A G E N D A
WORK SESSION MEETING
City of Moberly
February 16, 2021
6:00 PM

Requests, Ordinances, and Miscellaneous

1. Review of a Change Order #1 for the CDBG demolition project on first 23 houses
2. Appointment to the Tourism Advisory Commission
3. A Request for Street Closure for Chamber of Commerce Banquet
4. Appointment to the Historic Preservation Commission
5. Municipal Separate Storm Sewer System NPDES Permit Renewal and Storm Water Management Plan Update

City of Moberly
City Council Agenda Summary

Agenda Number: _____
Department: Public Works
Date: February 16, 2021

Agenda Item: Change Order #1 for CDBG Demolition Grant Program for the first twenty-three (23) houses.

Summary: The change order is an increase of $3000. for 90 more linear feet of asbestos than was in the original report. This increase will make the total amount for the project $124,700.

Recommended Action: Direct staff to bring forward to the March 1, 2021 regular City Council meeting for final approval.

Fund Name: Structure Demolition and Debris Removal

Account Number: 100.005.5418

Available Budget $: 49,559.94

ATTACHMENTS:

____ Memo	____ Council Minutes
____ Staff Report	____ Proposed Ordinance
____ Correspondence	____ Proposed Resolution
____ Bid Tabulation	____ Attorney's Report
____ P/C Recommendation	____ Petition
____ P/C Minutes	____ Contract
____ Application	____ Budget Amendment
____ Citizen	____ Legal Notice
____ Consultant Report	_x_ Other Change Order

Roll Call		Aye	Nay
Mayor			
M___ S___ **Jeffrey**		____	____
Council Member			
M___ S___ **Brubaker**		____	____
M___ S___ **Kimmons**		____	____
M___ S___ **Davis**		____	____
M___ S___ **Kyser**		____	____
		Passed	Failed

WS #1.

JT Holman Construction, L.L.C.

PO Box 591
Macon, MO 63552

660-651-6655 Cell
660-385-7888 Office
660-385-1855 Fax

jtholman@jtholman.com www.jtholman.com

CHANGE ORDER

Date	Invoice #
10/1/2020	11405

Bill To
City of Moberly demo 23 structures

Terms	Due Date
Change Order	10/1/2020

Quantity	Item Code	Description	Rate	Amount
		CITY OF MOBERLY DEMOLITION CHANGE ORDER #1		
	Miscellaneous	1400 QUINN - PIPE WRAP WAS 90 MORE LINEAR FEET THAN REPORTED	3,000.00	3,000.00

CHANGE ORDER #1

Total	$3,000.00
Payments/Credits	$0.00
Balance Due	$3,000.00

Thanks for your business! Please make all checks payable to JT Holman Construction, L.L.C. Total due upon reciept. Accounts over 30 days are subject to a service charge of .0208% per month.

City of Moberly
City Council Agenda Summary

Agenda Number: ____
Department: City Manager
Date: February 16, 2021

Agenda Item: Appointment to the Tourism Advisory Commission

Summary: Chris Weathers is no longer the Chamber of Commerce Board President. The Chamber of Commerce Board has submitted a letter to appoint Tim Seidel to be appointed to the Tourism Advisory Commission. They are asking the City Council Council to accept this request. Also Janie Riley term on the Tourism Advisory Commission will expire in March 2021. Contact has been made with Janie Riley and she has indicated that she does want to be reappointed to the board. Advertisement has been done and no applications have been received.

Recommended Action: Direct staff to bring to the March 1st Council meeting for approving of two individuals to the commission.

Fund Name: N/A

Account Number: N/A

Available Budget $: $0

ATTACHMENTS:

___ Memo	___ Council Minutes
___ Staff Report	___ Proposed Ordinance
_x_ Correspondence	___ Proposed Resolution
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___ Citizen	___ Legal Notice
___ Consultant Report	___Other_____

Roll Call	Aye	Nay
Mayor		
M___ S___ **Jeffrey**	___	___
Council Member		
M___ S___ **Brubaker**	___	___
M___ S___ **Kimmons**	___	___
M___ S___ **Davis**	___	___
M___ S___ **Kyser**	___	___
	Passed	Failed

City of Moberly!

Board/Commission Application Form

Individuals serving on boards or commissions play an important role in advising the City Council on matters of interest to our community and its future. For the most part, Board and Commission members must be residents of City of Moberly. When a vacancy occurs, an announcement of that vacancy will be posted. The City Council will review all applications. The appointment will be made at a formal City Council meeting. Appointees serve as unpaid volunteers.

