs after final landscaping is complete.

CHAPTER 9 - MAINTENANCE ACTIVITY #9: DUST CONTROL AND SLIDE RESPONSE

Introduction:

Dust control is necessary to ensure sediment does not enter the stormwater system and pollute waterways. Dust particles contribute to air pollution, soil loss, and stormwater pollution. Typically dust control is used on alleys, during residential paving jobs, or unpaved access roads (such as at the Landfill). Slide response involves clearing mud and debris from roadways and adjacent ditch and swale systems.

DUST CONTROL

ACTIVITY DESCRIPTION

Dust control refers to the use of best management practices to help reduce wind-borne dust.

BMP SELECTION CRITERIA

Utilize BMP A601: Dust Control of the SWMM.

Do not use motor oil or other oils for dust control.

Suggested BMP Strategies	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Good Housekeeping	Sprinkle or wet down dust. Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
3. Cover exposed soil areas by dressing with gravel, when necessary.
4. Sprinkle or wet down soil or dust with water to the extent that there is no runoff. Do not use water if it is raining. Only use chemical suppressant if necessary (water alone is not sufficient) and only those approved by Ecology.
5. Reduce vehicle speeds.
6. Remove storm drain inlet protection BMPs after final paving is complete.

SLIDE RESPONSE

ACTIVITY DESCRIPTION

Slide response involves removing mud and debris from the right-of-way.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters), CB cover mats, Sand bags, Check dams, Straw waddles
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Clear mud/sediment/rock over location of storm drain inlets and install protection to prevent further sediment from entering the stormwater system. Catch basin protection may include installing socks, cover mat held down with sand bags, straw waddles encircling the covered grate, and/or check dams in the ditch system upstream of the inlet.
3. When clearing mud from driving lanes, either shovel into trucks, or plug downstream stormwater manhole, flush mud into the stormwater system and vector out at the plugged manhole.
4. Thoroughly sweep roadway.
5. Remove storm drain inlet protection BMPs after cleanup is complete.

CHAPTER 10 - MAINTENANCE ACTIVITY #10: PAVEMENT STRIPING MAINTENANCE

Introduction:

Pavement striping includes any activity to mark or remove markings from the pavement to ensure a safer driving environment. These include markings such as line stripes, arrows, crossings, stop bars, and pedestrian crosswalks. Pavement markings are typically created by painting or the use of thermoplastics.

PAVEMENT MARKING

ACTIVITY DESCRIPTION

Pavement marking typically involves refreshing or repairing the permanent marking of the pavement.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Containment	Plastic Sheeting
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Schedule pavement marking work for dry weather. Avoid spray painting on windy days.
3. Use non-toxic paints and solvents where possible.
4. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
5. Transfer and load paint or thermoplastic pavement marking materials away from catch basins and waterways.
6. Calibrate and test pavement marking equipment in a controlled area that will not impact the stormwater system.
7. When marking is complete, clean equipment in a well-ventilated area away from the stormwater system and waterways. Contain any washwater and discharge to wastewater system.
8. If using, remove storm drain inlet protection BMPs after pavement marking is complete.

PAVEMENT MARKING REMOVAL

ACTIVITY DESCRIPTION

Pavement marking removal includes any activity that involves the removal of permanent marking of the pavement.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Containment	Plastic Sheeting
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work.
3. Sweep up excess grinding materials and dispose of properly.
4. Remove storm drain inlet protection BMPs after pavement marking is complete.

CHAPTER 11 - MAINTENANCE ACTIVITY #11: APPLICATION OF FERTILIZERS, PESTICIDES, AND HERBICIDES ACCORDING TO THE INSTRUCTION FOR THEIR USE, INCLUDING REDUCING NUTRIENTS AND PESTICIDES USING ALTERNATIVES THAT MINIMIZE ENVIRONMENTAL IMPACTS

Introduction:

Fertilizer, pesticide, and herbicide use can contribute to water quality concerns when applied inappropriately. Ongoing pesticide applicator licensing and annual training for all staff using pesticides and herbicides on the job is required.

APPLICATION OF FERTILIZERS, PESTICIDES, AND HERBICIDES

ACTIVITY DESCRIPTION

Includes the application of any fertilizer, pesticide, and herbicide.

