

# Operation and Maintenance Plans

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## Minimum Control Measure 6 Pollution Prevention and Good Housekeeping Practices for Municipal Facilities

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# MINIMUM CONTROL MEASURE 6

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## 1. INTRODUCTION

### 1.1. Operation and Maintenance Plan/s

Following is a set of operation and maintenance practices for numerous of Murfreesboro's municipal operations. Some of these practices will apply to multiple departments; others primarily to one department and/or one section within a department.

This plan – as initially prepared – is a part of a Pollution Prevention and Good Housekeeping Manual kept with your department's director and/or a section manager. Copies are also kept by the City's stormwater coordinator.

### 1.2. Basis for the Standard Operating Procedures (SOPs)

The City of Murfreesboro is regulated by an urban runoff general permit issued by the Tennessee Department of Environment and Conservation. Regulated are discharges from the city's Municipal Separate Storm Sewer System (MS4). The City/MS4 will examine and alter their own actions as well as work with other governmental agencies to help ensure a reduction in the amount and type of pollution that:

- Collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways.
- Results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems.

This SOP Manual will assist the City in using targeted management practices that are intended on reducing the discharge of pollutants from municipal activities.

### 1.3. Objectives of the SOPs

This manual is intended to provide guidance on Good Housekeeping Practices for Municipal Operations as follows:

- Provide management practices for municipal activities; with the goal to keep stormwater runoff clean
- To address and document operations, schedules and means of disposing of wastes that might contaminate urban runoff

- Address spill prevention and response
- Indicate what records should be kept for any of the operations.

## **2. OPERATION AND MAINTENANCE PRACTICES for POLLUTION PREVENTION**

### 2.1. Dumpsters/Garbage Storage

#### *Activities and Definition*

Good management of garbage will reduce pollution of storm- and surface- water. We want to prevent litter and food waste and the like from contaminating stormwater runoff. Provide an appropriate number of dumpsters throughout the facility to provide enough storage for daily activities. Make clear the purpose/type of materials for each dumpster.

#### *Preparation*

- Keep employees informed on proper disposal of trash.
- Locate dumpsters and trash cans in convenient, easily observable areas.
- Use and properly label recycling bins if recycling service is in place.
- Insofar as practicable, install and maintain berms, curbing, or strips of vegetation (grass) around storage areas to slow and filter runoff entering/leaving storage areas.
- Whenever practicable, store garbage containers beneath a covered structure or inside to prevent contact with stormwater.

#### *Operation*

- Request/use dumpsters and trash cans with lids and without drain holes.
- Locate dumpsters on a flat, hard surface that does not slope or drain directly into the storm drain system.

#### *Schedule*

- Inspect garbage bins for leaks regularly (at least twice per year) and have repairs made promptly by responsible party.

#### *Disposal of materials / Clean-up/ Follow-up*

- Keep areas around dumpsters clean of all garbage.
- Have garbage bins emptied regularly to keep from overflowing. Disposal in permitted landfill.
- When necessary to wash dumpsters – as needed to keep odors from becoming a problem – contain (as with a berm) the washwater, vacuum or pump to container and dispose to sanitary sewer. Prevent release to storm sewer or stream.

## 2.2. Parking Lot Maintenance

### *Activities and Definition*

Parking lots (along with streets, driveways and other asphaltic surfaces) degrade, and the residues picked up by rainfall runoff are a source of contamination to the stormwater system and streams. Parking lots also collect debris of tires and brake pads and airborne dust. Maintaining and regularly cleaning parking areas reduces those pollutants.

### *Preparation*

- a. Designate person/s within department as parking lot monitor/s who will periodically inspect (~ one/year) parking lots under jurisdiction of the department and who will keep track of when the lots are swept.
- b. You may contact Darryl Hopkins of the City's Engineering Department as a technical resource related to maintenance of parking lots and pavement.
- c. Monitor lots for condition of pavement/need for re-sealing; for erosion of soil/earth adjacent the lots; for evidence of misuse; for build-up of grit, sediment, waste along curbs and at inlets.
- d. Contact Street Department (615) 893-4380. Mitel ext. 1900 for sweeping service of parking lots.

### *Operation*

- a. As possible, maintain generous width of healthy vegetation (typically grass) along the downgradient edges of uncurbed parking areas; for this provides a place to capture grit entrained in runoff from the pavement.
- b. Restrict parking in areas to be swept prior to and during sweeping using regulations as necessary.
- c. Sweep/clean parking areas, on schedule or as needed.
- d. Hand shovel/sweep as needed sections of gutter if soil and debris accumulate.
- e. Keep to standard of care and city-based experience as to re-sealing and re-pave parking lots.

### *Schedule*

- a. Sweep/clean parking lots once-twice per year. Observe the lot at different times of the year to adjust schedule to maximize collection of grit and debris.
- b. Re-seal lots once every three to five years.

### *Disposal of materials / Clean-up/ Follow-up*

- a. Street sweepers to be cleaned out in a manner as instructed by the manufacturer and in a location that swept materials cannot be introduced into a storm drain.
- b. Sweepings should ultimately be disposed in permitted landfill.
- c. If materials are staged prior to transport to landfill, stage in stormwater-

controlled space; preventing transport of fines to MS4 or stream.

#### *Documentation*

- a. Keep log of what and when parking areas are swept.
- b. You may keep a record of parking lot sweepings either separately, or total with quantities of street sweepings.

