# Stormwater Management Program

**MS4 Permit # MO-R040000**

## City of Grandview, Missouri

**Project No. 106120**
**Revision 0**
**9/14/2018**

# Stormwater Management Program

**MS4 Permit # MO-R040000**

**prepared for**

## City of Grandview, Missouri
**Kansas City, KS**

**Project No. 106120**

**Revision 0**
**9/14/2018**

**prepared by**

## Burns & McDonnell Engineering Company, Inc.
**Kansas City, Missouri**

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# LIST OF ABBREVIATIONS

| Abbreviation | Term/Phrase/Name |
|---|---|
| APWA | American Public Works Association |
| BMP | Best Management Practice |
| CSR | Code of State Regulations |
| MARC | Mid-America Regional Council |
| MCM | Minimum Control Measure |
| MDNR | Missouri Department of Natural Resources |
| MG | Measurable Goals |
| MS4 | Municipal Separate Storm Sewer System |
| ORI | Outfall Reconnaissance Inventory |
| SWMP | Stormwater Management Program |

# INTRODUCTION

The Stormwater Management Program (SWMP) has been developed for the City of Grandview (City) in accordance with State of Missouri Department of Natural Resources (MDNR) Missouri State Operating Permit MO-R040000. The permit authorizes discharges of stormwater from regulated small Municipal Separate Storm Sewer Systems (MS4), as defined in Missouri Code of State Regulations (CSR) 10 CSR 20-6.200. The primary purpose of the SWMP is to improve and preserve the quality of water in the receiving streams by reducing the discharge of pollutants within the City's MS4.

## Background

MDNR issued a new state operation permit on October 1, 2016, dictating the City's responsibilities to protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and to satisfy the appropriate water quality requirements of the Missouri Clean Water Act. As part of these responsibilities, the City was required to submit an updated SWMP. The SWMP contains Best Management Practices (BMPs) and Measurable Goals (MGs) to track progress and performance of meeting the permit requirements to the maximum extent practicable.

MDNR conducted a water pollution compliance inspection of the City on October 17, 2017. As a result of the inspection, MDNR issued a Letter of Warning (LOW) February 7, 2018. The City requested and was granted an extension to submit an updated SWMP by June 15, 2018 to allow the City to incorporate comments from the compliance inspection. For this reason, "Year 1" of activities described in this SWMP are planned for 2018, with the 5-year term ending in 2022.

## Minimum Control Measures and Best Management Practices

Each Minimum Control Measure (MCM) outlines a series of BMPs the City will implement with the intended purpose of reducing stormwater pollution. Each BMP includes a description of the practice, as well MGs to identify progress towards achieving the purpose of the BMP. All MGs include a description of the actions the City is taking or plans to take to implement the goal, and how the effectiveness of the goal is measured or progress towards achievement of the goal is tracked. MGs that do not show desirable metrics will be re-evaluated and/or replaced during the next update to the SWMP.

At the end of each BMP section is an attachment table that includes a list of all additional documentation included to coincide with progress tracked under the MGs. This table is intended to be a living log to document the measures the City is taking each year to meet the obligations of the permit.

## Stormwater Management Plan Responsible Party

The primary responsible party for overall management and implementation of the SWMP is Dennis Randolph, Director of Public Works. Others may be involved in the execution of each of the BMPs and documentation of the progress towards implementation of those BMPs.

## Missouri State Operating Permit MO-R040000

Attached is the full Missouri State Operating Permit.

## Missouri Department of Natural Resources Water Protection Program

## Phase II MS4 Stormwater Management Plan Evaluation and Rating

Attached is the SWMP review form to determine that the regulated MS4's SWMP is in compliance with their MS4 operating permit provided by MDNR.

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# MCM 1: PUBLIC EDUCATION AND OUTREACH OF STORMWATER IMPACTS

*The City must implement a public education program to distribute educational material to the community or conduct equivalent outreach activities about the impact of stormwater discharges on the waterbodies and steps the public can take to reduce pollutants in stormwater runoff.*

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## BMP 1.1: Provide Educational Material on Pollutant Sources for Targeted Audiences

*MG 1.1.1: Develop educational information on City website for residents/homeowners, developers/contractors, business owners, and city staff/municipal operations and associated pollutant sources.*

The City provides an educational webpage including information on stormwater runoff, pollutants and the City's responsibility under the MS4 permit. The webpage addresses pollutants from vehicles and garages, lawns and gardens, home repair and improvement, pet care, swimming pools and spas, and septic system use and maintenance. Links are also provided for the current SWMP and annual report as well as the City's illicit discharge ordinance.

Currently the webpage primarily addresses pollutants from residents/homeowners. The City will expand the webpage by Year 3 to identify pollutant sources for specific targeted audiences including developers/contractors, business owners, and city staff/municipal operations.

