Storm and Drainage Water Best Practices Manual

TROY MUNICIPAL FACILITIES

2023

Table of Contents

Appendices

Appendix A – 2022 City of Troy Municipal Facilities with Potential Stormwater Polluting Activities
Appendix B – MS4 Infrastructure Operations & Maintenance SOPs
Appendix C – Important Contacts
Appendix D – Links

List of Tables

Fairground Park

Cuivre River State Park

INTRODUCTION

OBJECTIVES

The objectives of this manual are to:

- Provide a general guidance document detailing ways to reduce stormwater-transported pollution during typical activities on municipally-owned properties; and
- Promote behavior that will improve water quality in the City of Troy.

This pollution prevention manual includes "best practices" for municipal facilities that are not typically regulated under specific Environmental Protection Agency (EPA) or state permit programs (i.e., wastewater treatment facilities, incinerators, etc.)

The focus of this manual is on facilities that may have activities with the potential to contribute to stormwater pollution through common day-to-day activities but are not considered industrial in nature.

This manual should be maintained by the Stormwater Coordinator. Each appropriate facility manager or department lead of the City of Troy's municipally owned properties should know how to retrieve a paper or digital copy. It is the expectation of the EPA, under your community's Clean Water Act permit obligations, that staff, contractors, and operators of municipally-owned properties are informed of their role in pollution prevention and follow simple best practices to minimize their potential of polluting surface waters and groundwater in Troy.

This pollution prevention manual has been developed to address the requirements of the Missouri Department of Natural Resources (MDNR) General State Operating Permit for Troy. This manual is intended to provide general guidance to municipal staff. In any instance where these best practices and City regulations conflict, or City regulations are more stringent, City regulations shall govern. Individual City-owned facilities may require more specific stormwater pollution prevention plans under future MS4 permit conditions or at the request of regulatory agencies.

Table 1-1, below, lists common municipal facilities that are subject to implement the best practices in this manual. Appendix A contains a list of municipal facilities in Troy where these best practices are applicable.

Table 1-1: Typical Municipal Facilities in Missouri

Public Works and Other Fleet Maintenance Facilities
Solid Waste Transfer Facilities
Parks, Athletic Fields, Cemeteries, and Golf Courses
Public Buildings (Police, Fire, Schools, Libraries, Recreation, Stadiums)
Public Parking Facilities

WHAT IS STORMWATER?

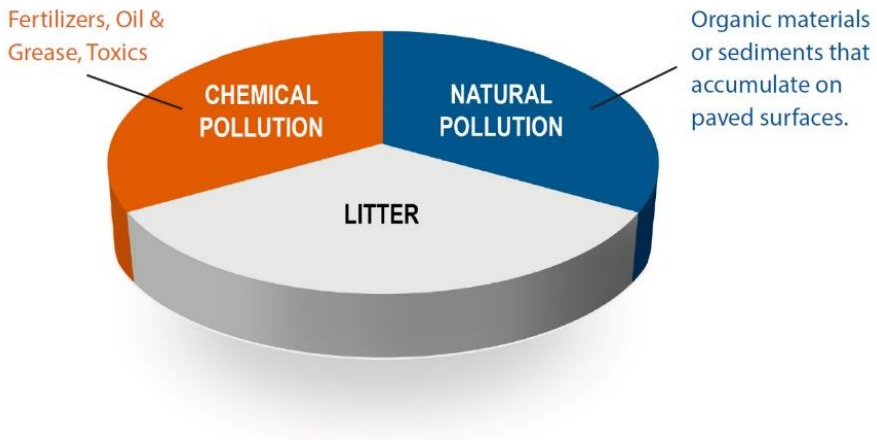
Impervious cover is any surface that cannot effectively absorb or infiltrate rainfall. This includes driveways, roads, parking lots, rooftops, and sidewalks. In natural landscapes, rainfall is typically absorbed into the

Stormwater is runoff water from rain or melting snow that flows across a landscape. Runoff flows from rooftops, paved areas, bare soils, and lawns and gets conveyed via drainage systems that can include catch basins, manholes, pipes, and swales to waterbodies, including ponds, lakes, streams, rivers, and eventually oceans.

Pollution transported via stormwater runoff is currently one of the most significant sources of pollutants to the nation's waters. It is the responsibility of individuals to reduce many of these pollutants through pollution prevention measures.

Stormwater-transported pollution can be divided into three general categories: natural pollution, chemical pollution, and litter. Natural pollutants include organic materials like leaves and sediment. Chemical pollutants include items such as oils, greases, detergents, paints, and fertilizers. Litter, such as plastic bags, cigarettes,
and trash, is the third type of typical stormwater pollutant. Table 1-2 shows these three general forms of stormwater pollution and Table 1-3 describes more specific pollutant sources that are most common in municipal facility settings.

Table 1-2: Three General Forms of Stormwater Pollution



POLLUTANTS OF CONCERN

Table 1-3: Common Stormwater Pollutant, Sources, and Impacts

Pollutant	Sources	Impacts
Sediment	Non-vegetated areas; construction sites; eroding slopes or ditches; winter sand application; vehicle/equipment washing.	Destruction of plant and fish habitat; transportation of attached oils, nutrients and other pollutants; increased maintenance costs during drainage system cleaning.
Nutrients (phosphorus, nitrogen)	Rainfall; fertilizers; eroding soils; on-site wastewater systems; bird, wildlife and pet waste; vehicle/equipment washing; grass and leaves; sewer leaks; leaking trash containers.	Increased potential for nuisance or toxic algal blooms; increased potential for hypoxia/anoxia (i.e. low levels of dissolved oxygen which can kill aquatic organisms).
Hydrocarbons (Polycyclic Aromatic Hydrocarbons)	Vehicle and equipment leaks; vehicle and equipment emissions; pesticides; fuel spills; equipment cleaning; improper fuel storage and disposal.	Toxic.
Heavy Metals	Vehicle brake and tire wear; vehicle/ equipment exhaust; batteries; galvanized metal; paint and wood preservatives; light bulbs, e-waste; batteries; fuels; pesticides; cleaners.	Toxic; drinking water contamination.
Pathogens	Bird, wildlife, and pet wastes; on-site wastewater systems; sewer leaks and backups; leaking trash containers.	Risk to human health leading to closure of swimming areas; drinking water contamination.
Toxic Chemicals	Herbicides, Pesticides, Dioxins, and PCBs, from landscape	Toxic.

	maintenance, equipment and vehicle maintenance/wear, spills, illegal discharges and leaks.	
Debris/Litter	Improper waste disposal and storage; leaking rubbish containers; cigarette butts; littering.	Unsightly, nuisance for drainage system functionality and potential risk to human and aquatic life.

Troy High School

PARKS AND OPEN SPACE

EROSION PREVENTION AND SEDIMENT CONTROL

Erosion Prevention Recommended Procedures:

Prevent erosion by maintaining vegetative cover through the growth and maintenance of healthy native or non-invasive plants that have extensive root structures.

