

# GOOD HOUSEKEEPING AND POLLUTION PREVENTION MANUAL FOR MERIDIAN CHARTER TOWNSHIP

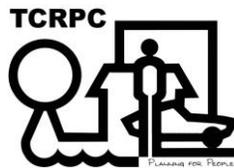


March 7, 2025

Prepared in partnership with:



Tri-County Regional Planning Commission



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# Section 1

## 1.0 Introduction

Stormwater runoff is part of a natural hydrologic process. Human activities particularly urbanization and agriculture, can alter natural drainage patterns and add pollutants to rivers, lakes, and streams as well as coastal bays, estuaries, and ultimately, the ocean. Numerous studies have shown urban runoff to be a significant source of water pollution, causing declines in fisheries, restricting swimming, and limiting our ability to enjoy many of the other benefits that water resources provide. Urban runoff in this context includes all flows discharged from urban land uses into stormwater conveyance systems and receiving waters and includes both dry weather non-stormwater sources (e.g., runoff from landscape irrigation, water line and hydrant flushing) and wet weather stormwater runoff. In this handbook, urban runoff and stormwater runoff are used interchangeably.

For many years, the effort to control the discharge of stormwater focused mainly on the quantity (e.g. drainage, flood control) and, only to a limited extent, on the quality of the stormwater (e.g. sediment and erosion control). In recent years, however, awareness of the need to improve water quality has increased. With this awareness, federal, state, and local programs have been established to reduce pollutants contained in stormwater discharges to our waterways. The emphasis of these programs is to promote the concept and the practice of preventing pollution at the source, before it can cause environmental problems. Where further controls are needed, treatment of polluted runoff may be required.

## 1.1 Manual Purpose and Scope

Meridian Charter Township as a member of the Greater Lansing Regional Committee (GLRC) for Stormwater Management has developed this manual to provide staff and management clear guidance on implementing Best Management Practices (BMPs) to reduce pollutants in runoff from municipal operations. Federal and state programs require selected municipalities to reduce the discharge of pollutants in their stormwater discharges to the maximum extent practicable (MEP) using an array of control measures including BMPs.

## 1.2 Method of BMP Selection

This manual has been developed using the *GLRC Good Housekeeping and Pollution Prevention for Municipalities Handbook* which was primarily designed to assist municipal staff with incorporating pollution prevention controls into their overall stormwater management program and specifically publicly owned/operated facilities (fixed facilities) and field activities (field programs). Users include public and private sector engineers, planners, environmental specialists, and stormwater program managers. Managers and employees of the various municipal facilities and municipal field programs may find this handbook especially helpful when implementing and evaluating the effectiveness of these stormwater management efforts.

## 1.3 Stormwater Pollutants and Impacts on Water Quality

Stormwater runoff naturally contains numerous constituents; however, urbanization and urban activities (including municipal activities) typically increase constituent concentrations to levels that may impact water quality. Pollutants associated with stormwater include sediment, nutrients, bacteria and viruses, oil and grease, metals, organics, pesticides, and gross pollutants (floatables). In addition, nutrient-rich stormwater runoff is an attractive medium for vector production when it accumulates and stands for more than 72 hours.

### **Municipal Activities Generating Pollutants**

Municipalities conduct various activities that are sources of pollutants in stormwater runoff. For the purpose of the manual, these activities are categorized according to whether they occur at a specific location (fixed facility) or across a broader and non-specific area (field programs). These activities must be addressed through the implementation of Standard Operating Procedures (SOPs) to minimize or eliminate the pollutants from entering the local water bodies or drainage system. Township facilities have been classified for potential to discharge pollutants to waters of the state as High, Medium, or Low. For High designated facilities, the Township will conduct comprehensive inspections at least once every six months, with additional routine inspection in-between.

### **Township facilities include:**

#### **Municipal Complex (Town Hall, Public Safety Building, Nokomis center, Pavilion & Historic Village)**

5151 Marsh Road  
Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

The Township maintains the parking lots including the storm water collection system for this facility. Catch basins are cleaned once a year by a Vactor truck. Grass clippings are kept out of catch basins, herbicides and fertilizers are environmentally friendly; trash dumpsters are watertight, and are kept away from catch basins. Diesel tanks for standby generators are double-wall, and checked for leaks semiannually; a new tank has been provided for the Town hall generator in 2011. The Township maintains the sanitary system within the complex including the lifts stations (for the Historic Village and the pavilion). The sanitary system is connected to the Township's sanitary collection system.