Utilize BMP S108: Implement Integrated Pest Management Measures.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Follow Manufacturer Label	Use appropriate chemical and application rate/frequency for site
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Read the manufacturer label for appropriate product use.
3. Mix chemicals, fill sprayers, and rinse out chemicals on target area and away from surface water and the stormwater system..
4. Apply products per recommended amounts.
5. Avoid applying products near surface water, to areas where water is present or to intertidal areas below the mean high water mark.
6. Avoid applying products when weather conditions will likely create drift or runoff from treated areas.
7. Sweep up spilled materials and dispose of properly.

CHAPTER 12 - MAINTENANCE ACTIVITY #12: SEDIMENT AND EROSION CONTROL

Introduction:

Sediment and erosion control prevents sediment from entering the stormwater system and polluting the waterways. Sediment and erosion control involves the use of best management practices to prevent erosion from occurring and preventing sediment from reaching the stormwater system and waterbodies.

SEDIMENT AND EROSION CONTROL

ACTIVITY DESCRIPTION

Use appropriate Best Management Practices to prevent erosion and ensure sediment does not reach the stormwater system or waterbodies.

Utilize appropriate BMPs from Volume 2 of the Stormwater Management Manual as necessary based upon proposed activity.

CHAPTER 13 - MAINTENANCE ACTIVITY #13: LANDSCAPE MAINTENANCE AND VEGETATION DISPOSAL

Introduction:

Landscape maintenance is performed for aesthetic reasons and to ensure public areas are safe. Landscape maintenance involves any activity that related to landscape maintenance including mowing, weeding, trimming, pruning, vegetation removal, mulching, chemical application and watering. Roadside vegetation maintenance may also include minor grading.

LANDSCAPE MAINTENANCE AND VEGETATION DISPOSAL

ACTIVITY DESCRIPTION

Landscape maintenance includes mowing, weeding, trimming, clearing, and any other activities necessary to maintain any landscaped areas. Stormwater contaminants can include sediment, debris, fertilizers and pesticides.

Utilize BMP A306: Landscaping and Lawn/Vegetation Management

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Protect Stormwater Drains	Inlet Protection (CB Socks, CB cover mats, plastic sheeting, oil absorbent diapers, etc.)
Containment	Plastic Sheeting
Good Housekeeping	Sweep or vacuum or blow area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work when necessary.
3. Install erosion and sediment controls appropriate for the project. Larger projects may require many BMPs to ensure protection.
4. Pick up garbage and pet waste and properly dispose of it.
5. Conduct landscape maintenance.
6. If using mulching mowers, leave clippings in place to feed soil.
7. Blow, sweep or shovel leaves and other trimmings into truck. Never sweep or blow leaves or excess vegetation into the street, stormwater system, or waterways.
8. Properly dispose of any materials collected.
9. Mulch, seed, or revegetate exposed soil. Never leave bare soil.
10. Remove BMPs after area is completely stabilized.

CHAPTER 14 - MAINTENANCE ACTIVITY #14: TRASH AND PET WASTE MANAGEMENT

Introduction:

Trash includes any discarded matter such as plastic bottles, used paper products, and cigarette butts. Trash can make its way into the stormwater conveyance system and cause backups which could lead to localized flooding. Trash can also make its way to local waterways and lead to wildlife kill. Pet waste carries pathogens that can be harmful to human health and the environment.

TRASH AND PET WASTE MANAGEMENT

ACTIVITY DESCRIPTION

Trash and pet waste management includes picking up and properly disposing of any discarded items found during work activities. Transient camp or dump site clean-ups on City property require additional BMPs.*

*For more extensive waste clean-ups, contact your supervisor for further instructions. These activities may require additional BMPs, Personal Protective Equipment, blood born pathogen training, or prior contact of Tacoma Public Utilities security staff, Tacoma-Pierce County Health Department, Tacoma Police Department, or Pierce County Sheriff.

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

Clean up after yourselves and others. When in the field and you see any garbage pick it up and properly dispose. For pet waste: scoop it, bag it, and dispose of it in the garbage. Proper disposal of every day garbage and pet waste involves ensuring garbage goes to the City of Tacoma Transfer Station. If you suspect garbage is hazardous contact your supervisor.

CHAPTER 15 - MAINTENANCE ACTIVITY #15: BUILDING EXTERIOR CLEANING AND MAINTENANCE

Introduction:

Building maintenance can cause significant harm to local waterways if potential pollutants are not properly managed. Potential pollutants include sediment from pressure washing, paint, cleaners, and trash.