- Prevent erosion by covering bare soil with either a mix of loam and seed to develop a vegetative cover or with rocks, mulch, or other protective covering.
- Repair damage to landscaped, bare, and poorly vegetated areas as soon as possible to prevent erosion. If signs of erosion are present, repair them as soon as possible. Prioritize repairing eroded areas within 50 feet of surface water (e.g., river, pond, lake).
- Use erosion control techniques and/or devices to temporarily stabilize disturbed areas prior to vegetative establishment and to protect all storm drain systems from scour. This could include erosion control blankets or matting.
    - Refer to the Missouri Department of Transportation's (MODOT's) list of qualified construction materials to find a list of approved fabrics:

      https://www.modot.org/materials-qualified-lists
    - More detailed erosion control information can be found in the City of Troy's Erosion and Sediment Control Regulations:

      https://ecode360.com/attachment/TR3452/TR3452-525a%20App%20A.pdf
- Design requirements for plant selection can be referenced in the MDNR "Protecting Water Quality" Field Guide:

  Protecting Water Quality Field Guide | Missouri Department of Natural Resources (mo.gov)

Scour is created when high velocity stormwater erodes the soil that it is flowing over. This can be prevented by installing permanent reinforcing fabrics, crushed angular stone, or reducing the velocity or volume of water within the

- Further information regarding plant selection based on their native status to the location can be found in the Missouri Prairie Foundation's Grow Native Program:

  Keeping Nature Near - Grow Native!

- Inspect areas that abut snow plowing lanes for damages that may have occurred during the winter months as soon as possible after snowmelt. If damage has occurred, these areas will need to be revegetated or protected from further erosion with angular stone, curbing, or other forms of reinforcement.

Sediment Control Recommended Procedures:

- Sweep up sediment, debris, and residue regularly from paved areas. Increase sweeping frequencies near loading/unloading operations and in high traffic areas. Note where catch basin sumps are consistently more than 50% full and target the vicinity of these locations with increased sweeping frequencies.

Avoid washing sediments into storm drain systems.

- Keep paved areas adjacent to stockpiles and earthwork construction sites free from loose sediment and tracked materials. Establish temporary sediment control devices or stabilization measures in areas where stockpiles and exposed soil may migrate into storm drain systems.
- Keep stockpiled materials covered when not in use to minimize the transfer of sediment or other pollutants to the storm drain system. This can be done with tarps, berming, or sandbags. Stockpiles can also be sprayed with bonded fiber matrix and/or hydroseed where practicable. Surround stockpiled materials with straw wattles, hay bales, or similar measures where practicable.
- Place stockpiled materials downgradient and/or as far as practicable from storm drain inlets, drainage paths, and natural waterways.

- Inspect stockpiles regularly and after significant rain events to ensure that the sediment or pollutant control devices functioned effectively. Repair any damages to the system.

LAWN CARE AND LANDSCAPE MAINTENANCE

The goal of this document is to provide general guidance to reduce stormwater-generated pollution from lawns and landscapes maintained by municipal staff.

Landscaping Recommended Procedures:

- Take into account soil types, available sunlight, drainage capabilities, maintenance, budget, and impact on water quality when designing new landscaped areas.
- Take specific caution to not plant large tree varieties underneath overhead wires or in places where they will obstruct driving site distances. Do not plant trees with high water demands near sewer and storm drain piping.
- Minimize erosion-prone steep slopes by using techniques such as terracing.
- When establishing new plantings, consider using alternative materials such as drought-resistant or native plantings to reduce the need for irrigation and extensive application of fertilizers and pesticides.

Mowing Recommended Procedures:

- Remove debris and trash from areas prior to mowing.
- Perform mowing at optimal times; Mowing should not be performed if significant rain events are predicted to avoid rutting and creating erosion-sensitive areas.
- Mow as high as possible, ideally at 3”– 4” above the ground. Vary mowing patterns.

Allow appropriate areas to grow into meadows or fields and mow once or twice per year rather than weekly where possible. Consider converting unused lawn areas to forest.

- Keep mower blades sharpened to avoid damaging grass leaf tissue.
- If possible, establish mowing set-back distances from pavement, storm drains, and waterbodies.

- Collect grass clippings and leaves after mowing. Do not blow or wash them into the street, gutter, storm drains or surface water. Sweep any clippings off impervious surfaces and away from storm drains back onto the lawn. Properly dispose of organic waste after mowing, weeding, and trimming.
- Never refuel, change the mower oil, or brush or hose off mowers near a storm drain or surface water.

Irrigation Recommended Procedures:

- Irrigate only when necessary based on moisture content and not on a fixed schedule. Irrigate at a rate that can infiltrate into the soil to limit water runoff. Most lawns rarely need watering except for a few weeks in the summer.
- Irrigate at appropriate times when no rain is forecasted.
- Repair broken sprinkler heads as soon as possible.
- Avoid irrigating close to impervious surfaces such as parking lots and sidewalks.

PROPER USE, STORAGE, AND DISPOSAL OF PESTICIDES AND FERTILIZERS

The EPA defines a pesticide as any substance intended for preventing, destroying, repelling, or mitigating any pest. Pests can include insects, animals, unwanted plants, fungi, bacteria, etc. The term applies to insecticides, herbicides

Pesticide Use Recommended Procedures:

- The MDNR administers pesticide regulations and licensing.
- Pesticides shall be used in accordance with all state and local regulations, including, but not limited to:
  - 2 CSR 70-25.100 – Certification and Licensing of Pesticide Applicators: https://agriculture.mo.gov/plants/pdf/pesticideuseact.pdf
    - The category that applies to public operators and noncommercial applicators is "Demonstration and Research Pest Control."
    - Every public operator, commercial, and noncommercial applicator who uses or supervises the use of a restricted or state-limited use pesticide in any of these categories must be certified for that category.
  - 2 CSR 70-25.100.5(F) – Right-of-Way Pest Control: https://agriculture.mo.gov/plants/pdf/pesticideuseact.pdf
    - No person shall use a pesticide for the purpose of clearing or maintaining a right-of-way unless appropriately certified by the Missouri Department of Agriculture (MDA) or licensed by MDA and working under the on-site supervision of an appropriately certified applicator.
  - Pesticide Application Permit: https://agriculture.mo.gov/plants/pdf/pest_app_for_reg.pdf
    - Provides coverage for pesticide application activities including: Mosquito and Other Flying Insect Pest Control, Aquatic Weed and Algae Control, Aquatic Nuisance Animal Control, and Forest Canopy Pest Control.

Pesticides may only be applied by licensed applicators and in accordance with 2 CSR 70.25 and MOG-870000.

Missouri Pesticide Control

573-751-5504

https://agriculture.mo.gov/plants/pesticides

- In order to determine if a permit is required, the applicant must meet or exceed one of the permit thresholds for any of the pesticide use patterns during a calendar year.

- Municipal employees must be trained, certified, and licensed in pesticide application before working with any pesticide. Municipal employees should always use the appropriate Personal Protective Equipment (PPE) when handling pesticides; proper PPE should be listed on the product label.
- Refer to the Missouri Pesticide Use Act, Administrative Rules, and Registration Act for more information regarding pesticide examination and licensing, enforcement, product registration, licensed applicators, use, storage, disposal, laws, regulations, and more.