#### **Service Center**

2100 Gaylord C. Smith Court  
Haslett, MI 48840

Potential Risk of Pollutants Discharge: High

The Township routine vehicle and equipment maintenance operations are conducted at this facility. All active vehicles & equipment are stored inside. There is an impound lot that is not covered but it has a catch basin which will be retrofitted with a hydrocarbon filter. All vehicles are washed inside in the wash bay or at commercial car washes. All inside drains are piped to

the sanitary sewer, including wash bay drains; all inside drains have sumps that are regularly cleaned. All equipment & vehicle fluids, oil, grease, and paint are stored inside the facility in closed metal cabinets; containers are secured and protected against spills and discharge to the storm system. Used oil is collected in an outside underground double-wall steel tank with a capacity of 400 gallons; the tank is equipped with leak detection system; the tank is pumped once every 3 to 4 months for recycling by a private company, "Safty-Klean". Fueling area is covered; spill kits are located nearby; hydrocarbon filters are provided at the catch basin receiving runoff from fueling area. There are two fuel dispensers which were replaced in March, 2013. Salt, sand, and gravel are stored outside in partially covered bays. The salt bay is equipped with an underground plastic holding tank, which is pumped out periodically. Cold patch material is stored inside. Spoils area has a minimum 20' grass & shrub buffer from the nearby wetlands. Catch basins are cleaned once a year by a vac. truck. Vac. trucks are decanted into the sanitary sewer system, and the residual solid waste is taken to a certified landfill (Granger). Grass clippings are kept out of catch basins. Diesel tanks for standby generator is above ground and has double steel walls, and is checked for leaks semiannually; the tank was provided for the service center building in 2011.

#### **Meridian Recycling Center**

5976 E. Lake Drive

Haslet, MI 48840

Potential Risk of Pollutants Discharge: Medium

The recycling center is located within a 37.58 acre parcel which is surrounded by wetlands and wooded areas. The recycling center accepts polystyrene foam, paper, cardboard, metal, glass, all plastic, co-mingled paper. Including bags, books, phone books, magazines, folders, newspaper, office paper etc., yard waste, and tree trimmings. All accepted materials are temporarily stored on site in large metal containers, and then transported by private companies to the appropriated recycling or disposal facilities. The site is operated by "Reclaimed by Design". The site is accessible thru a gravel drive; the work area and drop off area are gravel. There is a trash compactor at ground level which aggregates material in a sealed trash container; any run-off sheet flows to the surrounding gravel area. The adjacent wetlands are setback at least 20' from storage containers and other materials.

#### **Okemos Library**

4321 Okemos Road

Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

The sanitary system is connected to the Township's sanitary collection system. The site's storm system is maintained by Township staff.

#### **Central Fire Station**

5000 Okemos Road

Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

The bay drains for this station are connected to an oil/grit interceptor that is connected to the sanitary lateral. Automobile related liquids, bleach, and gasoline are stored in metal cabinets. The station is staffed by haz/mat certified personnel at all times.

**North Fire Station**

2140 Haslett Road  
Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

All inside drains at these facilities are piped to the sanitary sewer which is connected to the Township's sanitary collection system. Automobile related liquids, bleach, and gasoline are stored in metal cabinets. The station is staffed by haz/mat certified personnel at all times.

**South Fire Station**

3711 Okemos Road  
Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

All inside drains at these facilities are piped to the sanitary sewer, which is connected to the Township's sanitary collection system. Fire foam material is stored in this facility in a 55 gallon barrel. Automobile related liquids, bleach, and gasoline are stored in metal cabinets. The station is staffed by haz/mat certified personnel at all times.

**Snell Towar Recreation Center**

6146 Porter Avenue  
East Lansing, MI 48823

Potential Risk of Pollutants Discharge: Low

All inside drains at these facilities are piped to the sanitary sewer. Run-off from the site is collected by a storm system that includes traditional system and rain gardens.

**Treatment Plant-Water (ELMWSA )**

2470 Burcham  
East Lansing, MI 48823

Potential Risk of Pollutants Discharge: Medium

The water treatment plant site has 77 acres that include a building, two storage tanks, two lime settling ponds, an overflow pond, three wells, a paved trail and wetlands. There are toxic, hazardous or polluting materials that are stored safely within the plant building, and are separated from on-site storm collection system. The lime settling ponds are dredged regularly and can't overflow to the adjacent wetlands or the storm water system. The restrooms are connected to the Township's sanitary system.

**North Water Tower**

6281 Newton Road  
East Lansing, MI 48823

Potential Risk of Pollutants Discharge: Low

There are no sanitary sewer facilities at this location. Potable water from overflow stand pipe or when the tank is emptied is discharged thru a pipe to an adjacent ditch along Old-M78 Road.

**South Water Tower**

3744 Okemos Road  
Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

here are no sanitary sewer facilities at this location. Potable water from overflow stand pipe or when the tank is emptied is discharged to a catch basin that is connected to the road storm system.

**Marshall Park**

6105 Marsh Road  
Haslett, MI 48840

Potential Risk of Pollutants Discharge: Low

This park includes sidewalks, picnic areas, and parking that are accessible to individuals with a disability. A dog waste station, equipped with bags and can, is provided. An infiltration area with an underground network of perforated pipe with sock filters the runoff from the park before it discharges to Lake Lansing via the county's road system. No compaction is allowed within the infiltration area, except for light mowing equipment used to mow the area in dry periods.

**Hillbrook Park**

1747 Lake Lansing Road  
Haslett, MI 48840

Potential Risk of Pollutants Discharge: Low

This park includes sidewalks, picnic areas, and parking that are accessible to individuals with a disability. A dog waste station, equipped with bags and can, is provided.

