



**STORMWATER POLLUTION PREVENTION PLAN
RAYMORE MUNICIPAL COMPLEX
Centerview Community Event Space
CITY OF RAYMORE**

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**Raymore Municipal Complex
Centerview
SWPPP and Operation and Maintenance (O&M) Manual**

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**Raymore Municipal Complex
Centerview
Operation and Maintenance (O&M) Manual**

I. Introduction

This manual is designed to assist City of Raymore personnel on how to properly implement Best Management Practices (BMP's) on City owned facilities and field activities as part of the municipal stormwater management program.

This manual will identify the potential pollutants and activities that can contribute to the pollution of storm waters as well as the BMP's used to ensure that the potential for these pollutants affecting stormwater is diminished to the maximum extent practicable.

II. Potential Pollutant Sources

A variety of pollutants are associated with stormwater pollution due to municipal activities including: sediment, nutrients, bacteria and viruses, oxygen demanding substances, oil and grease, metals, toxic pollutants and floatables (Table 1). The impacts of these pollutants on water quality along with a discussion on municipal activities which can potentially contribute to their introduction into stormwater runoff are presented in the following subsections.

A) Sediment. Sediment is a common component of stormwater, and is considered to be one of the most damaging pollutants. Sediment fills in streams, lakes, rivers, wetlands and road drainage ditches, and can affect aquatic life by smothering fish larvae and eggs. Suspended soil particles can cause water to look cloudy or turbid. Excessive turbidity reduces light penetration in the water, impairing the sight of feeding fish; clogs fish fills, and increases drinking water treatment costs. Fine sediment also acts as a vehicle to transport other pollutants including nutrients, trace metals and hydrocarbons to nearby surface waters. Significant sediment-borne pollutants are associated with highway runoff; originating from pavement wear, vehicles and other road maintenance. Other sources of sediment include erosion from new development and construction sites.

B) Nutrients- nutrients, especially nitrogen and phosphorus, can cause algae blooms and excessive aquatic plant growth in water bodies. These conditions can impair many important uses of these waters, including recreation, fish habitat, and water supply. Nitrogen and phosphorus associated with stormwater runoff come mostly from fertilizer application. Phosphorus has also been associated with application of sand and salt of roads. Nutrients are a result of yard debris, garbage, as well as fertilizer and pesticide use.

C) Metals- Trace metals are a water quality concern because the toxic effects they can have on aquatic life. Metals can also be a health hazard to humans through direct ingestion of contaminated water or through eating contaminated fish. The most common trace metals found in stormwater runoff in urban areas are lead, zinc, copper, cadmium, nickel and other metal sources originating from body rust, brake lining wear steel highway structures, tire wear, steel fabrication and vehicle maintenance.

D) Oxygen-demanding substances- oxygen-demanding substances tend to deplete the dissolved oxygen levels in streams and lakes. The depleted oxygen supply can result in the reduction of aquatic life. Oxygen demanding substances are found in yard waste (such as leaves and lawn clippings), animal wastes, street litter and organic matter.

E) Bacteria and Viruses- bacteria and viruses are the most common microorganisms found in surface water runoff. Bacteria and viruses often carry diseases which can be transferred to animal life and to humans. The main sources of these contaminants are animal excrement and sanitary sewer overflows.

F) Oil, Grease and Hydrocarbons- oil grease and hydrocarbons contain a wide array of compounds, some of which are toxic to aquatic organisms at low concentrations. The main sources of oil and grease are leakage from engines and waste oil disposal. Hydrocarbons typically come from spills, leaks, lubricants and asphalt surface leachate. Hydrocarbon levels are highest from parking lots, roads and service stations.

G) Floatables- floatables (garbage) are pollutants that may be contaminated with heavy metals, pesticides and bacteria. Typically resulting from street refuse or industrial yard waste, floatables also create an eyesore in water ways *and* detention basins.