### 2.3. Parks - Chemical Application Pesticides, Herbicides, Fertilizers

#### *Activities and Definition*

Parks Department uses pesticides, herbicides and fertilizers in order to manage vegetation within park properties, considering their use practically necessary for the health and beauty of the parks.,

#### *Preparation*

- a. Crews will have essential chemical use certifications or operate under supervision of certified persons.
- b. Periodically calibrate fertilizer and pesticide application equipment, to avoid excessive application.
- c. Use pesticides only if there is an actual pest problem and periodically test soils for determining proper fertilizer use.
- d. Time and apply the application of fertilizers, herbicides or pesticides to coincide with the manufacturer's recommendations for best results ("Read the Label").
- e. Know the weather conditions. Do not use pesticides if rain is expected or if wind speeds are expected to be greater than 5 mph.

#### *Operation*

- a. Follow the manufacturer's recommendations for mixing, application and disposal ("Read the Label").
- b. Do not mix or prepare pesticides for application near storm drains. Preferably mix pesticides inside a protected area with impervious secondary containment (preferably indoors) so that spills or leaks will not contact soils.
- c. Employ techniques to minimize off-target application (e.g. spray drift, over broadcasting) of pesticides and fertilizers. Avoid spray on hard surfaces that transport rainwater to curbs, gutters and storm drains.

#### *Schedule*

- a. As needed; according to season and intended use of space.

#### *Clean-up/Fallow-up/Disposal*

- a. Sweep pavements or sidewalks where fertilizers or other solid chemicals have fallen, back onto grassy areas before applying irrigation water.

- b. Double or triple rinse containers and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- c. Follow federal and state regulations governing use, storage and disposal of fertilizers, herbicides or pesticides and their containers ("Read the Label").

*Documentation*

- a. Keep copies of MSD sheets for all pesticides, fertilizers and other hazardous products used.
- b. Keep records of fertilizer and pesticide application activities, including date, individual who did the application, amount of product used and approximate area covered.

## 2.4. Parks - Cleaning Equipment

### *Activities and Definition*

Keeping equipment clean tends to improve function and prolong useful life of equipment. Goal is that cleaning be a daily activity with the use of equipment.

### *Operation*

- a. Wipe off dirt, dust and fluids with disposable towel.
- b. Wash equipment in approved wash station.
- c. May rinse grass, dirt and other natural debris into grassy area where water will be absorbed into ground. Small amounts of soap allowed that can be absorbed in ground. Monitor vegetation for signs of stress and changes practices to prevent damage to vegetation.
- d. No discharge to storm sewer system or to where soaps or pollutants would be washed into storm sewer or stream.

### *Schedule*

- a. Keep short accounts. Keep equipment clean daily as much as possible.

### *Clean-up/Fallow-up*

- a. Dispose of towels in proper trash receptacle
- b. Sweep surfaces and dispose of debris.
- c. Monitor vegetation for signs of stress and changes practices to prevent damage to vegetation.

## 2.5. Parks/Golf - Open Space Management (ref. stormwater ponds and features)

### *Activities and Definition*

Park lands with stormwater ponds and other stormwater control measures, including flood relief spaces.

### *Preparation*

- a. Provide a regular observation and maintenance of parks, golf courses, other public open spaces.
- b. Identify public open spaces that are used for stormwater detention and verify that detention areas are included on the storm drain system mapping, inspection schedules, and maintenance schedules. See City's online GIS maps and turn on Stormwater features. And/or check with City's stormwater staff with Water Resources who maintain the system map. Currently Josh Upham, x 3110.

### *Operation*

- a. Periodically check pond banks, concrete features, incoming and outgoing pipes for integrity of the system.
- b. Preferred mow height of grass is at least six inches on pond banks. This to avoid scalping and to encourage deeper roots. Mow different patterns to avoid causing ruts.
- c. Avoid placing bark mulch (or other floatable landscaping materials) in stormwater detention areas or other areas where stormwater runoff can carry the mulch into the storm drainage system.
- d. Follow all SOPs related to irrigation, mowing, landscaping, and pet waste management.

### *Schedule*

- a. Certain ponds may have forebays that will need to be cleaned of sediment perhaps once per year or two. Monitor buildup of sediment. Contact City's/MWRD's storm water manager for more information. Goal is to keep forebay at less than 50% sediment capacity.
- b. Ponds without a forebay may require de-mucking at a five to 20 year schedule. Monitor. Contact City's/MWRD's stormwater manager for more information.

### *Clean-up/Fallow-up*

- a. Keep all outdoor work areas neat and tidy. Clean by sweeping instead of washing whenever possible. If areas must be washed, ensure that wash water will enter a landscaped area rather than the storm drain. Do not use soap for outdoor washing.
- b. Pick up trash on a regular basis.

### *Documentation*

- a. Use pond maintenance checklist contained in PPGH manual once or twice per year to inspect ponds.

## 2.6. Parks - Pet Waste

### *Activities and Definition*

Pet waste has the potential to be a contributor to downstream degradation if not maintained and properly disposed of.

### *Preparation*

- a. Maintain signage and educate visitors of City Code re: pet waste.
- b. Avoid designating public off-leash areas near streams and water bodies.
- c. Where practicable, maintain dispensers for pet waste bags and provide disposal containers at locations such as trail heads or parks where pet waste has been a



problem. Provide signs with instructions for proper cleanup and disposal.

#### *Operation*

- a. Check parks and trails for pet waste as needed.
- b. Check public open space for pet waste prior to mowing and watering.
- c. Provide ordinance enforcement as needed.