**Ferguson Park**

4540 Okemos Road  
Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

Ferguson Park is one of most intensively used parks in Meridian Township. It is located on the Red Cedar River. Geese waste is a concern in this area; signs are posted to advise against feeding the geese in order to reduce congregation of geese and reduce geese waste ending in the Red Cedar River. A dog waste station, equipped with bags and can, is provided. Restrooms are connected to the Township's sanitary system.

**North Meridian Park**

5191 Meridian Road  
Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

North Meridian Park has 60 acres and is located on the west side of Meridian Road, approximately 2 miles north of Grand River Drive. This park includes athletic fields, play equipment, restrooms, natural

hiking trails, and parking. The restrooms are connected to a STEP pump system which discharges to a drain-field system, which is monitored and maintained by Township staff. A dog waste station, equipped with bags and can, is provided

**Wonch Park**

4555 Okemos Road

Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

Wonch Park is a 15 acre park nestled in a bend of the Red Cedar River and is a highly used recreation area. This park includes sidewalks, picnic areas, and parking that are accessible to individuals with a disability. The restrooms are connected to the Township's sanitary system. A dog waste station, equipped with bags and can, is provided.

**Hartrick Park**

3685 Hulett Road

Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

Hartrick Park has 60 acres and is located in the southwest quadrant of the Township, north of Okemos High School. This park includes ball diamonds, athletic fields, play equipment, restrooms, sidewalks, a picnic pavilion, a pond and nature overlook, natural hiking trails, and parking that are accessible to individuals with a disability. The restrooms are connected to an on-site septic and drain-field system, which is monitored and maintained by Township staff. A dog waste station, equipped with bags and can, is provided.

**Towner Road Park**

2055 Towner Road

Haslett, MI 48840

Potential Risk of Pollutants Discharge: Low

This Park has 24.88 acres and is loc. This park includes a parking lot, ball diamonds, soccer field, pickle ball courts, walking paths, restrooms, sidewalks, a picnic pavilion, a pond, and wetlands. The restrooms are connected to a STEP pump system that discharges effluent sewer by a force main in to the township's sanitary collection system.

**Marketplace on the Green**

1995 Central Park Drive

Okemos, MI 48864

Potential Risk of Pollutants Discharge: Low

This site is 2.43 acres north of the Meridian Mall. It is the new location of the Township's farmers market. It has play equipment, restrooms, and a small pond. The restrooms are connected to the Township's sanitary collection system.

## **Sanitary Sewer Lift Stations:**

There are 28 lift stations in Meridian Township. To ensure against sewer overflow and backup, all lift stations are monitored daily by Township staff, most are connected to the SCADA system (28 stations), 11 stations have stand-by generators, and all have light and audio alarms. The Township also has two portable generators to service the lift stations that lack stand-by generators. The Township's lift stations have low potential to discharge pollutants into waters of the state, except for the Main lift station which has medium potential due to risk of flooding from the Red Cedar River.

The lift stations' locations are listed below:

### **Central Lift Station**

2100 Gaylord C Smith  
East Lansing, MI 48823

This lift station has Sodium permanganate in 40 barrels (55 gallon) stored within its structure for odor control. The storage area is connected by a drain pipe to the wet well of the lift station.

### **Indian Lakes Lift Station**

4793 Arapaho Trail  
Okemos, MI 48864

### **Sundance Lift Station**

4250 Aztec Way  
Okemos, MI 48864

### **Bennett Lift Station**

2294 Bennett Road  
Okemos, MI 48864

### **Champion Woods Lift Station**

2127 Sophiea Parkway  
Okemos, MI 48864

### **Towar Lift Station**

3167 Biber Street  
East Lansing, MI 48823

### **Chippewa Woods Lift Station**

1093 Buckingham Road  
Haslett, MI 48840

**Woodhill Lift Station**

4496 Comanche Drive  
Okemos, MI 48864

**Cornell Woods Lift Station**

4425 Cornell Road  
Okemos, MI 48864

**Dobie Lift Station**

4086 Dobie Road  
Okemos, MI 48864

**The Greens Lift Station**

6228 Golfridge Drive  
East Lansing, MI 48823

**Dobie Lift Station**

1632 Grand River Avenue  
Okemos, MI 48864

**Main Lift Station**

2389 Hamilton Road  
Okemos, MI 48864

**East End Lift Station**

2555 Haslett Road  
East Lansing, MI 48823

**Forest Hills Lift Station**

1570 Hillside  
Okemos, MI 48864

**The Meadows Lift Station**

3590 Hyacinth Street  
Okemos, MI 48864

**Okemos High School Lift Station**

2780 Jolly Road  
Okemos, MI 48864

**Lake Lansing Lift Station**

6273 Lake Drive  
Haslett, MI 48840

**Sierra Ridge Lift Station**

2170 Lake Lansing Road  
East Lansing, MI 48823

**Mud Lake Lift Station**

5154 Marsh Road  
Okemos, MI 48864

**Whispering Oaks Lift Station**

4500 Mistywood Drive  
Okemos, MI 48864

**Shoals Lift Station**

1216 Mizzen Drive  
Okemos, MI 48864

**Forest View Lift Station**

1721 Montgomery Court  
Haslett, MI 48840

**Cemetery Lift Station**

2500 Mt. Hope Road  
Okemos, MI 48864

**Whitehills Woods Lift Station**

6240 Ridgepond  
Haslett, MI 48840

**Whitehills Lake Lift Station**

2370 Saginaw  
East Lansing, MI 48823

## **1.4 Pollutant Impacts on Water Quality**

Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.

Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.

Bacteria and viruses are common contaminants of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.

Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal.

Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bio-accumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies.

Organics may be found in stormwater in low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.

Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for bio-magnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds.

Gross Pollutants (trash, debris, and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic "eye sore" in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes, and estuaries sometimes causing fish kills.

Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMPs for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002).

## 1.5 Regulatory Requirements

The federal Clean Water Act (CWA), as amended in 1987, is the principal legislation for establishing requirements for the control of stormwater pollutants. Enforcement of the CWA and other laws such as the Endangered Species Act has generated a number of federal, state and local requirements and programs that deal directly or indirectly with controlling stormwater discharges. In the following sections, various programs are discussed in relationship to control of pollutants in stormwater from municipal storm drain systems. These programs are expected to evolve over the next several years and the user is advised to contact local regulatory and/or municipal officials for further information.

### Municipal NPDES Stormwater Programs

In Michigan, municipalities were given the option to either have an individual permit (based on jurisdictional boundaries), or to have a watershed based approach, which allows many municipalities within a watershed to work as a group, through a watershed management plan to meet Phase II requirements. Each plan serves as a blueprint for protecting water quality within the various watersheds. The watershed management plans are used in turn to identify more specific controls for discharges (e.g., wastewater treatment plant effluent, urban runoff, and agriculture drainage).

In Michigan, the federal NPDES stormwater permitting program is administered by the Michigan Department of Environmental, Great Lakes, and Energy (EGLE) by issuing general NPDES permits. Municipalities with a population of over 100,000 or that have been determined to be a significant contributor of pollutants are required to obtain an individual NPDES stormwater permit. These municipalities are classified as Phase I communities and are typically referred to as MS4s (municipal separate storm sewer systems). To meet CWA Section 402(p) requirements, smaller, Phase II communities (fewer than 100,000 in population) are covered by a General Permit. Phase II communities are required to develop and implement a stormwater management plan with the following six minimum control measures:

- **Public Education and Outreach** - Distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality.
- **Public Involvement and Participation** - Providing opportunities for citizens to participate in program development, implementation, and review, including effectively publicizing public hearings or participation.

- **Illicit Discharge Detection and Elimination** - Developing and implementing a plan to detect and eliminate illicit discharges to the storm drain system including illicit connections and illegal dumping.
- **Construction Site Runoff Control** - Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb one or more acres of land.
- **Pollution Prevention / Good Housekeeping for Municipal Operations** - Developing and implementing a program to prevent or reduce pollutant runoff from municipal operations. (This is a primary focus of this handbook.)
- **Post-Construction Stormwater Management in New Development and Redevelopment** - Developing, implementing, and enforcing a program to address discharges of stormwater runoff from new and redevelopment areas.

In addition to the six measures listed above, the stormwater management plan must identify measurable goals (or performance standards) for each minimum control measure. Measurable goals will be used by the Township and EGLE to gauge compliance and evaluate the effectiveness of individual BMPs or control measures and the stormwater management program as a whole. Phase II communities must also monitor their efforts and prepare progress reports demonstrating that the community has implemented the minimum control measures and complied with the measurable goals.

## Section 2 Source Control SOPs

### 2.0 Introduction

This section provides a description of specific source control Standard Operating Procedures (SOPs) for activities related to the Township operations.

As noted in Sections 1, municipal fixed facilities conduct activities that have the potential to generate pollutants. The source control SOPs in this section address these activities (see Table 2-1). In addition, the Township conducts various field programs where activities may occur and create pollutants (see Table 2-2).

#### SOP Fact Sheet

Each SOP fact sheet is a short document that gives all the information about a particular BMP. The fact sheets contain side bar presentations with information on objectives and targeted constituents.

#### Staff Training

Current maintenance and fire department staff are trained on stormwater pollution prevention once per permit cycle. New employees are trained within the first year of employment. Employees are trained using an EXCAL training DVD specific for municipal operations and staff. All topics related to stormwater pollution prevention/good housekeeping of municipal facilities and activities are covered during the training. In addition, the Township Engineer is currently certified "Storm Water Management - Industrial Site", "A-1i".