Table 1. Pollutant sources and their Impacts

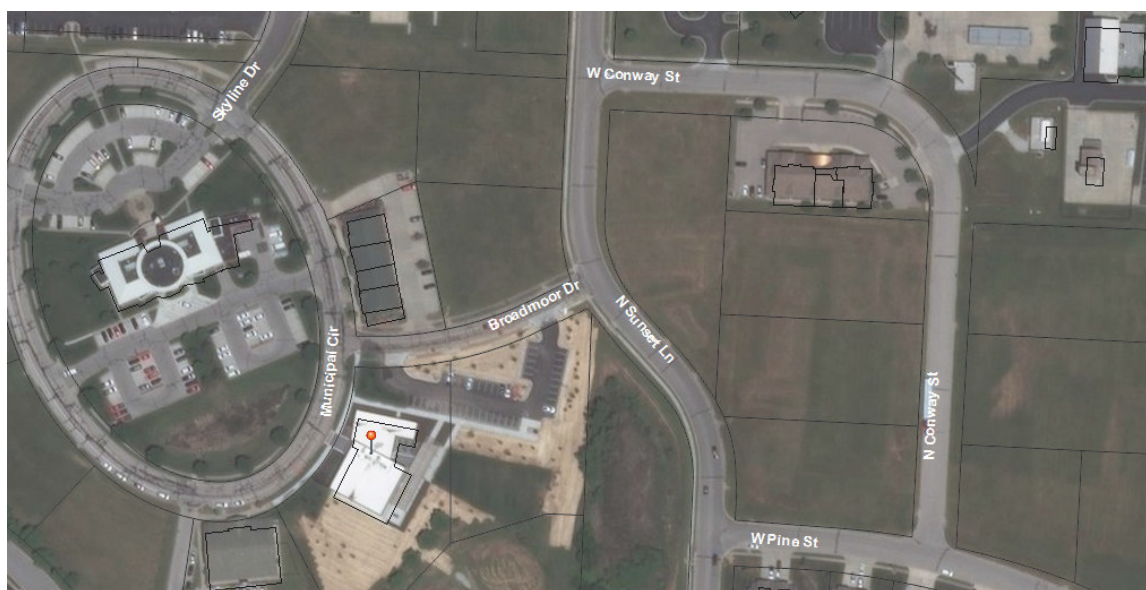
Pollutant	Source	Impacts
Sediment	Construction sites, vehicle/boat washing, agricultural sites	Destruction of aquatic habitat for fish and plants, transportation of attached oils, nutrients, and other chemical contamination, increased flooding.
Nutrients (Phosphorus, Nitrogen, Potassium, Ammonia)	Fertilizers from agricultural operations, lawns and gardens, livestock and pet waste, decaying grass and leaves, sewer overflows and leaks.	Harmful algal blooms, reduced oxygen in the water, changes in water chemistry and pH. Nutrients can result in excessive or accelerated growth of vegetation, resulting in impaired use of water in lakes and other receiving waters.
Hydrocarbons (Petroleum Products, Benzene, Toluene, Ethyl Benzene, Xylene)	Vehicle and equipment fluid leaks engine emissions, pesticides, equipment . cleaning, leaking fuel storage containers, fuel spills, parking lot runoff	These pollutants are toxic to humans and wildlife at very low levels. Carcinogenic. Teratogenic.
Heavy Metals	Vehicle brake and equipment wear, engine emissions, parking lot runoff, batteries, paint and wood preservatives, fuels and fuel additives, pesticides, cleaning agents	Metals including lead, zinc, cadmium, copper, chromium and nickel are commonly found in stormwater. Metals are of concern because they are toxic to all life at very low levels. Carcinogenic. Teratogenic.
Toxic Chemicals (Chlorides)	Pesticides, herbicides, dioxins, PCBs, industrial chemical spills and leaks, deicers, solvents,	Chemicals are of concern because they are toxic to all life at very low levels. Carcinogenic. Teratogenic.
Debris/Litter/Trash	Improper solid waste storage and disposal, abandoned equipment, litter	Aesthetically unpleasant. Risk of decay product toxicity. Risk of aquatic animal entrapment or ingestion and death.
Pathogens (Bacteria)	Livestock, human, and pet waste, sewer overflows and leaks, septic systems	Human health risks due to disease and toxic contamination of aquatic life.