#### *Clean up /disposal*

- a. Remove all pet waste; provide temporary storage in a covered waste container and dispose of properly. Preferred method of disposal is at a solid waste pick-up or disposal facility.

### 2.7. Streets/MWRD - Catch Basin Cleaning

#### *Activities and Definition*

Cleaning catch basins is important for longevity of structure, for function of system (MS4), for capturing sediment (if basin with sump), and for removing potential pollution sources.

#### *Preparation*

- a. Clean sediment and trash off grate.
- b. Do visual inspection on outside of grate.
- c. Make sure nothing needs to be replaced.
- d. Do inside visual inspection to see what needs to be cleaned.

#### *Operation*

- a. Clean using a high-powered vacuum truck to vacuum standing water and sediment.
- b. Use a high-pressure washer to clean any remaining material out of catch basin, while capturing the slurry with the vacuum.
- c. After catch basin is clean, send the jetter device downstream to pull back sediment, if any was washed downgradient during process.
- d. Move truck downstream/downgradient to next catch basin.

#### *Schedule*

- a. Inspections of catch basins performed 2-4 times per year on average:
  - City is divided into 8 areas.
  - Within each area, Street Department staff visually inspect, and clean as necessary, the catch basins twice per year.
  - Also, staff will do inspections – especially of problem catch basins – prior to heavy storms.
  - Problems identified by inspection during rain events
  - CCTV crews working on schedule a map of the MS4

- b. Cleaning based on historical record of need; and as identified by inspections.

*Clean-up /Fallow-up / Disposal*

- a. When vacuum truck is full of sediment, take it to the designated location to dump all the sediment out of truck into a drying bed.
- b. When it evaporates, clean it up with a backhoe/skid loader, put it into dump truck and take to landfill.

*Documentation*

- a. Keep log of which (locations) catch basins cleaned.
- b. Record the amount of waste collected.
- c. Make notes of unusual conditions and problems that need follow-up.
- d. Document the location where material is disposed.

2.8. Detention Pond Inspections and Cleaning

*Activities and Definition*

The City owns and operates several detention ponds, which require removal of trash, maintenance of vegetation/landscaping (mowing, invasive plant management) and on infrequent basis, de-mucking. Pond collect trash, grit from asphalt, oil, chemicals in runoff from landscaping, sediment from erosion and dust, all depending on activities within the catchment.

The Department responsible for managing the area where the pond is located (e.g., Parks, Golf, Water Resources, Street) will be the front-line-observer of the pond and responsible for removing trash and debris that might block outlet, and for controlling vegetation; and for periodically inspecting the pond and determining need for more extensive maintenance. Call the City's stormwater coordinator for assistance. (615) 848-3200. (615) 642-0783.

De-mucking of pond is desired when capacity is reduced by 25%; and necessary when capacity is reduced by 50%. For City ponds, contact the Street Department about de-mucking ponds.

*Preparation*

- a. Schedule cleaning and de-mucking work for a time when dry weather is expected.
- b. Remove sediment and trash from grates, placing it in a truck for disposal.
- c. Do a visual inspection to make sure any grates, structures, manholes, and pipes are in good working order. Remove manhole covers and grates as necessary for inspecting.

### *Process*

- a. Provide outlet protection where feasible to minimize the amount of debris that might leave basin during cleaning process.
- b. Start cleaning basin by using backhoe to remove debris and sediment off the bottom.
- c. Continue cleaning structures and pond bottom as necessary by sweeping and shoveling.
- d. Put all material removed from the pond into a dump truck.
- e. Some structures might require use of a vacuum truck. If so use the same procedures described for cleaning catch basins.

### *Schedule*

- a. Inspections : quarterly
- b. Trash and debris cleaning: quarterly or as needed; check after large storms
- c. Vegetation management: quarterly and monthly in growing season; or as needed for presentation and aesthetics
- d. Ponds with forebays : cleaning/de-mucking forebay recommended at 50% capacity and necessary at 75% capacity; expected frequency, once/3-5 years
- e. De-mucking : when 25% to 50% capacity reduced; expected frequency, 15-25 years

### *Disposal / Clean-up/ Follow-up*

- a. After cleaning basins, clean off the concrete pads using dry methods (sweeping and shoveling)
- b. Make sure they are swept up and clean.
- c. Take the material that was removed to the landfill for final disposal.

### *Documentation*

- a. Keep logs of each detention basins/pond cleaned including date, individuals involved in cleaning, and a description of the type of debris removed.
- b. Record the amount of waste collected.
- c. Keep any notes or comments of any problems.

## 2.9. Streets – Stream Work

### *Activities and Definition*

Murfreesboro is located on a flat karst terrain that includes sinkholes and fissures in the limestone rocks on which the city sits. Sinking Creek, as an example, is so named because in places the stream sinks into the crevices in the limestone. Other streams and wet weather conveyances have the same karstic character.

### *Operation – Policies and Procedures*

See memo, *Planning and Maintenance Practices in Emergent Streams*,” July, 2019, which provides guidance on how the City (Street Department) should operate on and near these waters.

## 2.10. Streets - Ditch Management

### *Activities and Definition*

The Murfreesboro MS4 includes 329 miles of open ditches and swales (2019). The City’s Street Department is charged with maintaining these. Which involves occasionally removing debris, sediment, re-grading (returning ditch line to a consistent and proper grade) and restoring vegetation.