<b>Table 2-1 Municipal Fixed Facility SOPs</b>	
2.1	Spill Prevention, Control and Cleanup
2.2	Vehicle and Equipment Fueling
2.3	Vehicle and Equipment Cleaning
2.4	Vehicle and Equipment Repair
2.5	Outdoor Container Storage
2.6	Outdoor Equipment Maintenance
2.7	Outdoor Storage of Raw Materials
2.8	Waste Handling and Disposal
2.9	Building and Grounds Maintenance
2.10	Parking Lot Maintenance
2.11	Safer Alternative Products
<b>Table 2-2 Municipal Field Program SOPs</b>	
2.12	Parking lots, and pathway Maintenance
2.13	Salt Application and Storage
2.14	Drainage System Maintenance
2.15	Water and Sewer Utility Maintenance
2.16	Reporting and Recordkeeping

## 2.1 Spill Prevention, Control & Cleanup SOP

### Description

Spills and leaks, if not properly controlled, can adversely impact the storm drain system and receiving waters. Due to the type of work or the materials involved, many activities that occur either at a municipal facility or as a part of municipal field programs have the potential for accidental spills and leaks. Proper spill response planning and preparation can enable municipal employees to effectively respond to problems when they occur and minimize the discharge of pollutants to the environment. Since spill prevention is such a broad topic, many areas related to spill prevention and control are covered throughout the remaining SOP fact sheets.

### **Objectives**

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

### **Targeted Constituents**

Sediment  
Nutrients ✓  
Trash  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding ✓

### **Pollution Prevention**

- All indoor drains at facilities are piped to the sanitary sewer to avoid surface water contamination.
- All materials are stored indoors or covered outdoor bays, and only small spray bottles or containers of cleaning supplies are stored in a closed cabinet.
- Spill cleanup material is readily available (kitty litter) at each pertinent facility.
- The water treatment plant, the service center, and all fire stations have pollution prevention plans.

### **Protocols**

- All material handling is conducted indoors, under cover, or away from storm drains or sensitive water bodies.
- Spill cleanup materials, such as absorbents are located at the stations where they are readily accessible (e.g. near storage and maintenance areas, on field trucks).

### **Spill Cleanup Procedures**

- Small non-hazardous spills
  - Use a rag, damp cloth or absorbent materials for general cleanup of liquids
  - Use brooms or shovels for the general cleanup of dry materials
  - If water is used, it must be collected and properly disposed of. The wash water cannot be allowed to enter the storm drain.
  - Dispose of any waste materials properly

- Clean or dispose of any equipment used to clean up the spill properly
- Large non-hazardous spills
  - Use absorbent materials for general cleanup of liquids
  - Use brooms, shovels or street sweepers for the general cleanup of dry materials
  - If water is used, it must be collected and properly disposed of. The wash water cannot be allowed to enter the storm drain.
  - Dispose of any waste materials properly
  - Clean or dispose of any equipment used to clean up the spill properly
- Hazardous materials stored at the water treatment plan are covered by the S.A.R.A. Title III, Fixed Site Response Plan, and the Ingham County Pollution Prevention Program.

### *Reporting*

- Spills are reported in accordance with applicable reporting laws. Spills that pose an immediate threat to human health or the environment must be reported immediately to 911, the Pollution Emergency Alerting System (PEAS) at 800-292-4706 and the National Response Center (NRC) at 800-424-8802.
- Spills that pose an immediate threat to human health or the environment may also need to be reported within 24 hours to the Local Emergency Planning Committee (LEPC), State Emergency Response Center (SERC), Michigan Department of Agriculture (MDA), various divisions of EGLE, and the Department of Labor and Economic Growth (DLEG).
- After the spill has been contained and cleaned up, a detailed report about the incident should be generated and kept on file. The incident may also be used in briefing staff about proper procedures.

## 2.2 Vehicle and Equipment Fueling SOP

### Description

Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oil and grease, as well as heavy metals to stormwater runoff.

### Pollution Prevention

- The Township fueling station is at the Service Center site. Fueling area is covered; spill kits are located nearby; hydrocarbon filters are provided at the catch basin receiving runoff from fueling area. There are two fuel dispensers which were replaced in March, 2013. Small gas cans are stored in metal cabinets.
- Focus pollution prevention activities on containment of spills and leaks, most of which may occur during liquid transfers.

### Protocols

- "Spot cleaning" of leaks and drips is routinely conducted.
- Maintenance staff are familiar with the site's proper spill cleanup procedures.

### **Objectives**

- Cover
- Contain
- Educate
- Reduce/Minimize

### **Targeted Constituents**

Sediment  
Nutrients  
Trash ✓  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding

## 2.3 Vehicle and Equipment Cleaning SOP

### Description

Wash water from vehicle and equipment cleaning activities performed outdoors or in areas where wash water flows onto the ground can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, phosphates, heavy metals, and suspended solids to stormwater runoff.

### Pollution Prevention

- The Township has a wash bay at the service center building, and at all fire stations. Periodically, uses properly maintained off-site commercial washing and steam cleaning businesses for maintenance vehicles and equipment. All wash bays currently in use are connected to the sanitary system. The Township is actively working on correcting the Central Fire station wash bay connection to the storm system.

### Objectives

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

### Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓
Oxygen Demanding	

### Purpose

The purpose of this policy is to comply with EGLE and EPA regulations regarding stormwater runoff. Any dry or liquid product or contaminant that may be on the ground, whether it is on a lawn or hard surface such as pavement, may eventually reach a storm water drain during a rain or when washing apparatus or equipment outside of the fire station. Once that potential runoff reaches the stormwater drain, it will eventually reach a waterway such as a river, lake or pond. This runoff could have a negative effect on the environment. To mitigate the issue, this department is implementing a policy to eliminate or reduce the potential discharge of such storm water runoff contamination.