III. Facilities Locations, Activities and Control Measures

1. Centerview Community Event Space (Low priority)

Location- The **Centerview Community Event Space** is located at 227 Municipal Circle Raymore, Missouri 64083. It houses City Departmental offices, Council Chambers and Utility and Court Clerks on the main level. The Police Department is located on the lower level. There are two parking lots for city employees, police and visitors located on the north and south sides of the building and a detention basin located adjacent to the south parking lot.

Map 1. Centerview Community Event Space



Activities- The Municipal Complex is a City departmental business office and event space that does not contribute any significant stormwater impacts or concerns.

The most common supplies stored in the buildings are:

Cleaning Supplies

Control Measures SOPs-

Good Housekeeping. Good housekeeping practices offer a practical and cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with storm water. Good housekeeping practices also help to enhance safety and improve the overall work environment.

- Indoor work areas will be kept clean and organized.
- The yard will be walked to pick up and dispose of litter weekly
- The paved surfaces around the building will be swept as needed.
- Fertilizers, herbicides, paint, solvents and other chemicals will be stored indoors neatly organized; containers must be properly labeled, hazardous chemicals will be stored in a locked container.

City Vehicle and Visitor Parking Areas

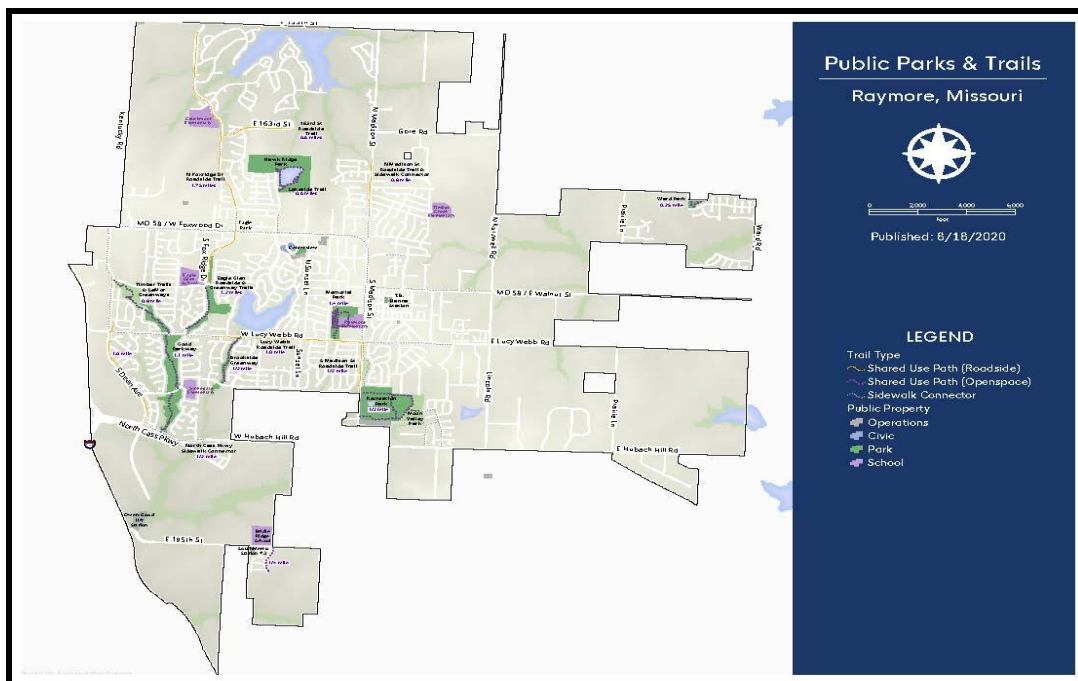
- Vehicles and equipment will be parked on the approved designated area.
- If any leaks are discovered, a drip pan will be used to collect the fluid and vehicle will be scheduled for repairs(City vehicles)
- Any leaks or spills that do wind up on the pavement will be cleaned using dry methods (absorbent material, sweep when dry and dispose in the proper waste container)
- Parking lots are swept as needed by the Public Works Operations Department.
- Snow removal and Ice control is performed by the Public Works Operations Department. The minimum amount of de-icing material needed to be effective will be applied. Material is stored at the Public Works Facility in the Salt Dome.