This goal shall measure success of reaching the targeted audiences through number of visits to the City's webpage as documented in the following table. Additional documentation of this material is provided in Table 1.1 attachments.

| Year | Number of Visits to Webpage |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 1.1.2: Provide educational information on protecting water quality at City Hall.*

The City provides an educational handout on protecting water quality from urban runoff at the entrance to City Hall. Additional educational material will be developed by Year 1 to display on digital display in City Hall.

This goal shall measure success of reaching the targeted audiences through number of flyers distributed each year and documented in the following Table. Additional documentation of this material is provided in Table 1.1 attachments.

| Year | Number of Flyers Distributed |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 1.1.3: Provide educational information on protecting water quality at The View Community Center*

The City will develop educational material for the digital display at The View Community Center. This goal shall measure success of reaching the targeted audiences through number of days that the material is on display and number of The View Community Center visitors, as documented in the following table. Additional documentation of this material is provided in Table 1.1 attachments.

| Year | Number of Days Displayed | Number of Visitors |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

*MG 1.1.4: Educate community on the hazards of pet waste and provide measures to mitigate pet waste contribution from public spaces*

The City provides a link to the Mid America Regional Council (MARC) webpage with educational information on the effects of pet waste on water quality. The City also provides dog waste stations with bags and disposal bins at the Tails and Trails dog park.

This goal shall measure success of reaching the targeted audiences through the number of waste bags the City purchases each year to replenish the dog waste stations, as documented in the following table. Additional documentation of the webpage material as well as the pet waste stations are provided Table 1.1 attachments.

| Year | Number of Waste Bags |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

**Table 1.1: Attachment Documentation of Educational Material on Pollutant Sources for Targeted Audiences**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Website printout of educational information on stormwater runoff and pollutant sources | Accessed 5/30/2018 |
| 2 | Educational flyer on protecting water quality from urban runoff | Accessed 5/29/2018 |
| 3 | Website printout on hazards of dog waste educational information | Accessed 5/30/2018 |
| 4 | Photographs of pet waste stations and rules at City dog park | 5/29/2018 |
| 5 | Infographics displayed on digital screens at The View and City Hall | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
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| 19 | | |
| 20 | | |

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## BMP 1.2: Provide City Disposal Programs or Activities

*MG 1.2.1: Implement Solid Waste/Yard Debris Disposal Program*

The City has a Community Clean-Up Program during the Spring and Fall each year that provides the opportunity for residents and local business to drop-off any solid waste and/or yard debris for a fee as advertised on the City's website.

This goal shall measure success by measuring number of dumpsters hauled during these clean-up activities as documented in the following table. Additional documentation of these activities is shown in the City's website advertisements, quarterly Grandview Report, and financial summary of income earned from disposal program provided in Table 1.2 attachments.

| Year | Number of Dumpsters Hauled |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 1.2.2: Implement Waste Oil Disposal Program*

The City provides year-round oil waste drop-off where citizens may dispose of waste oil at the Public Works Maintenance facility. By providing this service, the City is mitigating the improper disposal of these materials that are hazardous to water quality. This goal shall measure success by measuring gallons of oil collected at the City's Public Works Facility as documented in the following table. Additional documentation of this program is shown in the City's website advertisements, provided in Table 1.2 attachments.

| Year | Gallons of Waste Oil Collected |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 1.2.3: Implement Household Hazardous Waste Disposal Incentive Program*

The City provides a household hazardous waste disposal incentive program to promote proper disposal of materials that are dangerous to the environment. The program reimburses citizens who bring in household hazardous waste for proper disposal. This goal shall measure success through total dollars reimbursed to citizens as a result of this incentive program and documented in the following table. Additional documentation of this program is

shown in the City's website advertisements and summary of dollars spent for reimbursement incentive, provided in Table 1.2 attachments.

| Year | Dollars Spent on Reimbursement Incentive |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 1.2.4: Implement Prescription Drug Disposal Program through the Police Department*

The City provides a drug takeback program where citizens can return their unused or expired medication for safe disposal. The City will continue to implement this program two times a year. This goal shall measure success through pounds of prescription drugs collected, and documented in the following table. Additional documentation of this program is shown through biannual advertisements from the Grandview Police Department's Facebook webpage and receipts from the Drug Enforcement Administration for material collected, provided in Table 1.2 attachments.

| Year | Pounds of Prescription Drugs Collected |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