Test your soil to find fertilization needs and application rates. The University of Missouri Soil and Plant Testing Laboratory provides these services:

Soil and Plant Testing Laboratory
1100 University Ave.
Columbia, MO 65211

(573) 882-0623

https://extension.missouri.edu/programs/soil-and-plant-testing-laboratory

Fertilizer Use Recommended Procedures:

- All fertilizers products sold in Missouri must be permitted through the Missouri Fertilizer Control Board (MoFCB) to uphold quality control.
- Soil testing should be performed by qualified personnel before using a fertilizer. Using the right type and amount of fertilizer for the location will help ensure that the proper nutrients are absorbed by the plants and will reduce runoff. Soil testing is recommended every 3 years for turf and plantings and every year for soil where phosphorus-containing fertilizers are used.
- Choose a fertilizer that has at least 40–60% of the nitrogen in a slow-release form, such as sulfur-coated urea, polymer coated urea, composted organics, etc. Table 2-1, below, gives an overview of the impact nutrients can have on aquatic environments. Refer to the University of Missouri Department of Agronomy and Horticulture's guidance on nutrient management for turf: https://extension.missouri.edu/publications/g6954
- Municipal employees should always use the appropriate PPE when handling fertilizer; proper PPE should be listed on the product label.
- Fertilizers should always be applied in strict accordance with the manufacturer's instructions and local regulations. Never over-apply these materials.

- Aerate grassy areas to improve infiltration and soil health.
- Time fertilizer application for maximum plant uptake, usually in the fall and spring. Fertilize when soil is moist to help the fertilizer infiltrate into the root zone. Do not apply fertilizer before heavy rain or when soil is frozen.
- Calibrate application equipment regularly to ensure proper application and loading rates.
- Avoid applying fertilizer near pavement. Sweep any fertilizer off pavement and dispose of according to the manufacturer's specifications.
- Limit irrigation after fertilizer application to prevent runoff; limit to approximately 0.5-inch of water per application for a week following application.
- Properly dispose of fertilizer bags according to manufacturer's specifications and applicable regulations.

Table 2-1: Nutrient Benefits and Impacts to Aquatic Environments

Nutrient	Benefits to Plants	Impacts to Aquatic Environments
Nitrogen (N)	Needed for healthy green growth and regulation of other nutrients.	Increased potential for nuisance or toxic algal blooms in salt water; increased potential for hypoxia/anoxia (low levels of dissolved oxygen, which can kill aquatic organisms).
Phosphorus (P)	Helps seeds to develop proper roots and to resist disease.	Increased potential for nuisance or toxic algal blooms in fresh waters; increased potential for hypoxia/anoxia (low levels of dissolved oxygen which can kill aquatic organisms).
Potassium (K)	Important for root development and helps resist disease.	Slightly hazardous to aquatic organisms.

Pesticide and Fertilizer Storage and Disposal Recommended Procedures:

- Store pesticides and fertilizers in well-ventilated, insulated, cool, and dry locations, according to the manufacturer's specifications and applicable building codes, fire codes, and other regulations.

- Flammable products should be stored separately from non-flammable products in a fire-proof cabinet.
- Small quantities of pesticides should be stored in double-walled, 18-gauge sheet metal cabinets.
- Large quantities of pesticides should be stored in a prefabricated Hazardous Material Storage building or in a purpose-built storage facility.
- Lock pesticide storage areas while not in use and display a sign to warn people of the presence of pesticides.
- Storage areas and buildings should have a 2-hour fire rating and be impervious to the stored materials. Floors should be impervious and provide spill containment.
- Label all containers with contents and purchase date.
- Never leave unlabeled or unstable pesticides and fertilizers at the storage site.
- Maintain an up-to-date inventory of all pesticides and fertilizers at all storage sites.
- Order only the amount of materials needed to minimize excess materials which would require storage or disposal.
- Order materials for delivery as close to the time of use as possible to reduce the amount of chemicals in storage.
- Regularly inspect pesticide and fertilizer storage areas for leaks or spills.

If a spill or leak does occur with pesticides or fertilizers, follow the clean-up procedures described in the Spill Prevention and Cleanup section of this manual.

- Cleanup spills and leaks of pesticides, herbicides, and fertilizers quickly to prevent them from reaching the storm drain system.
- Properly dispose of pesticides, herbicides, fertilizers, and associated waste materials in accordance with the manufacturer's specifications and applicable regulations.

- Never dispose of pesticides, herbicides, or fertilizers in drainage swales, gutters, storm drains, or surface water.

ATHLETIC FIELD MAINTENANCE

Athletic Field Irrigation Recommended Procedures:

- Athletic Fields typically need an inch of water per week; sand-based fields may require increased amounts of water during hot weather months.
- Avoid over-irrigating the field.
- Irrigation should occur on an as-needed basis. Soil moisture probes can be utilized to determine an appropriate timeline for irrigation.

Athletic Field Mowing Recommended Procedures:

- Sharpen blades as necessary and/or adjust reels prior to every mowing event.
- Sweep any lawn clippings off impervious surfaces and back onto the lawn, away
  from storm drains.
- Mow no more than one-third the average grass blade length at any given time.
- Optimum grass heights vary depending on sport and time of year but should ultimately be shortest in the spring and longest in the summer months.
  Soccer fields typically require shorter grass than baseball fields. Refer to the baseball field maintenance link below for more information on common types of grasses and suggested mowing heights:
  http://www.mlb.com/documents/5/6/6/262918566/field_maintenance_guide_english.pdf
- Weed control can be accomplished through physical or chemical methods (as allowable under state and local regulations and policies). If chemical weed control is performed, the chemical should be spot-applied and special attention should be taken to ensure the area receives the amount of downtime required after application. Extensive chemical weed control measures are most effective in the fall after sports seasons have ended and the vegetation is still actively growing.

Athletic Field Fertilizing Recommended Procedures:

- Follow the guidelines provided in the Fertilizer section of this manual.

PORTABLE TOILET MANAGEMENT

Portable toilets have the potential to spill and release pollutants such as organic matter, bacteria, and disinfectants into stormwater collection systems.

Portable Toilet Location Recommended Procedures:

- Place portable toilets on flat and stable surfaces.
- Secure portable toilets to the ground with stakes to reduce the chances of the toilets being knocked or blown over.
- Avoid placing portable toilets near storm drains or on impervious surfaces that would quickly transport leaks or spills to storm drains. Gravel, sand, and grass surfaces are recommended for portable toilet placement. If placing portable toilets near storm drains or on impervious surfaces is unavoidable, provide secondary containment for leaks and spills.

Portable toilets shall never be placed directly on top of a storm drain.

- Portable toilets should be located away from areas with high levels of vehicular traffic, but in areas that provide easy access for a pump truck and service staff to reduce the potential for spills during cleanings.

Portable Toilet Maintenance Recommended Procedures:

- Provide a cleaning and maintenance schedule for all public portable toilets. Ensure the schedule is followed.
- Check portable toilets regularly for damages, leaks, and spills.
- Damaged portable toilets must be repaired or replaced immediately.

PET WASTE MANAGEMENT

Pet waste has the potential to pollute stormwater with contaminants such as nutrients and pathogens.

Pet Waste Collection Recommended Procedures:

- Provide pet waste stations equipped with waste bags and covered disposal containers where pets are permitted.
- Post signs detailing proper disposal methods for pet waste.

Educating the public on the effects of abandoning pet waste or disposing of waste bags in catch basins is the most effective method of managing pet waste.

- Schedule routine garbage pickups from pet waste receptacles.

Pet Waste Management Recommended Procedures:

- During the summer, check parks and public trails for abandoned pet waste. Check public open spaces for pet waste prior to mowing and watering. Document pet waste problem areas to consider possible increased public education signs, pet waste stations, or enforcement actions.
- During catch basin cleaning, track locations of excessive pet waste dumping for targeted outreach to the neighborhood.