### Policy

It is the policy of this department to take a proactive approach to minimize and eliminate the discharge of potential contaminants produced through the washing and cleaning of apparatus and equipment into the storm water drain system.

### Procedure

#### *Cleaning solutions:*

This department will use phosphate-free detergents for washing vehicles. Personnel will follow the manufacturers recommended procedures as printed on the cleaning detergent.

#### *Vehicles/Apparatus:*

All vehicles will be washed within the confines of the vehicle apparatus bays.

Runoff of cleaning detergents and water will be squeegeed or diverted to floor drains within the apparatus bays. Runoff within the floor drains will run to the sanitary sewer where it will be treated at a wastewater treatment plant.

*Equipment:*

Fire hose will be cleaned within the confines of the apparatus bays using a phosphate-free detergent.

*Personnel awareness:*

This policy will be distributed to all personnel and will be posted in cleaning/laundry room at all stations.

*Maintenance:*

Floors will be swept before washing to minimize solid debris from entering the sanitary sewer system. Floor drains will be inspected and clean periodically to remove solid sedimentary collected discharge.

## 2.4 Vehicle and Equipment Repair SOP

### Description

Vehicle or equipment maintenance and repair is potentially a significant source of stormwater pollution, due to the use of materials and wastes created that are harmful to humans and the environment. Engine repair and service (e.g. parts cleaning), replacement of fluids (e.g. oil change), and outdoor equipment storage and parking (dripping engines) can impact water quality if stormwater runoff from areas with these activities occurring on them becomes polluted by a variety of contaminants.

### Pollution Prevention

- All vehicle and equipment repairs performed by the Township are always done inside the maintenance facility.

### **Objectives**

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

### **Targeted Constituents**

Sediment  
Nutrients  
Trash  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding

## 2.5 Outdoor Container Storage SOP

### Description

Accidental releases of materials from above ground liquid storage tanks, drums, and dumpsters present the potential for contaminating stormwater with many different pollutants. Tanks may store many potential stormwater runoff pollutants, such as gasoline, aviation gas, diesel fuel, ammonia, solvents, syrups, etc. Materials spilled, leaked, or lost from storage tanks may accumulate in soils or on other surfaces and be carried away by rainfall runoff. These source controls apply to containers located outside of a building used to temporarily store liquid materials and include installing safeguards against accidental releases, installing secondary containment, conducting regular inspections, and training employees in standard operating procedures and spill cleanup techniques.

### Pollution Prevention

- The Township does not have outdoor container storage. Dumpsters are covered under waste handling and disposal.

### **Objectives**

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

### **Targeted Constituents**

Sediment  
Nutrients ✓  
Trash  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding ✓

## 2.6 Outdoor Equipment Maintenance SOP

### Description

Outside process equipment operations and maintenance can contaminate stormwater runoff. Activities, such as grinding, painting, coating, sanding, degreasing or parts cleaning, landfills and waste piles, solid waste treatment and disposal, are examples of process operations that can lead to contamination of stormwater runoff.

### Pollution Prevention

- The Township requires these activities are contained in a building where the floor drains to the sanitary sewer.

### **Objectives**

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

### **Targeted Constituents**

Sediment ✓  
Nutrients  
Trash ✓  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding

## 2.7 Outdoor Storage of Raw Materials SOP

### Description

Raw materials, by-products, finished products, containers, and material storage areas exposed to rain and/or runoff can pollute stormwater. Stormwater can become contaminated when materials wash off or dissolve into water or are added to runoff by spills and leaks. Improper storage of these materials can result in accidental spills and the release of materials. To prevent or reduce the discharge of pollutants to stormwater from material delivery and storage, pollution prevention and source control measures, such as minimizing the storage of hazardous materials on-site, enclosing or covering materials, storing materials in a designated area, installing secondary containment, conducting regular inspections, preventing stormwater runoff and runoff, and training employees and subcontractors must be implemented.

### **Objectives**

- Cover
- Contain
- Educate
- Reduce/Minimize

### **Targeted Constituents**

Sediment ✓  
Nutrients ✓  
Trash ✓  
Metals  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding ✓

### ***Pollution Prevention***

- Salt, sand, and gravel are stored outside in partially covered bays. The salt bay is equipped with an underground plastic holding tank, which is pumped out periodically.

## 2.8 Waste Handling & Disposal (solid waste) SOP

### Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, re-use, and recycling; and preventing run-on and runoff.

### Pollution Prevention

- Dumpsters are inspected on a regular basis; trash receptacles at the park facilities are emptied and inspected on a regular basis, replacement is necessary when the receptacle may have a leak or other damage.
- The Township recycles materials whenever possible.
- The Township has a recycling coordinator on staff, and participates in regional recycling efforts, including hosting recycling events twice a year.