2. Parks and Parks Facilities

Parks Facilities	Address/Location	Amenities	Acres
Memorial Park	400 Park Lane	Community Park	25
Recreation Park	1011 S Madison	Community Park/Lake	61.5
Moon Valley Park	500 Chestnut Circle	Community Park	18.5

Parks House/ Maintenance Facility	909 S Madison	Event/Green Space	10
Ward Park	Ward Park Place Subdivison	Community Park	3.88
Hawk Ridge Park	701 Johnston Parkway	Community Park/Lake	79
Eagle Glen Linear Park	Eagle Glen Subdivison	GreenSpace/ Walking Trails	25.3
Good Parkway Linear Park	Stonegate/Woodcreek Subdivisions	GreenSpace/ Walking Trails	33
Brookside Greenway	Brookside/Cedar Ridge Subdivision	GreenSpace/ Walking Trails	
Timber Trails/Lemor Greenway	Lemore Estates/Foxridge	GreenSpace/ Walking Trails	
Parks and Rec Admin Offices	1021 S Madison	Administrative Office	
Eagle Park	1210 W Foxwood Drive	Monument/Flagpole	
Farmers Market	220 S Washington	Community Park/Farmers Market	
Centerview	227 Municipal Circle	Community Event Space	1.3
Raymore Activity Center	1011 S. Madison	Indoor Activity Space	2.7

MAP



Activities

- Mowing Grass
- Fertilizer application
- Herbicide treatment
- Maintain Ball Fields
- Facilities clean up and maintenance (bathrooms, parking lots, shelters, etc)
- Garbage collection
- Mulching
- Tree Trimming

Control Measures SOPs

Lawn Mowing and/or trimming

- Mowing/trimming operations will occur weekly, twice weekly, or as outlined in the Maintenance Schedule.
- All mowing/trimming equipment will be properly fueled at a proper fueling location. Any spilled fuels will have absorbent materials applied to absorb them. Absorbent materials will be disposed of in a proper waste container.
- Mowers will have mulching type decks that are kept in good repair with all guards and deflectors in place.
- Trimmers will have all deflectors in place and in good repair.
- All materials resulting from mowing/trimming operations should remain on grass.
- ***Mowers shall remain at least 20 feet from streams, ponds or lakes. Clipping and materials shall not be allowed to enter any body of water.***
- Trimmings that are found on hard surfaces will be blown or swept back on to the grass.
- Trimmings that cannot be swept or blown back on to grass will be swept and deposited into appropriate waste containers or composted.

Fertilizer Application

- City will order and consume fertilizer as needed. Generally fertilizer will not be stored.
- If fertilizer is stored, it will be inside of a building.
- Fertilizer will be applied once or twice annually as needed.
- Fertilizer will **not** be applied before a significant wet weather event.
- Fertilizer will be applied in accordance to manufacturer's instructions.
- Fertilizer will be transported to site in bags.
- Fertilizer spreaders will be filled at the site where the use is intended.
- Bags will be opened individually and dumped into a spreader.
- Any spilled fertilizer will be swept and returned to spreader or spread on

grass.

- Fertilizer that lands on hard surfaces will be swept or blown back onto grass.
- Fertilizer bags will be disposed of in a proper waste container.
- Any errant fertilizer found in vehicle will be swept and spread on grass:
- Always follow all federal and state regulations governing use, storage, and disposal of herbicides, or pesticides and their containers (“Read the Label”)
- Maintain MSDS sheets at a central, designated location in the Parks Maintenance Building.