**Table 1.2: Attachment Documentation of City Disposal Programs or Activities**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Website printout advertising biannual Community Clean-Up Program | Accessed 5/30/2018 |
| 2 | 2016 Fall Grandview Report advertising Community Clean-Up | 10/29/2016, 11/5/2016, 11/19/2016 |
| 3 | 2017 Spring Grandview Report advertising Community Clean-Up | 4/1/2017, 4/8/2017, 4/15/2017, 4/22/2017 |
| 4 | 2017 Fall Grandview Report advertising Community Clean-Up | 10/28/2017 |
| 5 | 2018 Spring Grandview Report advertising Community Clean-Up | April 2018, Every Saturday |
| 6 | Website printout advertising Waste Oil Disposal program | Accessed 5/31/2018 |
| 7 | Website printout advertising Household Hazardous Waste Disposal Reimbursement program | Accessed 5/31/2018 |
| 8 | Website printout advertising Prescription Drug Disposal Program | 4/28/2018 |
| 9 | Website printout of event photo from Prescription Drug Disposal Program | 4/28/2018 |
| 10 | Receipts issued for Drug Disposal Program | 4/28/2018 |
| 11 | Financial Summary for Household Hazardous Waste Reimbursement Program | |
| 12 | Income Financial Summary for Community Clean Up Drop Off | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |

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# MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION

*The City shall implement a public involvement and participation program that provides opportunities for public involvement in the development and oversight of the City's SWMP and provides opportunities for public involvement of the City's renewal application.*

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## BMP 2.1: Provide Educational Material for the Background and Purpose of the SWMP

*MG 2.1.1: Develop educational information on SWMP for City's website*

The City will provide educational material on the background of the MS4 permit and the purpose of the SWMP to provide context to the public interested in reviewing the draft SWMP. This goal shall measure success through number visits to the webpage and documented in the following table. Additional documentation of this material is shown in the MS4 training presentation printout provided in Table 2.1 attachments.

| Year | Number of Website Visits |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 2.1.2 Provide educational material for the public on City's storm system*

The City provides a Citizen's Academy program that offers citizens the opportunity to gain a better understanding of the City's staff, equipment, facilities, and budgets. The program is intended to equip citizens with the information they need to educate others about their local government and get involved in City programs. As part of this program, educational material on the City's sewer system and protecting the water quality of the streams from contaminated discharges is included. Success of this goal in reaching targeted audiences shall be measured by number of citizens attending the Citizens Academy each year, as documented in the following table. Educational material presented in the program is also documented in Table 2.1 attachments.

| Year | Number of Citizen Academy Attendees |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

*MG 2.1.3 Develop 3-D printed terrain model for better communication of City's drainage and storm system*

The City is also developing 3-D printed terrain models of localized flooding areas to better communicate with engineers, local officials, and residents on the local terrain and mechanics of flooding as it relates to the City's infrastructure. The models also include 3-D storm system infrastructure including inlets and storm sewer within a roadway cross section, that can be used to communicate how stormwater runoff and associated pollutants from the right-of-way ends up in the storm sewer system. The City will be presenting on this program at the American Public Works Association (APWA) Public Works Exposition (PWX) in August 27, 2018 where they will discuss problem-solving using the model to better communicate with citizens and elected officials. Achievement of this goal shall be measured by completion of the 3-D model and presentation of the program. Photographs of the model progress to date and final presentation material, once complete, will be included in Table 2.1.

**Table 2.1: Attachment Documentation of Educational Material for SWMP**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Website printout of MS4 training presentation | 5/29/2018 |
| 2 | Spring 2018 Citizens Academy Public Works PowerPoint | 3/22/2018 |
| 3 | Photographs of City's 3-D Model | Accessed 6/4/2018 |
| 4 | Grandview 3-D Model APWA PWX Presentation | |
| 5 | | |
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| 10 | | |
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| 19 | | |
| 20 | | |

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## BMP 2.2: Provide Mechanism for Community Review and Feedback on Draft SWMP

*MG 2.2.1: Provide public notice for review of draft SWMP and renewal application and solicit public feedback*

The City will provide public notice for a minimum 2-week (14 day) review period for review of the draft SWMP using the City's News webpage. The City will solicit public comments and feedback for the draft SWMP using the City's Contact Us webpage. This goal shall measure success of reaching the targeted audiences through number visits to the webpage and number of comments received, as documented in the following table. Documentation of the draft and final SWMP as well as all comments received will be documented in Table 2.2 attachments.

| Date Posted to Website | Number of Website Visits | Number of Comments Received |
|---|---|---|
| | | |

**Table 2.2: Attachment Documentation of SWMP Review and Feedback**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Draft SWMP | 6/12/2018 |
| 2 | Final SWMP (Current Document) | 9/14/2018 |
| 3 | Comments - | |
| 4 | Comments - | |
| 5 | Comments - | |
| 6 | Comments - | |
| 7 | Comments - | |
| 8 | Comments - | |
| 9 | Comments - | |
| 10 | Comments - | |
| 11 | Comments - | |
| 12 | Comments - | |
| 13 | Comments - | |
| 14 | Comments - | |
| 15 | Comments - | |
| 16 | Comments - | |
| 17 | Comments - | |
| 18 | Comments - | |
| 19 | Comments - | |
| 20 | Comments - | |