### Protocols

- Covered storage containers with leak proof lids are used and supplied by Granger.
- Storage containers are checked weekly for leaks and to ensure that lids are on tightly. Any that are leaking, corroded, or otherwise deteriorating are replaced.
- Storage areas are swept and cleaned regularly. In paved areas, a hose is not used to clean the area to avoid runoff to a storm drain.
- Disposal of rinse and wash water from cleaning waste containers is released into a sanitary sewer inside the maintenance facility.
- Waste from damaged containers is transferred into safe containers and the damaged container is scheduled for replacement.
- Special care is taken when loading or unloading wastes to minimize losses.

### Controlling Litter

- Both “No Littering” and “No Dumping” signs are posted throughout the Township parks and facilities. The Township enforces anti-litter laws.

### **Objectives**

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

### **Targeted Constituents**

- Sediment ✓
- Nutrients ✓
- Trash ✓
- Metals ✓
- Bacteria ✓
- Oil and Grease ✓
- Organics ✓
- Oxygen Demanding ✓

- Spoils area has a minimum 20' grass & shrub buffer from the nearby wetlands.
- A sufficient number of litter receptacles are used for each facility.
- Pet waste stations equipped with bags and cans are provided in most parks and along Township trails.

## 2.9 Building & Grounds Maintenance SOP

### Description

Stormwater runoff from building and grounds maintenance activities can be contaminated with toxic hydrocarbons in solvents, fertilizers and pesticides, suspended solids, heavy metals, and abnormal pH. The following protocols will prevent or reduce the discharge of pollutants to stormwater from building and grounds maintenance activities by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater collection system.

### **Objectives**

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

### **Targeted Constituents**

- Sediment ✓
- Nutrients ✓
- Trash ✓
- Metals ✓
- Bacteria ✓
- Oil and Grease ✓
- Organics ✓
- Oxygen Demanding ✓

### ***Pollution Prevention***

- The Township uses safe alternative products when possible (see 2.11 Safer Alternative Practices).
- Proper lawn management and landscaping is practiced, including the use of native vegetation.
- Riparian buffers are maintained appropriately by mowing only when necessary, hand weeding out invasive species and other weeds and maintaining native plants within buffers.

### ***Protocols***

#### *Washing*

- All washing is conducted inside the maintenance facility. If the object cannot be washed inside, it is transported to a commercial car wash which drains to the sanitary sewer.

#### *Landscaping Activities*

- Chemicals (insecticide, herbicide, or fertilizer) are not applied directly to surface waters, unless the application is approved and permitted by the state.
- Mulch is used a control measure on exposed soils.
- Irrigation schedules are set so pesticides will not be washed away and to minimize non-stormwater discharge.
- Temporarily stockpiled seasonal field material and “Ice Melt” sacks are stored inside on pallets away from watercourses and storm drain inlets.
- Grass clippings that fall on sidewalks during mowing are blown back on to the mowed area, other grass clippings are left on the mowed area to mulch.

#### *Building Repair, Remodeling, and Construction*

- The Township uses ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly disposes of collected material daily.
- The cleaning of paint brushes and tools covered with water-based paints are conducted in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials are cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.

#### *Inspection*

- Irrigation systems are inspected periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.

## 2.10 Parking Lot Maintenance SOP

### Description

Parking lots can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges.

### Pollution Prevention

- The Township sweeps Township facility' parking lots once per year.
- Catch basins and drains are inspected and cleaned once a year.

### Protocols

- The parking lot is kept clean and orderly. Debris is removed in a timely fashion.
- "No Littering" and "No Dumping" signs are posted and the Township enforces anti-litter laws.
- An adequate number of litter receptacles are used.

### Surface Repair

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Parking lot repair is using concrete, asphalt, and seal coat is conducting during dry weather to prevent contamination from contacting stormwater runoff.
- Nearby storm drain inlets and manholes are covered and sealed (with waterproof material or mesh) before applying seal coat, slurry seal, etc., where applicable. Covers are left in place until the job is complete and until all water from emulsified oil sealants has drained or evaporated.
- Township staff are trained alongside Township staff on stormwater pollution prevention practices, street sweeping and catch basin maintenance is covered as part of the training.

### **Objectives**

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

### **Targeted Constituents**

- Sediment ✓
- Nutrients ✓
- Trash ✓
- Metals ✓
- Bacteria ✓
- Oil and Grease ✓
- Organics ✓
- Oxygen Demanding ✓

## 2.11 Safer Alternative Products SOP

### Description

Using less harmful products is important. Alternatives exist for most product classes including chemical fertilizers, pesticides, cleaning solutions, janitorial chemicals, automotive and paint products, and consumables (batteries, fluorescent lamps).

### Pollution Prevention

- The Township contracts with local janitorial firms for office and restroom cleaning. The Township encourages its cleaning partners to use environmentally friendly products whenever possible.

### **Objectives**

- Educate
- Reduce/Minimize
- Product Substitution

### **Targeted Constituents**

Sediment  
Nutrients ✓  
Trash  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding

## 2.12 Road and Street Maintenance SOP

### Description

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis.