### *Preparation*

- a. Monitor ditches on a regular basis (annually).
- b. Maintain access to ditch channels wherever possible.

### *Process*

- a. Identify areas requiring maintenance.
- b. Contact affected property owners and utility owners.
- c. Determine what manpower or equipment will be required.
- d. Identify access and easements to area requiring maintenance.
- e. Determine method of maintenance that will be least damaging to the channel and adjacent properties or utilities.

### *Disposal / Clean-up/ Follow-up*

- a. Stabilize all disturbed soils.
- b. Remove all tracking from paved surfaces near maintenance site, if applicable.
- c. Haul all debris or sediment removed from area to approved dumping site.

### *Documentation*

- a. Keep record according to work order management system.

- b. Keep records in format (e.g. GIS) that allows visualizing, dating, and length of repair.

## 2.11. Streets - Overlays and Patching

### *Activities and Definition*

Pollutants collect on surfaces in between storm events as a result of atmospheric deposition, vehicle emissions, winter road maintenance, construction site debris, trash, road wear and tear. Overlays and patching are a part of the maintenance of these surfaces that help prolong the life of the roadway.

### *Preparation*

- a. Measure and mark locations of manholes and valves on the curb.
- b. Apply temporary covers to manholes and catch basins to prevent oil and materials from getting inside of them.
- c. Cracks should be properly sealed. Alligator cracks and potholes should be removed and patched. Rutting should be milled.
- d. Surface should be clean and dry.
- e. Uniform tack coat applied and cured prior to placement of overlay.
- f. If milling is required, install inlet protection as needed.

### *Process*

- a. Check hot asphalt mix for proper temperature, percentage asphalt, gradation, air voids, and any other agency requirements.
- b. Raise manhole lids and valves to elevation of new asphalt surface with riser rings.
- c. Surface texture should be uniform, no tearing or scuffing.
- d. Rolling should be done to achieve proper in-place air void specification.

### *Disposal / Clean-up / Follow-up*

- a. Remove coverings as soon as the threat of imported materials entering the system is reduced and prior to a storm event.
- b. After pavement has cooled, vacuum or sweep gutters to remove loose aggregate, for disposal with street sweepings.

### *Documentation*

- a. Keep record according to work order management system.

## 2.12. Streets – Maintenance of Road Shoulders, ROW (ref. *shouldering*)

### *Activities and Definition*

Maintenance of shoulders and adjacent vegetation serves to provide space for emergency vehicles and is important for beautification, for line-of-sight and safety.

Note also that right-of-way vegetation serves to capture and infiltrate some amount of runoff from the asphalt. These areas are front–line controls of stormwater runoff. We want to maximize infiltration and minimize erosion in the right-of-way.

*Goals:*

- stable, non-eroding right-of-way;
- healthy vegetation; e.g. grass height 4-8 inches generally.

*Preparation*

- a. Assess equipment and materials needed for repair.
- b. Set up temporary traffic control devices as necessary.

*Process*

- a. Place import material as needed and perform grading to achieve proper drainage.
- b. Mulch clippings to help reduce the amount of supplemental fertilizer required.

*Clean up / follow-up*

- a. Clean any loose material off asphalt or gutter.

*Documentation*

- a. Per work order management system, record location and date, etc.

## 2.13. Streets - Concrete Work

*Activities and Definition*

The use of concrete is a common practice for BMP maintenance, proper management of those materials is critical for pollution prevention.

*Preparation*

- a. Train employees and contractors in proper concrete waste management.
- b. Store dry and wet materials under cover, away from drainage areas.
- c. Remove any damaged concrete that may need to be replaced.
- d. Prepare and compact sub-base.
- e. Set forms and place any reinforcing steel that may be required.
- f. Determine how much new concrete will be needed.
- g. Locate or construct approved concrete washout facility.

*Process*

- a. Install inlet protection as needed.
- b. Avoid mixing excess amounts of fresh concrete on-site.

- c. Moisten sub-base just prior to placing new concrete. To help keep soil from wicking moisture out of the concrete into the ground.
- d. Place new concrete in forms.
- e. Consolidate new concrete.
- f. Screed off surface.
- g. Let concrete obtain its initial set.
- h. Apply appropriate surface finish.
- i. Remove forms when concrete will not slump.

*Clean-up/Fallow-up*

- a. Perform washout of concrete trucks and equipment in designated areas only.
- b. Wash out concrete in a way to avoid/prevent discharge into storm drains, open ditches, streets or streams.
- c. Cement and concrete dust from grinding activities is swept up and removed from the site.
- d. Remove dirt or debris from street and gutter.
- e. Materials collected disposed as with street sweepings.
- f. Back fill with proper soils and seed and straw same.

*Documentation*

- a. Per work order system.

2.14. Streets / Solid Waste – Garbage Storage

*Activities and Definition*

Illegal dumping of non-hazardous household waste and improper dumping of yard waste in streets, storm drains, wetlands, lakes, and other water bodies pollutes surface waters. Non-hazardous household waste includes items such as tires, furniture, common household appliances and other bulk items. Yard waste includes any organic debris such as grass clippings leaves, and tree branches.

*Preparation*

- a. Locate dumpsters and trash cans with lids in convenient, easily observable areas.
- b. Provide properly labeled recycling bins to reduce the amount of garbage disposed.
- c. Provide training to employees to prevent improper disposal of general trash.

*Process*

- a. Inspect garbage bins for leaks regularly, and have repair made asap by responsible party.
- b. Locate dumpsters on a flat, impervious surface that does not slope or drain directly into the storm drain system; preferably to a grassy area and/or SCM.