WATERFOWL MANAGEMENT

Waterfowl, including geese, ducks, and loons, produce waste that has the potential to pollute stormwater with contaminants such as nutrients and pathogens.

Waterfowl Management Recommended Procedures:

- Identify waterfowl congregation areas and take measures to discourage congregation near waterbodies and storm drain systems. Typical measures include, but are not limited to:
  - Installing a 3-foot fence barrier between congregation areas and the storm drain systems or waterbodies.
  - Using strobe lights or reflective tape.
  - Establishing no-mow zones to reduce feeding areas.
  - Planting thick vegetation along waterlines.
  - Placing full-bodied swan or coyote decoys in typical congregation areas.
- Install signage near waterfowl congregation areas to educate the public on the negative effects of waterfowl droppings entering waterbodies and storm drain systems. Include language on the sign to discourage waterfowl feeding.
- Do not destroy geese eggs or remove them from their nests. It is illegal to destroy geese eggs, and geese will continue to lay eggs to replace the missing ones.
- If you are experiencing problems with geese or have any questions regarding waterfowl management, visit https://mdc.mo.gov/discover-nature/field-guide/canada-goose or contact the Conservation Law Enforcement in St. Charles, MO at 636-441-4554.

WASTE CONTAINER MANAGEMENT

Waste Container Management Recommended Procedures:

- All waste and recycling containers must have tight-fitting covers or lids and must be leak-tight.
- Periodically inspect waste areas to check for spills and leaks.
- Whenever possible, place waste and recycling containers inside or underneath protective cover (like a roof or overhang) and on impervious surfaces downgradient and/or as far as practicable from storm drain inlets, drainage paths, and natural waterways.
- Schedule routine waste and recycling pickups and ensure waste is disposed of at appropriate and approved disposal facilities.
- Clean and sweep the areas surrounding waste and recycling containers regularly.
- Do not wash out waste or recycling containers outdoors or in a parking lot where the rinse water can easily enter the storm drain system.
- During the summer, check parks and public trails for littering problems. Check public open spaces for litter prior to mowing. Document litter problem areas to consider possibly increasing waste and recycling containers in certain areas or implementing enforcement actions.
- Monitor waste and recycling containers at highly trafficked areas and on holidays to ensure there is no overflow.

VEHICLES AND EQUIPMENT

VEHICLE AND EQUIPMENT MAINTENANCE AND STORAGE

Vehicle and Equipment Maintenance Recommended Procedures:

- Perform routine preventative maintenance to keep vehicles and equipment functioning optimally.
- Conduct routine inspections of vehicles and equipment to identify maintenance needs. Look closely for stains or leaks underneath vehicles.

Never repair vehicles and equipment outside.

- Use drip pans for leaking vehicles until they can be repaired. Monitor active drip pans to prevent overtopping. Provide a labeled location to empty and store drip pans. Dispose of all leaked fluids properly.
- Make sure maintenance areas have spill kits nearby.
- Clean up spills promptly with dry methods (rags and adsorbents), if possible. Promptly and properly dispose of all spill response materials used.

Vehicle and Equipment Storage Recommended Procedures:

- Store and park vehicles and equipment on impervious surfaces at all times and under cover or indoors whenever possible.
- Vehicles with leaks shall be stored indoors or within containment until the leaks are repaired.

Never store leaking vehicles and equipment over a storm drain.

- Perform street sweeping in vehicle and equipment storage areas on a regular basis to remove dirt and leakage stains. Dispose of sweepings properly.
- Keep clutter around stored vehicles and equipment to a minimum to make it easier to identify and clean any leaks.

VEHICLE AND EQUIPMENT WASHING

Vehicle and Equipment Washing Recommended Procedures:

- Vehicle and equipment washing (power washing, steam cleaning, and engine and undercarriage washing, in particular) should not occur outdoors unless wash water is collected and contained in a manner that prevents discharge to the storm drain system.
- Wash all vehicles and equipment in an indoor area designated for washing. Wash water should be collected and recycled for reuse or collected for proper offsite disposal.

Never discharge vehicle or equipment wash water to a storm drain, surface water, or to areas near drinking water wells.

- The preferred means of discharging vehicle and equipment wash water is to the sewage tank. From the property, the sewage tank effluent shall be discharged and retained to a suitably designed soil absorption system.
- Wash water and liquid waste shall be discharged to a sewage tank. Excluded discharges include roof, garage, footing, surface water, drainage, cooling water discharges, and hazardous waste.
- Wash water collected in a sewage tank does not require an onsite wastewater treatment system construction permit. Material and method of construction for all tanks shall follow the authority of the Department of Health and Senior Services (DHSS) regulations under 19 CSR 20.3.060.
  - 19 CSR 20.3.060 – Minimum Construction Standards for On-Site Sewage Disposal Systems: https://health.mo.gov/living/environment/onsite/pdf/onsite_ref_book.pdf

Missouri DHSS

930 Wildwood Drive
Jefferson City, MO 65109

573-751-6095

- Use biodegradable, phosphate free soaps, and use low-pressure techniques to minimize the potential for detaching oil and paint residues, heavy metals, or other potentially hazardous materials from vehicle surfaces.
- Minimize water and soap use when washing vehicles.

Never perform engine or undercarriage washing outdoors.

- All grease, leaks, and spills in the wash area should be cleaned before washing any vehicles or equipment. Refer to the Spill Prevention and Cleanup Procedures for proper cleanup guidelines.

VEHICLE AND EQUIPMENT FUELING

Vehicle and Equipment Fueling Recommended Procedures:

- Maintain fuel storage tanks in accordance with local, state, and federal laws.
- Train all municipal employees (including new/seasonal employees) and subcontractors on proper vehicle and equipment fueling and spill response procedures; conduct annual refresher trainings for all employees.
- Fueling area should be under cover and on an impervious surface.
- Fuel carefully to minimize leaks on the ground and never top off fuel tanks. If necessary, use a funnel to ensure that leaks are minimized.
- Require the person performing the fueling to stay with the vehicle/equipment during the entire fueling operation.

Keep a spill kit, clearly labeled, at or near each fueling station and in all mobile vehicles and equipment.

- Clearly label and tag all valves and switches at the fueling station. Locate the emergency shut off switch in an accessible location near the fuel island.
- Inspect fueling equipment in accordance with Spill Prevention, Control, and Countermeasure Plans and at least monthly for cracks, leaks, corrosion, or structural failures.
- Isolate storm drains from fueling areas using berms or protective covers wherever possible.
- Fueling small equipment in the field should be done on an impervious surface whenever possible (i.e., pavement or concrete) and away from any storm drains or ditches. Use a funnel to ensure that leaks are minimized.
- Perform street sweeping in fueling areas on a regular basis to remove dirt and leakage stains. Dispose of sweepings properly.

If a spill occurs while fueling vehicles or equipment, follow the clean-up procedures described in the Spill Prevention and Cleanup section of this manual.