### Pollution Prevention

- The Township does not perform road or street maintenance.
- The Township maintains pathways along roads and off-road trails that are part of the Township's non-motorized system. Snow is removed by plowing. No salt is used. The Township also mows along the edges of the pathways for safety and sight clearance.

### **Objectives**

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

### **Targeted Constituents**

Sediment ✓  
Nutrients  
Trash ✓  
Metals ✓  
Bacteria  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding ✓

## 2.13 Salt Application and Storage SOP

### Description

The application and storage of deicing materials, most commonly salts such as sodium chloride, can lead to water quality problems for surrounding areas. Salts, gravel, sand, and other materials are applied to highways and roads to reduce the amount of ice during winter storm events. Salts lower the melting point of ice, allowing roadways to stay free of ice buildup during cold winters. Sand and gravel increase traction on the road, making travel safer.

During road salt application, certain best management practices can produce significant environmental benefits. The amount of road salt applied should be regulated to prevent over-salting of motorways and increasing runoff concentrations. The amount of salt applied should be varied to reflect site-specific characteristics, such as road width and design, traffic concentration, and proximity to surface waters. Calibration devices for spreaders in trucks aid maintenance workers in the proper application of road salts. Alternative materials, such as sand or gravel, should be used in especially sensitive areas

### **Objectives**

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

### **Targeted Constituents**

Sediment ✓  
Nutrients ✓  
Trash  
Metals ✓  
Bacteria  
Oil and Grease  
Organics ✓  
Oxygen Demanding ✓

### **Pollution Prevention**

- The Township only salts Township facilities parking lots and uses non-salt “Ice Melt” for sidewalks, and at school crossings’ ramps.
- The Township uses the minimum amount of salt needed to get the job done.
- Surface Temperatures are considered when determining volume of salt to apply.

### **Protocols**

- The Township uses both a pick-up truck applicator and a hand-operated applicator. The truck applicator is calibrated according to manufacturer’s recommendations in the beginning of the season, and then is revisited nearly every day as it is adjusted according to weather conditions.
- Snow is also manually removed from driveways, parking areas and sidewalks.
- “Ice Melt” is brought by truck and loaded directly into the maintenance facility. The “Ice melt” is dry, comes bagged and is stored inside.
- Bulk salt is brought by truck and is stored outside in a covered bay. The salt bay is equipped with an underground plastic holding tank, which is pumped out periodically.
- Maintenance staff knows when to plow and reapply salt

## 2.14 Drainage System Maintenance SOP

### Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

### Pollution Prevention

- The Township maintains all storm systems within parking lots of Township facilities.
- The Township maintains an infiltration basin at Marshall Park

### Protocols

- Municipal staff regularly inspect facilities to ensure the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - The Township maintains catch basins for parking lots of Township owned facilities. The systems are inspected annually and are cleaned on an as-needed basis.
- During routine maintenance of conveyance system and drainage structures field staff looks for evidence of illegal discharges or illicit connections:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections
  - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
  - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- The Township MS4 maps will be updated within 30 days of a new stormwater structure being added to the system.

### **Objectives**

- Contain
- Educate
- Reduce/Minimize

### **Targeted Constituents**

- Sediment ✓
- Nutrients ✓
- Trash ✓
- Metals ✓
- Bacteria ✓
- Oil and Grease ✓
- Organics ✓
- Oxygen Demanding ✓

## 2.15 Water & Sewer Utility Maintenance SOP

### Description

Although the operation and maintenance of public utilities are not considered chronic sources of stormwater pollution, some activities and accidents can result in the discharge of pollutants that can pose a threat to both human health and the quality of receiving waters if they enter the storm drain system. Sewage incident response and investigation may involve a coordinated effort between staff from a number of different departments/agencies. Cities that do not provide maintenance of water and sewer utilities must coordinate with the contracting agency responsible for these activities and ensure that these model procedures are followed.

### **Objectives**

- Cover
- Contain
- Educate
- Reduce/Minimize

### **Targeted Constituents**

Sediment ✓  
Nutrients ✓  
Trash  
Metals  
Bacteria ✓  
Oil and Grease ✓  
Organics ✓  
Oxygen Demanding ✓

### ***Pollution Prevention***

The Township owns the sanitary collection system and pump stations; The Township monitors and maintains all aspects of the sanitary collection system.

## **2.16 Reporting and Recordkeeping SOP**

As applicable, the Township maintains records demonstrating successful implementation of SOPs. Recordkeeping may include training, site inspection and maintenance, and if applicable, monitoring. It is anticipated that site inspections will occur on an annual basis because of the minimal amount of operations occurring at the Township level.

The Township is required under the Phase II General NDPEs Permit, to submit progress reports to the EGLE on October 1 of every other year, or as otherwise required. Specific reporting requirements will include:

- Program implementation status.
- Summary of stormwater activities performed.
- Results of information collected, such as monitoring data.
- Summary of proposed stormwater activities for the next reporting cycle.
- Changes made in BMP selection.
- Changes in stormwater management personnel.
- Changes made in program or measurable goals.