- c. Install berms, curbing or vegetation strips around storage areas to control water entering/leaving storage areas.
- d. Keep lids closed when not actively filling dumpster.

*Clean-up/Follow-up*

- a. Keep areas around dumpsters clean of all garbage.
- b. Have garbage bins emptied as often as needed to keep from overflowing.
- c. Wash out bins or dumpsters as needed to keep odors from becoming a problem. Wash out in properly designated areas only.

*Documentation*

- a. N/A



## 2.15. Streets - Snow Removal and De-icing

### *Activities and Definition*

Application of salt and sand to roads is considered important to safety of roads in wet, freezing cold weather. But chloride in road salt and road salt additives (e.g. ferro cyanide for anti-caking), which are readily dissolved in water and transported by runoff, can create toxic conditions for fish, insects and vegetation. Chloride does not degrade in soil and water. Fortunately, weather in Murfreesboro does not demand long-term repeated application of deicers.

### *Storage*

- a. Salt is stored under large, dome cover at Public Works facility on Florence Road; from which runoff is captured in detention basin.
- b. Salt lost to adjacent areas should be shoveled and swept back under cover.

### *Operations*

- a. Load material into trucks carefully to minimize spillage.
- b. Periodically dry sweep loading area to reduce the amount of de-icing materials exposed to runoff.
- c. Distribute the minimum amount of de-icing material to be effective on the roads.
- d. Do not allow spreaders to idle while distributing de-icing materials.
- e. Park trucks loaded with de-icing materials inside when possible.
- f. Calibrate spreaders to minimize amount of de-icing material used and still be effective.
- g. Provide drivers/vehicles with spill cleanup kits in case of ruptures of hydraulic line rupture or spill.
- h. Insofar as possible, clean up spills of material asap.

### *Disposal/Clean-up/Fallow-up*

- a. Sweep up all spilled de-icing material around loading area.
- b. Clean out trucks after snow/ice removal duty in approved washout area. No rinsing to directly to street or storm drain.
- c. If sand is used in de-icing operations, sweep up residual sand from streets when weather permits.

### *Documentation*

- a. Maintain record of what streets/areas treated and amount of deicer dispensed.

## 2.16. Streets - Street Sweeping

### *Activities and Definition*

Pollutants collect on surfaces in between storm events as a result of atmospheric deposition, vehicle emissions, winter road maintenance, construction site debris, trash, road wear and tear, and litter from adjacent lawn maintenance (grass clippings).

Sweeping – or cleaning – city roads, driveways and parking lots will remove these materials and keep them from being washed into storm sewers and surface waters.

Drivers and management should regularly dialogue on results of sweeping; with the goal to set timing and frequency of sweeping so that the sweeping is made to be most effective. Identify critical areas or hot spots, so to speak, taking into account nature of drainage network (are there grass channel sections between streets and stream), and quality of receiving stream.

### *Preparation*

- a. In general, prioritize routing for highest frequency in areas with the highest pollutant loading.
- b. Restrict street parking prior to and during sweeping.
- c. In areas where sweeping is not done year-round, increase sweeping frequency just before the rainy season.
- d. Perform preventative maintenance and services on sweepers to increase and maintain their efficiency.

### *Process*

- a. Streets are to be swept as needed or specified by the City.
- b. Street maps are used to ensure all streets are swept at a specific interval.
- c. Drive street sweeper safely and pick up debris.
- d. When full take sweeper to approved staging/cleaning station.

### *Schedule*

- a. Routine schedule is to clean curbed and guttered streets once per month.
- b. The City performs street sweeping for State right-of-way, according to an annual maintenance contract. Streets are swept on an eight-week cycle.

### *Disposal / Clean-up*

- a. Street sweepers are to be cleaned out in an approved street sweeper cleaning station.
- b. Street sweeping cleaning stations shall separate the solids from the liquids.
- c. Once solids have dried out, haul them to the local landfill.

- d. Prevent decant from entering storm drain or stream. Excess shall be collected for disposal, or directly disposed to wastewater collection system.
- e. Haul all dumped material to the landfill.

*Documentation*

- a. Maintain records of on-schedule (routine) and off-schedule (extra) cleanings accomplished.
- b. Keep record of amount of debris disposed.
- c. Tracking system (new, 2019) shows sweepers accomplish 20-40 miles per day of curb and gutter.

2.17. Streets - Transporting Soil and Gravel

*Activities and Definition*

Transportation of materials should be handled with pre-planning and contingency planning.

*Preparation*

- a. Dry out wet materials before transporting.
- b. Spray down dusty materials to keep from blowing.
- c. Make sure you know and understand the SWPPP requirements for the site you will be working at.
- d. Determine the location that the truck and other equipment will be cleaned afterwards.

*Process*

- a. Use a stabilized construction entrance to access or leave the site where materials are being transported to/from.
- b. Cover truck bed with a secured tarp before transporting.
- c. If site is regulated under City's land disturbance permit and/or State construction general permit, inquire as to SWPPP requirements for the specific site to/from which the materials are being hauled, and comply with those.
- d. Make sure not to overfill materials when loading trucks.

*Clean-up/Fallow-up*

- a. Use sweeper to clean up any materials tracked out on the roads from site.
- b. Washout truck and other equipment when needed in properly designated area.