Contact the MDNR to report any size spill within twenty-four hours of occurrence:

MDNR Environmental Emergency Response Spill Line

Report a Spill of Oil or Hazardous Materials

573-634-2436

PETROLEUM AND CHEMICAL STORAGE, HANDLING, AND DISPOSAL

Petroleum and Chemical Storage Recommended Procedures:

- Develop and implement a Spill Prevention, Control, and Countermeasure (SPCC) plan if storing more than 1,320 gallons of oil in above ground tanks, containers, and oil-filled equipment (required) on any given facility.
- Register underground storage tanks (USTs) with MDNR and aboveground storage tanks (ASTs) with MDA.
- Petroleum and chemical storage tanks may be subject to additional regulations and inspection requirements in accordance with MDA's Petroleum Inspection Program, including, but not limited to:
  - NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages: https://agriculture.mo.gov/weights/petroleum/
  - 414.142 RSMo. – Safety Inspections of Aboveground Storage Tanks: https://revisor.mo.gov/main/OneChapter.aspx?chapter=414
- Verify that any underground storage tanks are managed in accordance 10-CSR 26-2 Underground Storage Tanks – Technical Regulations:

  https://www.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c26-2.pdf
- Store materials according to the manufacturer's specifications under cover and away from high traffic areas, posted with appropriate signage.
- Store incompatible hazardous materials in separate areas.

Never store petroleum or chemical products near a floor drain or storm drain.

- Keep spill kits in areas where petroleum and chemicals are stored. Keep them in well-marked locations where they are readily available. Check the spill kits on a monthly basis and keep them stocked with supplies.

- Petroleum and chemical storage tanks should be surrounded by a berm or other form of secondary containment such as dikes, liners, vaults, or double-walled tanks. If tanks are surrounded by a berm, the area inside the berm should slope to a drain with a dead-end sump that is periodically pumped out and properly disposed of.
- Visually inspect a new tank or container before use for loose fittings, weak welds, and improper or poorly fitted gaskets.
- Inspect tank foundations, connections, coatings, tank walls and the piping system monthly. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.
- Routinely inspect storage areas for leaks or spills.

Petroleum and Chemical Handling Recommended Procedures:

Train employees in hazardous material handling, safety, spill cleanup, inspections, and reporting on an annual basis.

- Handle petroleum products and chemicals according to the manufacturer's specifications.
- Conduct oil changes indoors.
- Maintain material Safety Data Sheets (SDSs) for all chemicals used. Make SDSs available on materials that require special handling, storage, or disposal. Refer to the following link for SDSs information: https://www.osha.gov/sites/default/files/publications/OSHA3514.pdf
- Transfer materials from one container to another indoors in a well-ventilated area.

Management standards for hazardous waste generators include requirements for material storage and handling, container labeling, inspections, onsite storage time limits, recordkeeping, contingency planning, training, and offsite shipping.

- Properly label all containers in accordance with Occupational Safety and Health Administration (OSHA) standards. Label each waste container with its contents. Hazardous wastes are required to be labeled with the words "Hazardous Waste," the name of the waste, the hazard associated with the waste, and the accumulation start date.
- Keep waste containers closed except when adding or removing wastes.
- Identify whether facility wastes are subject to Hazardous Waste Compliance and Assistance. If hazardous wastes are generated (including waste oil), the facility must identify their hazardous waste generator status, obtain an MDNR generator ID number, and comply with management standards applicable to their generator status. Refer to the following link for hazardous waste generation information: Hazardous Waste Compliance and Assistance | Missouri Department of Natural Resources (mo.gov)
- Properly dispose of any stormwater that accumulates within secondary containment that may have mixed with the wastes. If petroleum products have mixed with the stormwater, they must be treated as waste and disposed of properly; this stormwater should not be discharged to storm drains.
- Do not mix wastes. This can cause dangerous chemical reactions, make recycling impracticable, complicate disposal, and/or make disposal more costly.
- Arrange for regular waste collection in accordance with applicable hazardous waste regulations (for example, large quantity generators may store wastes onsite for no more than 90 days; small quantity generators may store wastes onsite for 180 days).
- Store the waste containers away from storm drains, water bodies, and away from moving vehicles and equipment to prevent accidental spills.

Oil filters should be hot-drained for at least 12 hours before disposal. (Separate and recycle the recyclable elements of the oil filter if no free liquids remain after hot-draining, or after draining and crushing or dismantling in accordance with MDNR regulations).

Petroleum and Chemical Disposal Recommended Procedures:

- Transport used petroleum and chemical products with a licensed transporter. Refer to the MDNR web page below for a list of Missouri licensed hazardous waste transporters:

  Hazardous Waste and Infectious Waste Transporters | Missouri Department of Natural Resources (mo.gov)

- For a list of Missouri hazardous waste treatment, storage, and disposal facilities:

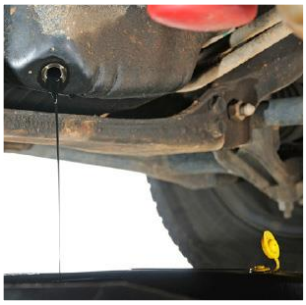
  Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities | Missouri Department of Natural Resources (mo.gov)

- Hazardous wastes and waste oil must be shipped offsite using a uniform hazardous waste manifest. Maintain records of the transport of waste oil, hazardous wastes, and other wastes that are sent for disposal on site for three years.
- Dispose of all wastes in accordance with applicable state and federal regulations.

Never place hazardous waste (including gasoline-contaminated waste) in solid waste dumpsters.

- Train employees on proper disposal practices.

PARTS/CLEANING STORAGE



Parts Cleaning Recommended Procedures:

- Do not clean parts outdoors. Perform cleaning in a designated area to minimize the potential for spills.
- Use citrus-based cleaners and steam cleaning, pressure washing, or aqueous washers instead of solvents whenever possible. Keep parts cleaner lids closed except when in use.
- Store waste parts cleaners indoors and in properly labeled containers in accordance with applicable regulations. Many waste cleaning solvents are regulated as hazardous wastes in Missouri.
- Comply with the applicable hazardous waste generator regulations for hazardous waste parts cleaners and any other hazardous wastes generated (e.g., waste oil). There are different applicable requirements depending on the amount and type of hazardous wastes generated.
  - Hazardous Waste Regulations: Missouri Code of State Regulations: Title 10 - Department of Natural Resources (mo.gov)
  - Hazardous Waste Compliance and Assistance: Hazardous Waste Compliance and Assistance | Missouri Department of Natural Resources (mo.gov)
- Dispose of all waste parts cleaners properly with a licensed contractor on a frequent basis. Store waste products in approved and well-marked containers.
  - Refer to the MDNR web page below for a list of Missouri licensed hazardous waste transporters:

    Hazardous Waste and Infectious Waste Transporters | Missouri Department of Natural Resources (mo.gov)
  - For a list of Missouri hazardous waste treatment, storage, and disposal facilities:

    Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities | Missouri Department of Natural Resources (mo.gov)

Never dispose of spent cleaners or wash water down floor drains, sinks, storm drains, onto the ground, or into a waterbody.

Spare Parts Storage Recommended Procedures:

- Store spare parts in a designated area either inside or under cover.
- Clean petroleum products from any spare parts as much as possible prior to storage.

Use drip pans for any parts or vehicles that are dripping fluids.

- Routinely monitor storage areas for staining and leaking.
- Collect any waste oil in accordance with applicable MDNR Used Oil in 10 CSR 25-11.

Police Building

BUILDINGS AND FACILITIES

SPILL PREVENTION, RESPONSE, AND CLEANUP

Spill Prevention Recommended Procedures:

Develop and maintain a Spill Prevention Control and Countermeasure (SPCC) Plan in accordance with 40 CFR Part 112 if the facility stores more than a total of 1,320 gallons of oil in above-ground storage tanks, containers, and oil-filled equipment. Written spill prevention and response plans/procedures may be required under other regulatory programs, such as hazardous waste contingency plans (Division 25) and OSHA emergency response plans (29 CFR 1910.120), if applicable.