This application is a public document and as such it or the information it contains may be reproduced and distributed. This application will remain active for two years and you will automatically be considered for any vacancy occurring during that time.

Name of Board or Commission: TOURISM Date: 020/06/2021

Your Name: JANIE L RILEY Street Address: 1000 SHELBY

Phone number(s): (evening) 660-998-0869 (day) 660-263-3367

Email: jlriley@artsappliance.com

Do you live within the corporate limits of City of Moberly? Yes / No

How long have you been a resident of City of Moberly? 57

Occupation: OWNER Employer: ART'S APPLIANCE & FURNITURE INC.

Optional Questions (use back of application if necessary)

What experience and/or skills do you have that might especially qualify you to serve on this board or commission?

What particular contributions do you feel you can make to this board or commission?

I will attend meetings in accordance with the adopted policies of City of Moberly, Missouri. If at any time my business or professional interests conflict with the interests of the Commission, I will not participate in such deliberations. References may be secured from the following individuals:

1. JW & LINDA BALLINGER Phone: 660-263-7139
2. MARTHA CREED Phone: 660-295-4249
3. WALLY LANDRUM Phone: 660-263-6760

Signature of Applicant

*Additional Information may be attached to this form.

Return to: City of Moberly, 101 West Reed Street, Moberly, MO 65270

Moberly Area Chamber of Commerce
211 West Reed Street | Moberly, MO 65270
phone 660.263.6070 | fax 660.263.9443
www.MoberlyChamber.com

February 4, 2021

To Whom It May Concern,

We would like to make you aware that per our last Moberly Area Chamber of Commerce meeting, Tim Seidel was voted in as the Chamber Vice President for the 2021-2022 calendar year. He will now replace Chris Weathers as our representative for the Moberly Tourism Commission.

If you have any questions or concerns, feel free to contact myself at 660-263-6070 or at director@moberly.com

Sincerely,

Megan Schmitt
Moberly Area Chamber of Commerce Executive Director

City of Moberly
City Council Agenda Summary

Agenda Number: _____
Department: Police
Date: February 16, 2021

Agenda Item: A Request for Street Closure for Chamber of Commerce Banquet

Summary: The Moberly Area Chamber of Commerce is requesting permission to close the 100 block of 4th street between Rollins and Reed from 6:00 PM on Friday April 30 until 10:00 am May 2 for the annual Chamber Banquet. In order to provide a COVID safe event and environment, they are restructuring the banquet. The Chamber requests permission to erect a tent in the 100 block of 4th street to provide an outdoor venue used in conjunction with the 4th Street Theatre. The length of street closure is to allow for tent setup on Friday night and tent take down on Sunday morning. Sidewalks are to remain open for access to the library on Saturday.

Recommended Action: Direct staff to bring to the March 1, 2021, City Council Meeting for final approval.

Fund Name:

Account Number:

Available Budget $:

ATTACHMENTS:

___ Memo	___ Council Minutes
_x_ Staff Report	___ Proposed Ordinance
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___ P/C Recommendation	___ Petition
___ P/C Minutes	___ Contract
___ Application	___ Budget Amendment
___ Citizen	___ Legal Notice
___ Consultant Report	____Other_____

Roll Call			Aye	Nay
Mayor				
M___	S___	**Jeffrey**	___	___
Council Member				
M___	S___	**Brubaker**	___	___
M___	S___	**Kimmons**	___	___
M___	S___	**Davis**	___	___
M___	S___	**Kyser**	___	___
			Passed	Failed

Moberly Area Chamber of Commerce
211 West Reed Street | Moberly, MO 65270
phone 660.263.6070 | fax 660.263.9443
www.MoberlyChamber.com

February 9, 2021

To: City of Moberly
RE: Annual Chamber Banquet, May 1, 2021

Moberly Area Chamber of Commerce would like to request the following:

1. Permission to close the 100 Block of N 4th Street from Rollins to Reed at 6pm on April 30, 2021 and until 10am May 2, 2021 for the Annual Chamber Banquet.
2. Permission to hold the Annual Chamber Banquet in the street in the 100 Block of N 4th Street on May 1, 2021.

The Moberly Area Chamber of Commerce is restructuring the Annual Chamber Banquet to provide a COVID safe event and environment. The Chamber would like to set up a tent on 4th Street for Saturday, May 1st to provide an outdoor venue to be used in conjunction with 4th Street Theatre.