## BMP 2.3: Promote Volunteer Monitoring or Stream/Lake Cleanup Activities

*MG 2.3.1: Implement Community Trash Cleanup Incentive Program*

The City provides a Trashbusters Program that incentivizes individuals and/or organizations to clean up the community by reimbursing them for each bag of trash that is collected. The City provides safety vests, pick-up sticks, and trash bags to pick up waste within the City. This goal shall measure success through total dollars spent to reimburse citizens as a result of this incentive program and documented in the following table. Additional documentation on this program is shown in the website advertisement and summary of financial summary of dollars spent on reimbursement incentive documented in Table 2.3 attachments.

| Year | Dollars Spent on Reimbursement Incentive |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

**Table 2.3: Attachment Documentation of Cleanup Activities**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Website printout for Trashbusters Program | 5/30/2018 |
| 2 | Reimbursement Incentive Financial Summary for Trashbusters Program, 2017 | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
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| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |

# MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

*The City shall develop, implement, and enforce a program to detect and eliminate illicit discharges, as defined in 10 CSR 20-6.200 and 40 CFR 122.34(b)(3), into the City's regulated Small MS4.*

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## BMP 3.1: Locate Priority Areas with Higher Likelihood of Illicit Connections and Develop a Plan and Schedule to Detect, Address and Find Source of Non-stormwater Discharges

*MG 3.1.1: Conduct desktop assessment of illicit discharge potential. Develop plan to inventory all outfalls on identified receiving waters of the state and create a map of all inventoried outfalls and streams.*

The City conducted a Desktop Assessment of Illicit Discharge Potential (TREKK 2016) to identify the risk levels for illicit discharges within the City. The assessment prioritized subwatersheds to determine risk of potential illicit discharges based on industrial/business uses of the area, the approximate age of development, and gasoline/oil/carwash related businesses. The results of the assessment were used to guide the outfall reconnaissance inventory (ORI) and support the initial illicit discharge detection and elimination (IDDE) program decisions moving forward.

The City developed a 5-year plan for the ORI to locate and characterize constructed storm outfalls within the MS4 network. The ORI consists of a stream walk that takes place at least 48-hours following a rainfall event designed to locate and inventory storm drain outfalls and identify potential dry weather flow locations. This plan is documented in the Illicit Discharge Detection and Elimination Program: 2018 Outfall Reconnaissance Inventory Summary and Recommendations (Burns & McDonnell, 2018). The City will update the ORI map each year to show streams completed to date and outfalls inventoried/inspected each year.

This goal shall measure progress towards total system characterization through number of stream miles and number of outfalls inventoried/inspected each year, as documented in the following table. The desktop assessment, 5-year plan, and annual ORI maps are documented in Table 3.1 attachments.

| Year | Inventoried Stream Miles | Number of Inventoried/ Inspected Outfalls |
|---|---|---|
| 1 | 5.6 | 96 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

**Table 3.1: Attachment Documentation of Illicit Discharge Plan and Completed Activities**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Desktop Assessment of Illicit Discharge Potential (TREKK, 2016) | 2016 |
| 2 | Illicit Discharge Detection and Elimination Program: 2018 Outfall Reconnaissance Inventory Summary and Recommendations (Burns & McDonnell, 2018) | 9/13/2018 |
| 3 | Year 1 – 2018 ORI Map | 9/13/2018 |
| 4 | Year 2 – 2019 ORI Map | |
| 5 | Year 3 – 2020 ORI Map | |
| 6 | Year 4 – 2021 ORI Map | |
| 7 | Year 5 – 2022 ORI Map | |

## BMP 3.2: Mechanism to Prohibit, Eliminate, and Enforce Non-stormwater Discharges into the City's Storm Sewer System

*MG 3.2.1: City Ordinance No. 6686 "An Ordinance to Prevent Pollution of the City of Grandview Municipal Separate Storm Sewer System by Prohibiting the discharge of substances, objects, and others into stormwater, and establishing penalties for violation"*

Achievement of this goal was measured through implementation of the ordinance, as documented in Table 3.2 attachment.

**Table 3.2: Attachment Documentation Illicit Discharge Ordinance**

| Attachment Number | Documentation | Date |
|---|---|---|
| 1 | Ordinance No. 6686 | 5/27/2014 |

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## BMP 3.3: Develop Dry-weather Field Screening Plan for Non-stormwater Flows

*MG 3.3.1: Develop illicit discharge detection and elimination program and dry-weather inspection and sample plan*

The City developed an Illicit Discharge Detection and Elimination Program Plan (TREKK 2016) defining a process to complete the desktop assessment, locate new outfalls as discussed in BMP 3.1, and conduct dry weather flow monitoring. The plan defines a process to inspect each outfall and to determine illicit discharge through qualitative inspection and field sampling. The plan also defines a process to determine the source of the discharge and to identify the party responsible for eliminating the discharge.