- Train all municipal employees (including new/seasonal employees) on proper methods of spill prevention, response, cleanup, and record keeping. Conduct annual refresher trainings.
- Keep spill kits in areas where petroleum or hazardous materials are stored. Keep them in well-marked locations where they are readily available.
- Check spill kits on a monthly basis and keep them stocked with supplies.
- Label all petroleum or hazardous material storage containers so they are easily identifiable. Check containers often to ensure that leaks or spills have not occurred.
- If possible, store all hazardous materials indoors. If this is not possible, keep all materials that are outside under cover and away from storm drains and waterbodies.
- Keep rain off materials in outside storage areas by installing a permanent structure over these areas or covering them with a tarp.
- Berm material storage areas to easily contain any leaks or spills that may occur.
- Place absorbent materials underneath all mounted taps and at any potential spill and drip location while filling and unloading storage containers. Filling and/or unloading storage containers should occur on impervious surfaces and away from storm drains, to the extent practicable. Any collected liquids or used absorbent materials should be reused, recycled, or disposed of properly.

40 CFR 112 – Oil Pollution Prevention: https://www.epa.gov/sites/production/files/2014-04/documents/b_40cfr112.pdf

Division 25 – Hazardous Waste Management Commission: https://www.sos.mo.gov/adrules/csr/current/10csr/10csr#10-25

29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response: https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.120

- Install spill control devices, such as an outlet hood, in catch basins that collect runoff from storage areas where oils, gases, or other materials are present.
- Develop and implement standardized containment, storage, and disposal activities, reporting procedures and documentation, and follow-up procedures.

DOE Reportable Quantity-Calculator:

https://rqcalculator.projectenhancement.com/

National Response Center

800-424-8802

https://www.epa.gov/emergency-response/national-response-center

Contact the Missouri State Emergency Response Commission (SERC) to find your Local Emergency Planning Committee (LEPC)

https://www.epa.gov/epcra/state-emergency-response-commissions-contacts#mo

Spill Response Recommended Procedures:

Contact your immediate supervisor and department head to report any spill.

- Contact the Department of Public Works and the Lincoln County Fire Protection District #1 Department following a reportable spill (immediately for all spills that enter the sewer system, storm drain system, or surface water).
  - Troy Department of Public Works: 636-528-4646
  - Lincoln County Fire Protection District #1: 636-528-8567
  - Contact National Response Center (NRC) to report spills that exceed their applicable reportable quantity. Refer to 40 CFR 302 for reportable spill quantities and reporting deadlines.

National Response Center – 800-424-8802

- Depending on the spilled material, quantity and location, other agencies may require notification. For example:
  - A release of oil that causes a visible sheen on surface water or a release of a hazardous chemical listed in 40 CFR 302.4 in an amount equal to or greater than its reportable quantity is reportable to the National Response Center.
    - 40 CFR 302.4 – Designation of Hazardous Substances: https://www.govinfo.gov/content/pkg/CFR-2004-title40-vol26/pdf/CFR-2004-title40-vol26-sec302-4.pdf
  - A release of an extremely hazardous substance listed in 40 CFR 355 in an amount equal to or greater than its reportable quantity must be reported to the local emergency planning committee (LEPC) and the State Emergency Response Commission (SERC).
    - 40 CFR 355 – Emergency Planning and Notification: https://www.govinfo.gov/content/pkg/CFR-2016-title40-vol30/pdf/CFR-2016-title40-vol30-part355.pdf

- For additional EPA guidance for reporting spills in Missouri, refer to: https://www.epa.gov/system/files/documents/2021-07/spillreporting-mo.pdf
- For guidance to determine when you are required to report spills to the EPA, refer to: https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release

Spill Cleanup Recommended Procedures:

For all leaks and spills, cleanup should be performed by municipal employees only to the extent that it can be done safely and in accordance with their level of training received (such as OSHA training pursuant to 29 CFR 1910.120). If a spill cannot be safely handled by municipal employees, contact a licensed spill cleanup contractor.

- Stop the source of the spill if safe to do so.
- Deploy containment booms if the spill has the potential to reach a storm drain or nearby surface water.
- For spills that cannot be safely handled by municipal employees in accordance with their level of spill response training, contact a licensed spill cleanup contractor.
- Depending on the size and severity of the spill, an experienced professional in hazardous waste cleanup may need to be hired to oversee the cleanup and follow-up activities.
- Use an absorbent material for general cleanup of liquids in accordance with spill response training. Do not hose down the spill.
- Use brooms or shovels for the general cleanup of dry materials in accordance with spill response training. Never hose down or bury dry material spills.
- Use as little water as possible during cleanup activities.
- Clean or dispose of the cleanup equipment, and properly dispose of all wastes generated during the cleanup with a licensed contractor.

- Refer to the MDNR web page below for a list of Missouri licensed hazardous waste transporters:

  Hazardous Waste and Infectious Waste Transporters | Missouri Department of Natural Resources (mo.gov)

- For a list of Missouri hazardous waste treatment, storage, and disposal facilities:

  Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities | Missouri Department of Natural Resources (mo.gov)

After a spill has been properly cleaned, a detailed report about the incident should be completed and submitted to the Troy Department of Public Works.

GARBAGE STORAGE

- Keep all waste and recycling containers covered. Tarps or other covers may be used to cover large containers (e.g., 30-yard roll offs).
- Keep all container lids closed at all times, except when adding or removing material.
- All waste receptacles should be leak-tight with tight-fitting lids or covers.
- Never place liquids or liquid-containing wastes in a dumpster or trash receptacle.
- Whenever possible, place waste and recycling receptacles inside or underneath protective cover (like a roof or overhang).
- Do not place outdoor waste and recycling receptacles near storm drains or other drainage systems such as ditches.
- Periodically inspect waste storage containers and their surrounding areas for spills and leaks.
- Clean and sweep the areas surrounding outdoor waste containers regularly and immediately prior to any expected storm event.
- Schedule routine waste and recycling pickups at a minimum of once per week and ensure materials are disposed of at appropriate and approved facilities.

Consider adding locks to waste and recycling containers located in public areas.

PAINTING

Painting Recommended Procedures:

- Municipal employees performing renovation, repair, and painting projects that disturb lead-based paint in facilities built before 1978 must be certified and follow specific work practices to prevent lead contamination. Refer to the EPA's link below for more information regarding the Lead Renovation, Repair, and Painting Program: https://www.epa.gov/lead/lead-renovation-repair-and-painting-program
- Contact MDNR to determine if air emission permits are required: Air Permits | Missouri Department of Natural Resources (mo.gov)

Never dispose of paint, waste paint products, or rinse water from paint cans, brushes, and other painting equipment into a storm drain, gutter, the ground, street, or a waterbody.

- Store waste paints, solvents, and rags in sealed fire- and explosion-proof containers.
- Use drop cloths under any painting or preparation activity such as scraping or sandblasting. Clean up after exterior activities to avoid migration of chips and dust into storm drains.
- Replace solvent-based paints with less toxic paints such as latex or water-based paints whenever possible.
- Waste paints, thinners, solvents, residues, and sludges that constitute hazardous waste as defined in the Hazardous Waste Compliance and Assistance must be managed and/or disposed of as hazardous waste.
    - Refer to the MDNR web page below for a list of Missouri licensed hazardous waste transporters:

      Hazardous Waste and Infectious Waste Transporters | Missouri Department of Natural Resources (mo.gov)
    - For a list of Missouri hazardous waste treatment, storage, and disposal facilities:

Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities | Missouri Department of Natural Resources (mo.gov)

- When thoroughly dry, nonhazardous latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths should be disposed of as solid waste at an appropriate disposal facility.