Herbicide/Pesticide Application

- Will be purchased and consumed as needed. Minimal pesticides will be stored.
 - Stored product will be kept in a separate cabinet with locked doors.
 - Product will be mixed and applied according to manufacturer's recommendation for best results (“Read the Label”)
 - Product will be applied as needed when weather conditions allow.
 - Product will **not** be applied before a significant wet weather event.
 - Appropriate PPE will be worn when mixing and applying products.
 - Product will be mixed in an area and manner to avoid spillage.
- If a spill occurs, absorbent materials will be applied to spill. Absorbent materials will be disposed of in an appropriate waste container.
- Empty product containers will be disposed of in appropriate waste containers.
 - Product sprayers will be secured in vehicles when transported.
 - All mixed products will be applied to plants or other appropriate locations.
 - Surplus materials may not be deposited into storm drain or sanitary sewer.
 - Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
 - Always follow all federal and state regulations governing use, storage, and disposal of herbicides, or pesticides and their containers (“Read the Label”)
 - Maintain MSDS sheets at a central, designated location in the Parks Maintenance Building.

Restroom Maintenance

- All restrooms will be cleaned in accordance to minimum acceptable standards
- Restroom floors will be swept. Swept materials will be collected and disposed of in a proper waste container

- Restroom floors and walls may be hosed. All water from such activities must drain into the sanitary sewer, or onto landscaped areas. **No such water may enter the storm drain.**
 - Restroom floors will be mopped. All water from such activities will be put into the sanitary sewer or dumped onto landscaped areas. No such water shall be allowed to enter the storm drain.
 - All cleaning chemicals shall be used in accordance to manufacturer's specifications.
 - Cleaning chemicals shall be mixed in accordance to SOP for cleaning chemicals.
 - Weekly visual inspections and repaired problems will be logged on the appropriate reports located on the appendices section of this manual.
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- Maintain MSDS sheets at a central, designated location in the Parks Maintenance Building.

Sidewalks, Parking Lots, and Trails in and around Parks and Public Facilities.

- Parking lots will be swept by Public Works annually or as needed.
- Trails and sidewalks will be kept free of debris as necessary.
- Trails and sidewalks will be blown off as needed. Debris will be blown onto grass or planted areas.
- Curbs and gutters around parking lots will be blown out or swept as needed. Debris will be blown onto grass or planted areas when possible. When not possible, debris will be collected and deposited into proper waste container.
- Garbage and other debris will be removed from catch basins.

Weekly visual inspections and repaired problems will be logged on the appropriate reports located on the appendices section of this manual.

Snow Melt/ Road Salt storage and use

- All snow melt materials will be kept in bags and stored in a storage building until they are consumed.
- Road salts will be stored in a proper road salt storage location (Public Works Salt Dome) Road salts will be stored in a manner to be protected from storms and to allow minimal dissolving of salts.
- Snow melt and road salt materials will be loaded into spreading devices as needed and as can be consumed. Materials will not remain in spreading devices if unused. Unused road salts will be returned to stockpile.
- Snow melt and road salts will be applied to parking lots and walkways as needed

using minimal necessary materials. Materials may be reapplied only as needed for public safety.

- Any spillage of snow melt material or road salts will be returned to the spreading device and applied to appropriate areas. Spilled materials may also be swept and deposited in an appropriate waste container.
- Snow melt or road salts that are not dissolved will be blown or swept of parking lots or walkways as needed. Removed materials will either be blown to landscaped areas or collected and deposited in an appropriate waste container.
- Snow removal equipment is washed at the Public Works Maintenance Bay.

3. Buildings

Buildings & Locations:

City Hall	100 Municipal Circle
Parks and Recreation Maintenance Shop	909 South Madison
Parks and Recreation Admin Offices	1210 South Madison
Centerview Community Event Center	227 Municipal Circle

Activities:

- All facilities have multiple floor drains that flow into the sewer system.

Control Measures SOPs

- Care for the building grounds is the same as the Parks section.
- Parking lot sweeping and snow removal is Public Works responsibility.