As part of the 5-year ORI plan (BMP 3.1), the City will collect samples for any inspected outfalls with dry-weather flow and test for water quality parameters including temperature, pH, and ammonia content. Any illicit discharges identified in the previous year will be re-inspected in the subsequent year.

This goal shall measure progress through number of outfalls inspected with dry-weather flow identified and water quality samples collected each year, and number of outfalls re-inspected from illicit discharges that were detected in the previous year. The program plan and annual outfall inspection logs are documented in Table 3.3 attachments.

| Year | Dry-Weather Flow Samples Collected | Outfalls Inspected from Previous Year Illicit Discharges Identified |
|---|---|---|
| 1 | 2 | 0 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

**Table 3.3: Attachment Documentation of Dry Weather Flow Field Screening Plan**

| Attachment Number | Documentation Type | Date |
|---|---|---|
| 1 | Illicit Discharge Detection and Elimination Program Plan (TREKK 2016) | 2016 |
| 2 | Year 1 – 2018 Outfall Inspection Logs | 6/12/2018 |
| 3 | Year 2 – 2019 Outfall Inspection Logs | |
| 4 | Year 3 – 2020 Outfall Inspection Logs | |
| 5 | Year 4 – 2021 Outfall Inspection Logs | |
| 6 | Year 5 – 2022 Outfall Inspection Logs | |

## BMP 3.4: Create Plan to Inform Public on Hazards Associated with Illegal Discharges and Improper Disposal of Wastes

*MG 3.4.1: Provide educational information on illicit discharges on the City's website.*

The City will provide educational information on pollutant sources to targeted audiences as documented in BMP 1.1. The City also provides educational information on the hazards of improper waste disposal through the City Disposal programs, as documented in BMP 1.2.

This goal shall measure success of reaching the targeted audiences through number visits to the webpage and number of website clicks visits obtained, as documented in the following table.

| Year | Number of Website Visits |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

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# MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

*The City shall develop, implement and enforce a program to reduce pollutants in any stormwater runoff to their regulated Small MS4 from construction activities that results in land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre shall be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.*

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## BMP 4.1: Implement Regulatory Mechanism to Require and Enforce Operators to Implement Erosion and Sediment Control BMPs at Construction Sites

*MG 4.1.1: City Ordinance No. 6198, "An Ordinance to Minimize the Erosion and Sediment during Land Development by Adopting Standards, Defining the Same, Requiring Permits, Establishing Fees, and Providing Penalties for Violation*

Achievement of this goal was measured through implementation of the ordinance, as documented in Table 4.1 attachment.

**Table 4.1: Attachment Documentation Soil Erosion and Sediment Control Ordinance**

| Attachment Number | Documentation | Date |
|---|---|---|
| 1 | Ordinance No. 6198 | 5/19/2008 |

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## BMP 4.2: Review all Pre-construction Site Plans for Potential Water Quality Impacts

*MG 4.2.1: Develop process for review of all development projects exceeding 1 acre.*

All development projects exceeding one acre of disturbed area must acquire an Erosion and Sediment Control Permit which requires approval of an Erosion and Sediment Control Plan.

This goal shall measure success through number of Erosion and Sediment Control Permit(s) issued each year as documented in the following table. Additional documentation of issued permit logs are included in Table 4.2 attachments.

| Plan Year | Year | Number of Permits Issued |
|---|---|---|
| 1 | 2018 | |
| 2 | 2019 | |
| 3 | 2020 | |
| 4 | 2021 | |
| 5 | 2022 | |

*MG 4.2.2: Develop process for requirement of all development projects less than 1 acre to incorporate erosion and sediment control.*

The City currently requires developers to follow the International Building Code. The International Building Code, Chapter 33, Section 3307.1 states, “Provisions shall be made to control water runoff and erosion during construction or demolition activities.” In addition to following the International Building Codes, the City’s Community Development department currently uses a Site Plan Review for Building Services checklist that must be reviewed prior to issuance of a building permit. The City will incorporate in Plan Year 3 a review checklist item for erosion and sediment control measures to be properly installed and functioning to the requirements. The City shall also develop and provide an educational brochure for proper erosion and sediment control for small development sites in Plan Year 3.

This goal shall measure success through completion and implementation of the new checklist. Documentation of the revised checklist and educational brochure will be included in Table 4.2 attachments.