*Schedule* : n/a; incidental, as-needed

*Documentation*

- a. Make note of significant incidents where material is tracked out of site. Note

what was done to clean it up, how long it took to clean up, and the weather conditions at the time (wet, dry, raining, etc.)

## 2.18. Golf – Mowing, Clearing and Mgt of Vegetation adjacent River and Streams

### *Activities and Definition*

Leaving vegetation to grow naturally adjacent rivers and streams offers protection to the health and sustainability of the stream. See the general policy on streamside buffers in the City’s stormwater PPGH manual.

Of course it is not possible at Old Fort Golf Course to let all riverbanks and buffers to grow naturally. Nevertheless, the superintendent can provide for natural growth, preferably native plants, adjacent the river, wherever practicable, whether an area 10 feet from top of bank, or up to 60 feet, which is the State-recommended buffer width on large or impaired streams.

Relevant activities include cutting of trees, clearing brush, application of herbicides, removal of invasive plants, planting vegetation, disposal of clippings and debris.

### *Preparation*

Identify:

- Riparian areas where low-growing vegetation is necessary for playability
- Riparian areas where vegetation can be left to grow naturally, with trees and underbrush, and to what width
- Places along river where an unobstructed view of the river is needed or desired; e.g. hole 14 might be thickly buffered except near green.
- Management of each section of riverbank
  - Width of riparian buffer
  - Knee high or less
  - Waist high
  - Shrubs and small trees w/o canopy trees
  - Canopy trees with minimal underbrush
  - Canopy trees with natural underbrush

Identify and target for removal:

- Invasive plants
  - Chinese privet (*Ligustrum sinense*) or other, non-native privet
  - Japanese honeysuckle (*Lonicera japonica*)

### *Process*

- Designate and map riparian management areas and communicate with crews the buffer management plan.
- Obtain and have available materials from removal of invasive plants (glyphosate, clippers); have golf course crews cut and poison invasive plants as time allows; and/or
- Encourage volunteers to adopt the golf course for invasive plant removal

*Disposal/Clean-up/Follow-up*

- Brush might be staged or disposed in riparian areas.
- No disposal of clippings, chemicals, waste materials that might be transported by rainfall or runoff toward the stream.

2.19. Golf – Use and Protection of Riparian Areas

*Activities and Definition*

The superintendent and maintenance crews should treat riparian areas with care, allowing as much vegetation as possible, and preventing erosion and contamination that might migrate to the stream.

In general, the guidance below reflects the protections in the City’s Water Quality Protection Area (WQPA) ordinance.

*Process*

- Avoid construction of structures or impervious surfaces in the WQPA.
- Observe for places of erosion in riparian areas and plan and provide for long-term solutions to stabilize those places.
- With respect to ditches or swales that convey storm runoff toward riparian areas, provide for and maintain stable channels.
- Restrict application of herbicides
  - Keep to minimum in riparian areas.
  - Use rapidly degradable chemicals.
  - Do not use for extensive killing of ground cover.
  - Use spot applications on invasive plants.
- Insofar as practicable, treat riparian areas as “no touch” areas.

*Clean-up/Fallow-up*

- No disposal of clippings, chemicals, waste materials that might be transported by rainfall or runoff toward the stream.

## 2.20. Vehicles - Fueling

### *Activities and Definition*

Fueling of equipment and vehicles should always occur in designated areas when possible. Establish spill prevention and emergency notice practices for fueling stations.

The City maintains two primary fueling stations: West Main Street adjacent Street Department; and at the public works facility on Florence Road; which are equipped with emergency shut-off switches.

### *Preparation*

- a. Keep employees trained on proper fueling methods and emergency-reporting and spill cleanup techniques.
- b. Spill kits should be present, or readily available, in places where fueling is routine.

### *Process*

- a. Shut off the engine
- b. Ensure that the fuel is the proper type of fuel for the vehicle.
- c. Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut off to prevent overfill.
- d. Fuel vehicle carefully to minimize drips to the ground.
- e. Fuel tanks shall not be topped off.
- f. Minimize practice of mobile fueling.
- g. When fueling small equipment from portable containers, fuel in an area away from storm drains and water bodies.

### *Clean-up/Follow-up*

- a. Immediately clean up spills using dry absorbent (e.g. kitty litter, sawdust), sweep up absorbent material and properly dispose of contaminated clean up materials. Contact Joey Smith of Solid Waste Department for questions about disposal.
- b. Large spills shall be contained as best as possible - with available spill kits. Contact Murfreesboro Fire and Rescue (911) if it is not possible to contain; and contact Street Department for assistance in clean-up of smaller, contained spills.

### *Documentation*

- a. Comply with underground storage tank records and monitoring requirements.

- b. Document training of employees.

## 2.21. Vehicles - Vehicle and Equipment Storage

### *Activities and Definition*

This addresses storage of vehicles and equipment. With the goal to prevent rainfall from contacting and transporting pollutants / hazardous material and washing them into the storm sewer system and stream.

### *Preparation*

- a. Establish storage areas with a view toward security.
- b. With respect to stormwater runoff, look for areas distant and disconnected (there are pervious/vegetated areas between storage and stream) from the storm sewer system and streams, insofar as practicable.
- c. Whenever possible, store vehicles inside where floor drains have been connected to sanitary sewer systems.
- d. Identify a person responsible for monitoring condition of storage area and for evidence of leaks, spills and/or polluted runoff.