Street Painting Recommended Procedures:

- Develop paint-handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paints and hot thermoplastics away from storm drain inlets.
- Replace paints containing lead and tributyltin with less toxic alternatives.
- Use water-based paints.
- Clean water-based paint application equipment in a sink that is connected to the sanitary sewer or an appropriate on-site wastewater disposal facility and in accordance with applicable wastewater discharge permits and regulations.
- If leftover paints can be used for future projects, properly store leftover paints according to the manufacturer's recommendations. If there will be no use for leftover paints on future project, dispose of the leftovers at an appropriate disposal facility.

Dispose of leftover paints properly. Some paints are considered hazardous wastes once they are no longer intended for use. When thoroughly dry, nonhazardous paint may be disposed of as solid waste at an appropriate facility.

FLOOR DRAINS

Floor Drains Recommended Procedures:

Know where all floor drains discharge. Interior floor drains should never be directly connected to a storm drain system.

- Floor drains should be connected to an off-line holding tank or to the sanitary sewer system via an oil/water separator. Never use floor drains if you are unsure of their discharge location.
- Floor drains servicing vehicle or equipment maintenance areas or other hazardous material storage with potential for spills should have labeled spill kits nearby.
- Keep a spill kit within close proximity of floor drains. Check the spill kits on a monthly basis and keep them stocked with supplies.
- Maintain a regular inspection and clean-out procedure for floor drains, holding tanks, and oil/ water separators (if applicable).
- Obtain and use drain mats, containment booms, or protective covers to cover floor drains if a spill occurs.
- Store hazardous materials away from floor drains.
- Never dump hazardous materials into floor drains.
- Floor drains must be installed, operated, and maintained in accordance with all state and local regulations, including, but not limited to:
  - Chapter 26 – General Plumbing Requirements: https://up.codes/viewer/missouri/irc-2015/chapter/26/general-plumbing-requirements#26

ON-SITE WASTEWATER TREATMENT (SEPTIC) SYSTEM (OWTS) MANAGEMENT

When septic systems fail, they have the ability to cause serious health threats to communities and the environment.

OWTS Management Recommended Procedures:

If a septic system fails, you should immediately contact the Missouri DHSS at 573-751-6095.

- Septic systems should be inspected and pumped every 3 to 5 years. Alternative septic systems with mechanical components should be inspected once a year.
- Keep a record of all septic system inspections, repairs, and pumping for future reference.
- Never park or drive on a drainfield.
- Plant trees at least 30 feet from the drainfield to prevent their roots from growing into the septic system.
- Divert roof drains, sump pumps, surface water, and other storm drain systems away from septic systems, as excess water near the system can hinder the wastewater treatment process.
- Only flush human waste and toilet paper down toilets. Flushing items like non-flushable wipes, diapers, paper towels, cat litter, greases, oils, and household chemicals (to name a few) can clog the drainfield.
- The use of septic system additives are not advised for use in Missouri by DHSS. Refer to this link for OWTS Owner's Manual: SystemOwnersManual.pdf
- Refer to DHSS's Environmental Health Operation Guidelines for information regarding how DHSS administers day-to-day operations of an environmental health program: Environmental Health Operational Guidelines (mo.gov)

All septic systems must comply with the Missouri General Sanitation Regulations (19 CSR 20-3).

https://s1.sos.mo.gov/cmsimages/adrules/csr/c

MS4 INFRASTRUCTURE OPERATIONS & MAINTENANCE

Under the 2021 General Operating Permit for Troy Phase II MS4, municipalities are required to meet specific operations and maintenance requirements for their roads and stormwater management infrastructure. The links below provide general guidance regarding road maintenance, catch basin cleaning, street sweeping, and inspection and maintenance of structural stormwater control facilities (best management practices—BMPs); these four topics are covered more in-depth in their specific standard operating procedures (SOPs) in Appendix B.

WINTER ROAD MAINTENANCE

- Follow MODOT's Engineering Policy Guide for Snow and Ice Control Operations: https://epg.modot.org/index.php/133.4_Snow_and_Ice_Control_Operations
- Follow MODOT's Engineering Policy Guide for Operator's Guide for Anti-Icing: https://epg.modot.org/index.php/133.5_Operator%E2%80%99s_Guide_for_Anti-Icing
- Refer to MODOT for more information on road treatment materials, application guidelines, and reduced salt areas: https://www.modot.org/sites/default/files/documents/Winter%20Ops_0_0.pdf
- Follow EPA guidelines for deicing material application and storage: https://www.epa.gov/npdes/construction-inspection-training-course

CATCH BASIN CLEANING

- Follow EPA guidelines for management of catch basin cleanings: https://www.epa.gov/system/files/documents/2021-11/bmp-storm-drain-system-cleaning.pdf

STREET SWEEPING

- Follow EPA guidelines for reuse and disposal of street sweepings: https://www.epa.gov/system/files/documents/2021-11/bmp-parking-lot-and-street-sweeping.pdf

INSPECTION AND MAINTENANCE OF STRUCTURAL STORMWATER CONTROL FACILITIES (BMPS)

- Follow the MDNR "Protecting Water Quality" Field Guide for stormwater BMP Operations and Maintenance: https://dnr.mo.gov/document-search/protecting-water-quality-field-guide

REFERENCES

California Stormwater Quality Association, 2004. California Stormwater BMP Handbooks. [Online] Available at: www.casqa.org/resources/bmp-handbooks [Accessed 6 January 2020].

Casco Bay Estuary Partnership, 2005. Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine, Volume 2. [Online] Available at: www.cascobayestuary.org/wp-content/uploads/2014/08/2005_sop_stormwater_phase_ii_volume2.pdf [Accessed 7 January 2020].

Center for Watershed Protection, Inc., 2000. Stormwater Manager's Resource Center Website. [Online] Available at: https://www.stormwatercenter.net/ [Accessed 9 January 2020].

Central Massachusetts Regional Stormwater Coalition, 2020. Standard Operating Procedures. [Online] Available at: https://www.centralmastormwater.org/toolbox/pages/standard-operating-procedures [Accessed 6 January 2020].

Clark County Public Works Department Clean Water Program, 2009. Stormwater Facility Maintenance Manual. [Online] Clark County, Washington. Available at: www.clark.wa.gov/public-works/stormwater-code-and-manual [Accessed 3 January 2020].

Greater Lansing Regional Committee for Stormwater Management, 2007. Good Housekeeping and Pollution Prevention for Municipal Activities. [Online] Tri-County Regional Planning Commission. Available at: https://www.mywatersheds.org/ [Accessed 18 February 2020].

Mid-America Regional Council, 2012. Manual of Best Management Practices for Stormwater Quality. [Online] Stormwater Best Management Practices. Available at: https://www.marc.org/sites/default/files/2022-05/Best_Management_Practices_for_Stormwater_Quality.pdf [Accessed 14 December 2022].

Missouri Department of Natural Resources, 2012. Missouri Guide to Green Infrastructure. [Online] Available at: https://dnr.mo.gov/document-search/missouri-guide-green-infrastructure [Accessed 14 December 2022].