**Table 4.2: Attachment Documentation of Pre-Construction Site Plan Reviews**

| Attachment Number | Documentation Type | Date(s) |
|---|---|---|
| 1 | Log of Erosion and Sediment Control Permits Issued | 8/12/2008 – 2/20/2018 |
| 2 | Community Development Checklist | |
| 3 | Erosion and Sediment Control Educational Brochure for Developments Less than 1 Acre | |
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## BMP 4.3: Prioritize and Inspect Sites for Control Measure Effectiveness

*MG 4.3.1: Develop inspection frequency and prioritization standards for construction site inspections.*

The City requires Contractor's notify them at specified milestones of construction, as identified in Ordinance No. 6198. Inspections are tracked with comments documenting progress towards completion or deficiency. Sites that have identified deficiencies are issued notification of deficiency and are re-inspected regularly to verify deficiencies have been corrected.

This goal shall measure success through number of inspections completed each year as documented in the following table. Additional document including inspection logs, reports, and notices of violations are also included in Table 4.3 attachments.

| Plan Year | Year | Number of Inspections Completed |
|---|---|---|
| 1 | 2018 | |
| 2 | 2019 | |
| 3 | 2020 | |
| 4 | 2021 | |
| 5 | 2022 | |

**Table 4.3: Attachment Documentation of Construction Site Inspections and Status**

| Attachment Number | Documentation Type | Date(s) |
|---|---|---|
| 1 | Log of Inspections | 8/12/2008 – 2/20/2018 |
| 2 | Erosion Control Inspection Report (TREKK 2017) | 4/3/2017 – 2/22/2017 |
| 3 | Notice of Violation of Erosion and Sediment Control Permit No. 16-M52-01 | 7/4/2017 |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
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## BMP 4.4: Provide Mechanism for Public to Submit Feedback or Complaints Related to Erosion and Sediment Control at Construction Sites

*MG 4.4.1: Provide comments page on City website for public to submit feedback or complaints related to construction site erosion and sediment control.*

Provide a link on the stormwater runoff educational webpage described in BMP 1.1 that directs the user to the City comments webpage to submit any questions, comments, concerns, or complaints in relation to erosion and sediment control at construction sites. This goal shall measure success through number of comments received each year as documented in the following table. Any comments received shall be documented in Table 4.4 attachments.

| Plan Year | Number of Comments Received |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

**Table 4.4: Attachment Documentation of Erosion and Sediment Control Public Comment/Feedback Received**

| Attachment Number | Comment Author | Date |
|---|---|---|
| 1 | | |
| 2 | | |
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# MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

*The City shall develop, implement and enforce a program to address the quality of long-term stormwater runoff from new development and redevelopment projects that disturb equal to and greater than one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the City's regulated Small MS4. The City's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize the impact of stormwater runoff to water quality.*

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## BMP 5.1: Implement Regulatory Mechanism to Address Post-Construction Runoff from New Development and Redevelopment Projects

*MG 5.1.1: Amend Coded of Ordinances Article VI, Section 6-30 and 6-31*

The City will amend Section 6-30 and 6-31 current references to the 1969 and 1982 drainage reports to reference the APWA 5600 (February 16, 2011), Comprehensive Protection strategy as the minimum design standard.

To implement strategies to minimize water quality impacts using structural and/or non-structural BMPs, the City will also amend Code of Ordinances Article VI, Section 6-30 and 6-31 to state that storm drainage infrastructure for the 90% mean annual event shall be designed per the guidance in the most current version of the MARC BMP Manual for all projects disturbing one acre or more, excluding Section 4.

Progress towards the success of this goal shall be measured by full implementation of the amended code of ordinances by the end of Year 2. Documentation of the amended code of ordinances shall be included in Table 5.1 attachments.

**Table 5.1: Attachment Documentation Regulatory Mechanism to Address Post-Construction Runoff**

| Attachment Number | Code of Ordinance Section | Title | Date Amended |
|---|---|---|---|
| 1 | 6-30 | Drainage | |
| 2 | 6-31 | Required Public Improvements | |

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## BMP 5.2: Develop Plan to Ensure Adequate Long-term Operation and Maintenance of Selected BMPs

*MG 5.2.1: Develop inventory map of all BMP facilities.*

In order to develop a long-term operations and maintenance plan, the City must first identify and locate the existing BMP facilities within the City. The City plans to map all City-owned facilities and identify critical design elements of each facility to include with other stormwater asset management activities.

Progress towards this BMP shall be measured by the mapping of the City-owned facilities. Updated maps and inspection documentation of the facilities will be included in Table 5.2 attachments.

| Plan Year | Type of Facilities Mapped | Number of Facilities Mapped |
|---|---|---|
| 1 | Map City-owned Facilities | 4 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

*MG 5.2.2: Require Operation/Maintenance for both Publicly and Privately Owned BMPs*

The City maintains all publicly owned drainage systems including BMPs. City code Article VIII, Section 6 requires that all property owners maintain external facilities, equipment and utilities in satisfactory working condition. Section 6-62 allows inspection officials access to property for the purpose of inspections. Facilities found to be in noncompliance are issued a notice of code violation. If no action is taken, the City may perform the required work at the expense of the property owner. The City will continue to administer this code within the limits of City authority.