### *Process*

- a. Provide drip pans or absorbents for leaking vehicles.
- b. Address known leaks or drips as soon as possible. When a leak is detected a drip pan will be placed under the leaking vehicle.
- c. Establish a practice for disposing of fluids collected from leaking vehicles: whether to clean with rag and dispose for garbage pick-up; or to recycle; etc.
- d. Clean up spills using dry methods.
- e. Never store leaking vehicles over a storm drain.

### *Schedule*

- a. Check vehicles and the storage location for stains/leaks on a regular basis, nominally once/quarter.

### *Disposal / Clean-up/ Follow-up*

- a. Any leaks that are spilled on the asphalt will be cleaned up with dry absorbent; the dry absorbent will be swept up and disposed of in the garbage.
- b. The paved surfaces around the building will be swept monthly, weather permitting.

### *Documentation*

- c. N/A



## 2.22. Vehicles and Equipment Washing

### *Activities and Definition*

Washing of vehicles – removing dust and dirt from the exterior of cars, trucks, buses, heavy equipment, as well as the cleaning of cargo areas and engines and other mechanical parts – generates oil, grease, sediment and metals in the wash water as well as degreasing solvents, cleaning solutions and detergents used in the cleaning operations.

Note that there is City ordinance and City policy prohibiting discharge of non-stormwater into the City’s storm sewer system and into streams. There are exceptions such as water line flushing, air conditioning condensate, fire-fighting activities; and there are cases when vehicles may be washed outdoors. See Stormwater Mgt. Plan document no. 06.041. And reference the City’s Stormwater-Related PPGH manual, where in Tab 2, Basic Principles and Policies are written.

As a rule, City cars and pickup trucks are to be washed at commercial establishments with which the City has a service contract.

### *Washing indoor or under cover*

- a. Preferred method of washing is indoors or under cover in a location where wash water will enter drain connected to sanitary sewer.
- b. Consider using dry method (e.g. brush, cloth, high pressure air) to dislodge gross materials for vehicles or equipment. Dispose of material so that it will not become a source of contamination to rainfall runoff.
- c. Where vehicles are washed in parking bays or workshops with drains plumbed to sanitary sewer, there must be screening and filtering applied to the wash water prior to entry to the sewerage. E.g. erosion eels or barrier/filter on floor prior to drain. Or grit chamber.
- d. If in-ground grit chamber is in place, the facility manager must have provision for cleaning/vacuuming the chamber.
- e. If washing indoors, do so where wash water will not flow outside.
- f. No vehicle washing will be done where the drain system is connected to the storm sewer system.

### *Washing outdoors*

- a. Washing outdoors is acceptable for washing airborne and other ambient sourced pollutants (e.g. road grit, grass, dirt).
- b. Wash in dry weather.
- c. No soaps.
- d. Use a minimum of water. High pressure is acceptable. Use hoses with auto-off nozzles.

- e. Arrange for water to flow to a well-vegetated, grassy area where it will soak into the ground.
- f. If necessary to wash on pavement that flows to a storm drain, set up a berm so that water can be captured. Allow water to dry or vacuum and dispose in sanitary sewerage.

*Disposal and Clean-up/Follow-up*

- a. Sweep wash areas after every washing to collect what solids can be collected to prevent them from washing down the drain system.
- b. Clean solids from the grit chambers or settling pits on an as needed basis.

*Documentation*

- a. N/A

2.23. Water Resources – Sanitary Sewer Overflows

*[Reference Water Resources Department protocols.]*

## 2.24. Water Resources - Planned Waterline Excavation Repair/Replacement

### *Activities and Definition*

Waterline excavation and repair of an MS4 system can potentially involve activities that could affect the health of the MS4 system. Planning is critical and all projects would require the development of a SWPPP for projects disturbing one acre or greater and for projects less than 1 acre at a minimum will require that erosion and sediment controls be included.

### *Preparation*

- a. Develop SWPPP.
- b. Obtain NPDES permit for project 1 acre or greater.
- c. Neutralize any chlorine residual before discharging water through natural aeration.

### *Process*

- a. Install erosion and sediment control.
- b. Provide stockpile perimeter control on pavements (e.g. compost logs, rock logs).
- c. Make efforts to keep water from pipeline from entering the excavation.
- d. Direct any discharge to pre-determined area.
- e. Backfill and compact excavation.
- f. Haul of excavated material or stock pile nearby.

### *Disposal / Clean-up/Follow-up*

- a. Clear gutter /waterway where water flowed.
- b. Clean up all areas around excavation.
- c. Clean up travel path of trucked material.
- d. Restore disturbed soils with seed and temporary erosion protection or sod.

### *Documentation*

- a. If project is covered under City land disturbance permit or State/TDEC construction general permit, erosion prevention and sediment control inspections are to be done twice per week, at least 72 hours apart.
- b. Amend the SWPPP as necessary to reflect changes that were necessary to control erosion throughout construction.

## 2.25. Water Resources - Unplanned Waterline Excavation Repair/Replacement

### *Activities and Definition*

Waterline Excavation and Repair of an MS4 system can potentially involve activities that could affect the health of the MS4 system. Unplanned excavations

can be additionally tricky and pre-planning is critical.

*Preparation*

- a. Make sure service trucks have wattles, gravel bags, or other materials for inlet protection.

*Process*

- a. Slow the discharge.
- b. Inspect flow path of discharge water.
- c. Protect water inlet areas.
- d. Follow planned repair procedures.
- e. Haul off spoils of excavation.
- f. Consider use of silt filter bags on pumps.