Natural Resources Conservation Service, 2010. Home and Garden Tips: Lawn and Garden Care. [Online] United States Department of Agriculture. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/home/?cid=nrcs143_023497 [Accessed 27 January 2020].

New Hampshire Department of Environmental Services, 2006. Guidelines and Standard Operating Procedures: Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping. [Online] New Hampshire Estuaries Project. Available at: https://www.des.nh.gov/organization/divisions/water/stormwater/documents/nh_idde_sop.pdf [Accessed 23 January 2020].

Orange County Public Works, 2002. Municipal Fixed Facility Best Management Practices. [Online] County of Orange. Available at: https://cms.ocgov.com/gov/pw/watersheds/documents/bmp/default.asp [Accessed 27 January 2010].

Partners for a Clean Environment, 2009. Standard Operating Procedures. [Online] Boulder, Colorado. Available at: http://www.bouldercounty.org/environment/sustainability/partners-for-a-clean-environment/ [Accessed 4 February 2020].

United States Environmental Protection Agency, 2008. Stormwater Phase II Menu of Best Management Practices. [Online] Available at: http://epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu [Accessed 27 January 2020].

Woods Ford Golf Course

APPENDIX A – 2022 City of Troy Municipal Facilities with Potential Stormwater Polluting Activities

APPENDIX B – MS4 Infrastructure Operations & Maintenance SOPs

APPENDIX C – Important Contacts

Organization/Agency	Phone Number
Lincoln County Health Department	636-528-6117
Troy Department of Public Works	636-528-4646
Lincoln County Fire Protection District #1	636-528-8567
Conservation Law Enforcement	636-441-4554
Missouri Pesticide Control	573-751-5504
Missouri Department of Health and Senior Services	573-882-0623
MDNR	800-361-4827
MDNR Environmental Emergency Response Spill Line	573-634-2436
National Response Center	800-424-8802
University of Missouri Soil and Plant Testing Laboratory	573-882-0623

APPENDIX D – Links

Links Referenced Within Manual

Chapter 26 – General Plumbing Requirements:
https://up.codes/viewer/missouri/irc-2015/chapter/26/general-plumbing-requirements#26

City of Troy's Erosion and Sediment Control Regulations:
https://ecode360.com/attachment/TR3452/TR3452-525a%20App%20A.pdf

Conservation Law Enforcement:
https://mdc.mo.gov/discover-nature/field-guide/canada-goose

Department of Energy Reportable Quantity-Calculator:
https://rqcalculator.projectenhancement.com/

Division 25 – Hazardous Waste Management Commission:
https://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25

EPA Guidance for Management of Catch Basin Cleanings:
https://www.epa.gov/system/files/documents/2021-11/bmp-storm-drain-system-cleaning.pdf

EPA Guidance for Reuse and Disposal of Street Sweepings:
https://www.epa.gov/system/files/documents/2021-11/bmp-parking-lot-and-street-sweeping.pdf

EPA Guidance for Reporting Spills in Missouri:
https://www.epa.gov/system/files/documents/2021-07/spillreporting-mo.pdf

EPA Lead Renovation, Repair, and Painting Program:
https://www.epa.gov/lead/lead-renovation-repair-and-painting-program

EPA Missouri State Emergency Response Commission (SERC):
https://www.epa.gov/epcra/state-emergency-response-commissions-contacts#mo

EPA National Response Center:
https://www.epa.gov/emergency-response/national-response-center

EPA Spill Reporting Requirements:
https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release

MDNR Air Permits:
https://dnr.mo.gov/air/business-industry/permits

MDNR Hazardous Waste and Infectious Waste Transporters:
https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/hazardous-infectious-transporters#:~:text=Missouri%20regulations%20require%20all%20carriers,Department%20of%20Transportation%20(MoDOT)

MDNR Hazardous Waste Compliance and Assistance:
https://dnr.mo.gov/waste-recycling/business-industry/guidance-technical-assistance/hazardous-waste-compliance-assistance

MDNR Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities:
https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/hazardous-waste-treatment-storage-disposal-tsd

MDNR "Protecting Water Quality" Field Guide:
https://dnr.mo.gov/document-search/protecting-water-quality-field-guide

Missouri DHSS Environmental Health Operations Guidelines:
https://health.mo.gov/atoz/ehog/pdf/ehog-2021.pdf

Missouri DHSS Onsite Wastewater Treatment System Owner's Manual:
https://health.mo.gov/living/environment/onsite/pdf/SystemOwnersManual.pdf

Missouri General Sanitation Regulations (19 CSR 20-3):
https://s1.sos.mo.gov/cmsimages/adrules/csr/current/19csr/19c20-3a.pdf

Missouri Pesticide Control:
https://agriculture.mo.gov/plants/pesticides

Missouri Prairie Foundation Grow Native Program:
https://grownative.org/

MLB Baseball Tomorrow Fund Field Maintenance Guide:
http://www.mlb.com/documents/5/6/6/262918566/field_maintenance_guide_english.pdf

MODOT Engineering Policy Guide for Operator's Guide for Anti-Icing:
https://epg.modot.org/index.php/133.5_Operator%E2%80%99s_Guide_for_Anti-Icing

MODOT Engineering Policy Guide for Snow and Ice Control Operations:
https://epg.modot.org/index.php/133.4_Snow_and_Ice_Control_Operations

MODOT List of Qualified Construction Material:
https://www.modot.org/materials-qualified-lists

MODOT Winter Operations:
https://www.modot.org/sites/default/files/documents/Winter%20Ops_0_0.pdf

Pesticide Application Permit:
https://agriculture.mo.gov/plants/pdf/pest_app_for_reg.pdf

NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages:
https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=30A

Safety Data Sheets Information:
https://www.osha.gov/sites/default/files/publications/OSHA3514.pdf

University of Missouri Department of Agronomy and Horticulture Guidance on Nutrient Management for Turf:
https://extension.missouri.edu/publications/g6954

University of Missouri Soil and Plant Testing Laboratory:
https://extension.missouri.edu/programs/soil-and-plant-testing-laboratory

2 CSR 70-25.100 – Certification and Licensing of Pesticide Applicators:
https://agriculture.mo.gov/plants/pdf/pesticideuseact.pdf

2 CSR 70-25.100.5(F) – Right-of-Way Pest Control:
https://agriculture.mo.gov/plants/pdf/pesticideuseact.pdf

10-CSR 26-2 Underground Storage Tanks – Technical Regulations:
https://www.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c26-2.pdf

19 CSR 20.3.060 – Minimum Construction Standards for On-Site Sewage Disposal:
https://health.mo.gov/living/environment/onsite/pdf/onsite_ref_book.pdf

29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response:
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.120

29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response:
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.120

40 CFR 112 – Oil Pollution Prevention:
https://www.epa.gov/sites/production/files/2014-04/documents/b_40cfr112.pdf

40 CFR 302.4 – Designation of Hazardous Substances:
https://www.govinfo.gov/content/pkg/CFR-2004-title40-vol26/pdf/CFR-2004-title40-vol26-sec302-4.pdf

40 CFR 355 – Emergency Planning and Notification:
https://www.govinfo.gov/content/pkg/CFR-2016-title40-vol30/pdf/CFR-2016-title40-vol30-part355.pdf

414.142 RSMo. – Safety Inspections of Aboveground Storage Tanks:
https://revisor.mo.gov/main/OneChapter.aspx?chapter=414