**Table 5.2: Attachment Documentation of BMP Operations and Maintenance Plan**

| Attachment Number | Documentation Type | Date(s) |
|---|---|---|
| 1 | Year 1 – City BMP Facilities Map | 6/11/2018 |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
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## BMP 5.3: Develop Inspection Plan for Post-Construction BMPs to Ensure that all BMPs are Implemented and Effective

*MG 5.3.1: Inspect City-owned BMPs annually*

Using the map of City-owned facilities with identified critical design elements, each City-owned facility will be inspected annually during this permit term, with inspections of critical design elements documented and maintenance recommendations summarized. The frequency of these inspections will be re-evaluated following Year 1. Documentation

**Table 5.3: Attachment Documentation of BMP Site Inspections and Status**

| BMP Site | Date Inspected |
|---|---|
| 2018 City BMP Facilities Inspections | 9/12/2018 |
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# MCM 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

*The City shall develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.*

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## BMP 6.1: Create Employee Training Program to Prevent and Reduce Stormwater Pollution

*MG 6.1.1: Conduct employee training on stormwater runoff and MS4 responsibilities*

The City conducted a staff training in Year 1 providing educational material on the City's stormwater system, the MS4 permit program, and the City's responsibilities to prevent pollution of and reduce stormwater runoff. The training was attended by representatives of each City department including Public Works, Community Development, Parks and Recreation, the Fire Department, and Administrative staff.

The training will be recorded by Plan Year 2 and made publicly available on the City's website, along with educational material provided and discussed in BMP 1.1 and 2.1. The City make training materials available to all staff via the City's website by Plan Year 5. The City will encourage all City departments that could reasonably impact clean water to complete the training. Progress towards success of this BMP shall be tracked through survey of attendees each year. Documentation of the training material and training attendance is included in Table 6.1 attachments.

| Plan Year | Number of Trainees |
|---|---|
| 1 | 15 |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

**Table 6.1: Attachment Documentation of Employee Training Material**

| Attachment Number | Document | Date |
|---|---|---|
| 1 | Employee Training Presentation | 5/29/2018 |
| 2 | Year 1 – 2018 Employee Training Sign-in Sheet | 5/29/2018 |
| 3 | | |
| 4 | | |
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| 7 | | |
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## BMP 6.2: Prevent and Reduce Stormwater Pollution from Municipal Activities

*MG 6.2.1: Address issues identified in the Letter of Warning related to the Public Works Maintenance Facility*

The City conducts the vast majority of its municipal operations at the Public Works Maintenance Facility, including storage for equipment and material for Parks and Recreation, Public Works, and Community Development activities as well as fleet and building maintenance, construction material and equipment storage, and fueling for all municipal vehicles.

The City contracted with Burns & McDonnell to complete a stormwater evaluation of the Public Works Maintenance Facility. This evaluation included a brief survey of the facility with on-site interviews, summarized with a map and evaluation form. Because the facility is used by multiple City departments, the site map will assist in defining designated areas for each department and identifying parties responsible for storage measures in those areas. The evaluation will include prioritized improvement recommendations for stormwater management at the facility, a method of tracking improvements, and recommendations to manage stormwater pollution risk summarized in a Stormwater Runoff Plan for the facility. Progress towards success of this goal will be measured by completion of items in the following table during Year 1. Documentation of these items will be included in Table 6.2 attachments.

| Action Item | Date Completed |
|---|---|
| Site survey and interviews | 5/29/2018 |
| Facility Site Map | |
| Stormwater Runoff Plan for Facility | |

*MG 6.2.2: Provide Standard Storage and Disposal Procedures at all Municipal Facilities*

A Facility Stormwater Runoff Plan for the Public Works Maintenance Facility is under development to identify potential sources of pollutants, define methods to mitigate, and to outline standard procedures to reduce the risk of pollution from stormwater runoff in the future. The City will also conduct annual municipal operations specific training for Public Works Facility employees with the recommendations made in the plan.

Progress towards the success of this goal shall be measured by completion and implementation of the Facility Stormwater Runoff Plan and staff training by the end of Year 1. The final plan and training presentation will be included in Table 6.2 attachments for documentation.

*MG 6.2.3: Contract with waste removal company to remove identified potential pollutants at the Public Works Maintenance Facility.*

The City contracted with Heritage Crystal Clean, LLC to remove all items identified in the letter of warning from the Public Works Facility. Progress towards success of this goal was

measured by completion of all work. Work was completed in May 2018. The service agreement and receipt for work is included in Table 6.2 attachments for documentation.