BUILDING EXTERIOR CLEANING AND MAINTENANCE

ACTIVITY DESCRIPTION

Building maintenance includes any activity to maintain a building in working condition and to maintain aesthetics.

Utilize BMP A503: Building Repair, Remodeling, and Construction

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Filter Stormwater	Inlet Protection (CB Socks or Blocksom Inlet Filters)
Containment	Discharge Washwater to Wastewater System, Plastic Sheeting
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Install BMPs to protect nearby storm drain inlets and adjacent watercourses before starting work when necessary.
3. Conduct building maintenance in dry weather.
4. If pressure washing, where possible, collect washwater and discharge into wastewater system.
5. Install inlet protection to ensure no dirty water enters the stormwater system.
6. Ensure any liquid materials used in building maintenance are placed on plastic sheeting or in secondary containment in the event of spills – even small spills.
7. Conduct building maintenance activities.
8. Sweep or vacuum area. Clean up any trash.
9. Properly dispose of any materials collected.
10. Inspect any catch basins in area to ensure catch basins are clean.
11. Remove BMPs after area is completely stabilized.

PRESSURE WASHING AND GRAFFITI REMOVAL

ACTIVITY DESCRIPTION

Pressure washing for hardscape maintenance ranges from sidewalk areas to large plazas. Graffiti removal may require pressure washing, painting over, sand blasting, or chemical removal methods.

Utilize BMP W100: Washing Best Management Practices

BMP SELECTION CRITERIA

Suggested BMP Strategies	Recommended BMPs
Protect Stormwater Drains	Inlet Protection (CB Socks, plastic sheeting, oil absorbent diapers, wattles, etc.)
Containment	Plastic Sheeting
Good Housekeeping	Sweep or vacuum area when job is complete.
Spill Prevention	Keep Spill Kit on site and <u>clean up spills immediately.</u>

DESCRIPTION OF ENVIRONMENTAL SOPS

1. Ensure a comprehensive spill kit applicable to the project and equipment being used is available onsite.
2. Install inlet protection in downstream storm drain inlets before starting work.
3. Pre-sweep, shovel or scrape up large debris, trash and dog waste before washing.
4. If using soaps, even biodegradable soaps, or other cleaning agents, washwater shall be captured and routed to the wastewater system. It may be possible to insert plug in outlet pipe of an adjacent storm inlet, and using trash pump to collect and pump washwater from the stormwater system into the wastewater system. Contact 502.2222 for technical assistance and Special Approved Discharge approval.
5. If no detergents or other cleaners are used, cold washwater may be discharged to adjacent landscaped areas or stormwater system with proper pretreatment. Filter washwater through wattles or other BMPs prior to discharging to the storm drain.
6. Washwater from graffiti removal shall be captured and discharged to the wastewater sewer. Tarps, berms or wet/dry vacuums can be used to capture washwater.
7. Sweep graffiti sand-blasted material, collect, and dispose as solid waste.
8. Properly dispose of any materials collected.
9. Stabilize any exposed soil.
10. Remove BMPs.

APPENDIX – BEST MANAGEMENT PRACTICE LOCATIONS

Public Works Street Ops BMP Locations

- All trucks contain spill kits
- BMP trailer for Temporary Erosion and Sediment Control (parked in Upper Yard)
 - Straw wattles
 - Coir logs
 - CB socks
 - Silt fence
 - Excelsior mats
- BMP trailer for Oil control (parked in Upper Yard)
 - Sand bags
 - Absorb all
 - Oil absorbant pads and booms
- Shipping container in Upper Yard
 - Loose straw

TPU Water BMP Locations

Limited supplies are stocked in trucks: CB socks, spill kit

Additional supplies are stocked in supply trailer:

- CB socks
- Coconut CB cover mats
- Straw waddles,
- Biobags (wood chip filter)
- Jute mat
- Gunny sacks
- Ascorbic acid drip buckets (small jobs)

TPU Grounds Maintenance BMP Locations

- Limited supplies are stocked in trucks including spill response kits and PPE
- Special spill kits are stocked in spray trucks for water-based chemical spills.
- Additional BMP supplies are stocked in the warehouse or purchased from vendor

PW Grounds Maintenance BMP Locations

- Supplies stored in trailers in Upper Yard:
 - CB socks
 - Rubber CB cover mats
 - Silt fencing
 - Straw waddles
 - Straw bales
 - Jute mat
- Hydroseeder – trailer