*Disposal / Clean-up/Follow-up*

- a. Repair eroded areas as needed.
- b. Follow planned repair procedures.
- c. Clean up the travel path of trucked excavated material.

*Documentation*

- a. Complete paperwork.

2.26. Water Resources - Transporting Dry Excavated Materials and Spoils

*Activities and Definition*

Transportation of materials should be handled with pre-planning and contingency planning.

*Preparation*

- a. Utilize truck with proper containment of materials.
- b. Determine disposal site of excavated materials.

*Process*

- a. Load
- b. Check truck after loading for possible spillage.
- c. Transport in manner to eliminate spillage and tracking.
- d. Utilize one route for transporting.

*Clean-up/Follow-up*

- a. Clean loading area.
- b. Clean transporting route.
- c. Wash off truck and other equipment in a designated equipment cleaning area.

*Documentation*

- a. Complete paperwork.

2.27. Water Resources - Transporting Wet Excavated Materials & Spoils

*Activities and Definition*

Transportation of materials should be handled with pre-planning and contingency planning.

*Preparation*

- a. Utilize truck with containment for material.
- b. Determine disposal site of excavated material.

*Process*

- a. Load and transport in manner to minimize spillage & tracking of material.
- b. Check truck for spillage.
- c. Utilize one route of transport.

*Clean-up/Fallow-up*

- a. Clean route of transport to provide cleaning of any spilled material.
- b. Washout equipment truck and other equipment in designated wash area.

*Documentation*

- a. Complete paperwork.

2.28. Water Resources - Waterline Flushing for Routine Maintenance

*Activities and Definition*

Flushing is a process that rapidly removes water from the City's water piping system. Flushing uses water force to scour out materials that accumulate in the City's pipes. Water pipes are usually flushed by opening fire hydrants, where the discharged water flows off the streets the same as rainwater.

*Preparation*

- a. Determine flow path of discharge to inlet of waterway.
- b. Determine chlorine residual.
- c. Chlorine residual is neutralized through natural aeration.

*Process*

- a. Clean flow path.
- b. Protect inlet structures.
- c. Use diffuser to dissipate pressure to reduce erosion possibilities.

*Clean-up/Fallow-up*

- a. Clean flow path.
- b. Remove inlet protection

*Documentation*

- a. Residual tests of discharge water.
- b. Complete paperwork.

2.29. Water Resources - Waterline Flushing after Construction/System Disinfection

*Activities and Definition*

Flushing is a process that rapidly removes water from the City's water piping system. Flushing uses water force to scour out materials that accumulate in the City's pipes. Water pipes are usually flushed by opening fire hydrants, where the discharged water flows off the streets the same as rainwater. These projects are done as part of overall road reconstruction projects and utility projects and will be the contractor's responsibility to follow the procedures outlined below.

*Preparation*

- a. Determine chlorine content of discharge water and select de-chlorination equipment to be used.
- b. Determine flow path of discharge.

*Process*

- a. Protect inlets in flow path.
- b. Install de-chlorination equipment.
- c. Sweep and clean flow path.
- d. Use diffuser to reduce velocities.

*Clean-up/Fallow-up*

- a. Pick up inlet protection.
- b. Clean flow paths.
- c. Remove equipment from flush point.

*Documentation*

- a. Residual tests of discharge water.
- b. Complete paperwork.

## 2.30. Water Resources - Chemical Handling/Transporting and Spill Release

### *Activities and Definition*

Hotspot facilities are facilities that produce higher levels of stormwater pollutants and/or present a higher potential risk for spills, leaks or illicit discharges. Hazardous material storage and handling is of particular concern in these areas.

### *Preparation*

- a. Understand MDS sheets for handling of product.
- b. Determine proper place of handling.
- c. Have necessary containment and spill kits at handling place.

### *Process*

- a. Begin transfer process.
- b. Discontinue operations if a spill level occurs.
- c. Disconnect and store handling equipment.

### *Clean-up/Follow-up*

- a. Clean up spills with proper material.
- b. Dispose of contaminated material at appropriate facility.

### *Documentation*

- a. Report spills to duty officer.
- b. Complete paperwork.

## 2.31. Water Resources – Clearing easements for maintenance access

### *Activities and Definition*

Water and sewer pipelines are located within easements to the benefit of the Water Resources Department so that the Department can access the lines for maintenance and repair. The Department must occasionally clear trees and brush in the easement or else vegetation will become so thick as to prevent ready access. For sewer easements this clearing will often be adjacent streams and could be within WQPAs.

### *Best Practices*

- a. Keep the width of clearing to the minimum necessary. 20 feet or less if possible.
- b. If and where possible, favor clearing on the upland (away-from-stream) side of easement.
- c. Don't use, or restrict application of, herbicides.
  - Keep to minimum in riparian areas.
  - Use rapidly degradable chemicals.
  - Do not use for extensive killing of ground cover.

- Use spot applications on invasive plants.
- d. Mulch woody vegetation in place if possible.
- e. Consider the possibility of planting all or a part of the maintenance access corridor in grasses, native grasses.
- f. Be aware of where the regulated WQPAs are. Check City's GIS layer for easements and look for the WQPA easement. And/or consult with MWRD stormwater staff for this information.
- g. If planning time allows, consult with stormwater program staff who can recon the corridor to be cleared and point out critical areas/high-value vegetation and/or low value vegetation.

*Clean-up/Follow-up*

- No disposal of clippings, chemicals, waste materials that might be washed by rainfall or runoff toward the stream.

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