*MG 6.2.4: Implement spill prevention and response plan.*

The City currently has protocol developed for spill prevention and response of any reported spills. City Code of Ordinances Chapter 11 Article IV outlines the protocol for hazardous materials emergency response cost recovery. The Fire Department currently follows procedures outlined in City of Grandview, MO Local Emergency Operations Plan, Annex H. The effectiveness of this BMP is measured through issuance of this ordinance and proper implementation of the plan documented through incident reports to MDNR in Table 6.2 attachments.

**Table 6.2: Attachment Documentation for Pollution Prevention at Municipal Facilities**

| Attachment Number | Document | Date |
|---|---|---|
| 1 | Service Agreement for Maintenance Facility Cleanup | 4/9/2018 |
| 2 | Maintenance Facility Cleanup Receipt | 5/7/2018 |
| 3 | Grandview, MO Code of Ordinances Article IV | 3/25/2014 |
| 4 | City of Grandview, MO Local Emergency Operations Plan, Annex H: Hazardous Material | Accessed 6/1/2018 |
| 5 | Fire Department Nov. 2016 Incident Report to MDNR | 11/3/2016 |
| 6 | Fire Department Sept 2017 Incident Report to MDNR | 9/14/2017 |
| 7 | Public Works Facility Map | |
| 8 | Facility Stormwater Runoff Plan | |
| 9 | Facility Stormwater Runoff Plan Training Slides | |
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## BMP 6.3: Develop Controls and Schedules for Reducing or Eliminating the Discharge of Pollutants from City ROW and Facilities

*MG 6.3.1: Implement a pavement management system*

The City uses Roadsoft® as a pavement asset management system for collecting, storing, and analyzing data associated with its transportation infrastructure. The City uses this system to track the age and condition of its pavement. Maintenance of pavement systems is critical to minimizing degrading asphalt becoming a sediment source in stormwater runoff from large impervious areas. The City's Public Works Department conducts maintenance projects each year including a Slurry Seal Program, Sidewalk Replacement Program, Curb Replacement Program, and Asphalt Overlays Program.

Progress towards the success of this goal shall be measured by miles of street either reconstructed or resurfaced each year as documented in the following table and Public Works Project maps included in Table 6.3 attachments.

| Plan Year | Slurry Seal (enter units) | Mill and Overlay (enter units) | Reconstruction (enter units) |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

*MG 6.3.2: Implement facility management software*

The City uses Dude Solutions to manage City work orders on infrastructure. The program tracks and prioritizes maintenance requests related to fleet, roads/streets, and sewer. This is documented in the Dude Solutions Output tables included in Table 6.3 attachments. The City cleans all sewer pipes once every two years, as documented in the access database included in Table 6.3 attachments. Street sweeping is tracked by hours spent conducting sweeping and is documented by City charge codes as shown in Table 6.3 attachments.

Progress towards the success of this goal shall be measured by the activities completed each year as documented in the following table.

| Plan Year | LF of Pipe Cleaned | Acres of Landscape Maintained | Street Sweeping Hours |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

The City is currently developing a Stormwater Master Plan, and as part of that effort will be evaluating asset management opportunities specifically for its stormwater infrastructure. This evaluation will be complete at the end of Plan Year 1. Progress towards success of this goal shall be measured by completion of the Stormwater Master Plan and documented in the Table 6.3 attachments.

*MG 6.3.3 Conduct Storm Sewer Condition Assessments*

The City conducted storm sewer condition assessments for a portion of the City to assess the condition of the City's separate storm sewer system and to develop storm sewer structure and pipe rehabilitation recommendations. This effort is documented in the 2016 Storm Sewer Assessment and MS4 Compliance (TREKK 2016) report included in Table 6.3 attachments. Progress towards this goal shall be measured by additional area assessments conducted each year, as documented in the following table.

| **Plan Year** | **Acres Assessed** |
|---|---|
| Year 1 | 2,120 |
| Year 2 | |
| Year 3 | |
| Year 4 | |
| Year 5 | |

**Table 6.3: Attachment Documentation of Maintenance Activities**

| Attachment Number | Documentation Type | Date(s) |
|---|---|---|
| 1 | 2016 Public Works Projects map | 2016 |
| 2 | 2017 Public Works Projects map | 2017 |
| 3 | 2018 Public Works Projects map | 2018 |
| 4 | 2016 Dude Solutions Output | 2016 |
| 5 | 2017 Dude Solutions Output | 2017 |
| 6 | 2018 Dude Solutions Output | 1/2018 – 5/2018 |
| 7 | 2016 Storm Sewer Assessment and MS4 Compliance (TREKK 2016) | 6/2018 |
| 8 | 2018 Street Sweeping Hours | |
| 9 | 2018 Sewer Lines Cleaned Access Database | |
| 10 | Stormwater Master Plan | |
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