Cleaning Chemicals

- All cleaning chemicals are to be mixed in accordance to manufacturer's directions.
- All cleaning chemicals are to be mixed in an area with adequate ventilation and an area that has a drain that connects to the sanitary sewer.
- If no connection to a sanitary sewer is available, cleaning chemicals are to be mixed on grass or other landscaped area.
- All appropriate PPE shall be work when mixing cleaning chemicals.
- Any spills will be immediately contained with absorbent materials. Absorbent materials will be disposed of in a proper waste container.
- Excess mixed materials will be stored in a properly marked and appropriate container, and in a closed cabinet or storage space. Excess materials should be consumed as soon as possible through appropriate cleaning activities.

- Maintain MSDS at a central, designated location at the facility.

IV. Field Activities and Control Measures

Activities and Control Measures

- Tree removal or pruning as needed- All tree removal materials are hauled to green waste facility or composted, all debris from the work area are cleaned up by the end of each work day.
- Plant trees/vegetation- trees and vegetation are planted throughout the year; a backhoe is used to excavate the holes for trees, trees/vegetation are brought in to the work area on a flatbed trailer or truck, street and gutters are swept by the end of each work day.
- Mulch Piles- Maintained at a concentrated location on the Parks Maintenance Building Lot with an adequate vegetative buffer or perimeter erosion/sediment control.
- Sprinkler repair- is an as needed activity, any dirt that is placed on the street, gutters or parking lot will be removed from these hard surfaces by the end of each work day.
- Snow removal of City facilities sidewalks. Salt and de-icing chemicals are used in limited amounts. Any over application is cleaned up.

V. Spill Prevention and Response Procedures

Each facility work area has a spill response kit. Most spills can be cleaned up following the product manufacturer recommendations or for liquid spills using absorbent oil/dry materials. Absorbent oil dry, sealable containers, plastic bags, and shovels/brooms are suggested minimum spill response kit.

- Make sure the spill area is safe to enter and that it does not pose an immediate threat to the health or safety of any person.
- Stop the spill source
- Check for hazards (flammable material, noxious fumes, cause of spill) -if flammable liquid, turn off engines and nearby electrical equipment. If serious hazards are present leave the area and call 911. **LARGE SPILLS ARE LIKELY TO PRESENT A HAZARD.**
- Call supervisor for assistance and to make them aware of the spill and potential dangers.
- If possible, stop the spill from entering drains (use absorbent or other material as necessary).
- Stop spill from spreading (use absorbent or other material)

- If spilled material has entered a storm sewer; contact the Public Works Department Operations Director.
- Clean up spilled material according to manufacturer specifications, for liquid spills use absorbent materials and do not flush area with water.
- Properly dispose of cleaning materials and used absorbent material according to Manufacturer specifications.

VI. Inspections

Qualified personnel from the Parks and Recreation Department will conduct inspections of the assigned areas and document with the appropriate report. Inspection reports and logs are located on the appendices section of this manual.

- Weekly visual inspections: Parks (include buildings and parking lots).

Buildings (include grounds and parking lots)

- High Priority Facilities Compliance Reports

Weekly visual inspections will be tracked in the log attached on appendix F, High Priority Facility Compliance reports will be documented on appendix G; spills will be cleaned up immediately and documented on a spill report located on appendix D.

Deficiencies will have to be corrected within one week of being reported. All inspections and follow up actions will be documented and kept in the Corrective Action Log Appendix E

VII. Employee Training

All of the Parks & Recreation employees will receive training regarding this O&M Manual and Storm Water Controls at least annually. The training will cover the following subjects:

- Impacts associated with illicit discharges;
- Proper disposal and management of wastes;
- Proper maintenance of indoor and outdoor working areas including parking lot surfaces;
- Spill response; and
- Inspections training.

VIII. Appendices

Appendix A - Site Maps

Appendix B - Visual Inspection Log

Appendix C - High Priority Facility Compliance Report

Appendix D - Spill Reports

Appendix E - Corrective Action Log

Appendix F - Employee Training Log