If the City of Moberly (or a specific department) would prefer adjustments to this request the event planning committee is open to that feedback. If any specific department has additional questions or would like to meet directly with the planning committee, please contact Megan Schmitt by email director@moberly.com or phone 660.263.6070. Please keep us informed about the process to complete this request.

Thank you for your time and consideration.

Sincerely,

Megan Schmitt

Megan Schmitt
Executive Director – Moberly Area Chamber of Commerce

City of Moberly
City Council Agenda Summary

Agenda Number: _____
Department: City Manager
Date: February 16, 2021

Agenda Item: Appointment to the Historic Preservation Commission

Summary: In February 2021 the terms of Doug Sharp and Carolee Hazlet will expire on the Historic Preservation Commission board. Carolee Hazlet and Doug Sharp have submitted applications stating they would be willing be reappointed to the board. Advertisement was done, and no applications was received.

Recommended Action: Direct staff to bring to the March 1st Council meeting for approving of two individuals to the commission.

Fund Name: N/a

Account Number: N/A

Available Budget $: $0

ATTACHMENTS:

____ Memo	____ Council Minutes	
____ Staff Report	____ Proposed Ordinance	
_x_ Correspondence	____ Proposed Resolution	
____ Bid Tabulation	____ Attorney's Report	
____ P/C Recommendation	____ Petition	
____ P/C Minutes	____ Contract	
____ Application	____ Budget Amendment	
____ Citizen	____ Legal Notice	
____ Consultant Report	____ Other_____	

Role Call	Aye	Nay
Mayor		
M___ S___ **Jeffrey**	____	____
Council Member		
M___ S___ **Brubaker**	____	____
M___ S___ **Kimmons**	____	____
M___ S___ **Davis**	____	____
M___ S___ **Kyser**	____	____
	Passed	Failed

City of Moberly!

Board/Commission Application Form

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This application is a public document and as such it or the information it contains may be reproduced and distributed. This application will remain active for two years and you will automatically be considered for any vacancy occurring during that time.

Name of Board or Commission: Historic Preservation Comm. Date: Feb. 3, 21

Your Name: Carolee Hazlet Street Address: 212 Crest Dr. Moberly, MO.

Phone number(s): (evening) 660-263-3345 (day) 660-263-3345

Email: caroleehazlet1@Gmail.com

Do you live within the corporate limits of City of Moberly? (Yes) / No

How long have you been a resident of City of Moberly? 50 yrs

Occupation: Retired. Employer: _____

Optional Questions (use back of application if necessary)

What experience and/or skills do you have that might especially qualify you to serve on this board or commission?

Many years experience

What particular contributions do you feel you can make to this board or commission?

I will attend meetings in accordance with the adopted policies of City of Moberly, Missouri. If at any time my business or professional interests conflict with the interests of the Commission, I will not participate in such deliberations. References may be secured from the following individuals:

1. _____ Phone: _____
2. _____ Phone: _____
3. _____ Phone: _____

Carolee Hazlet
Signature of Applicant

*Additional Information may be attached to this form.

Return to: City of Moberly, 101 West Reed Street, Moberly, MO 65270

City of Moberly!

Board/Commission Application Form

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This application is a public document and as such it or the information it contains may be reproduced and distributed. This application will remain active for two years and you will automatically be considered for any vacancy occurring during that time.

Name of Board or Commission: H PC Date: 2-11-21

Your Name: Doug Sharp Street Address: 1 Fair Oaks Moberly

Phone number(s): (evening) 660-651-5401 (day) _____

Email: dougsharp@c21mckeown.com

Do you live within the corporate limits of City of Moberly? Yes / No

How long have you been a resident of City of Moberly? 11 years in the City

Occupation: Real Estate Sales Employer: Independent Contractor

Optional Questions (use back of application if necessary)

What experience and/or skills do you have that might especially qualify you to serve on this board or commission?

What particular contributions do you feel you can make to this board or commission?

I will attend meetings in accordance with the adopted policies of City of Moberly, Missouri. If at any time my business or professional interests conflict with the interests of the Commission, I will not participate in such deliberations. References may be secured from the following individuals:

1. Chuck McKeown Phone: 660-651-6889
2. Brian Crane Phone: 660-998-0137
3. Sherwood Mann Phone: 660-676-4540

Signature of Applicant

*Additional Information may be attached to this form.

Return to: City of Moberly, 101 West Reed Street, Moberly, MO 65270

City of Moberly
City Council Agenda Summary

Agenda Number: _____
Department: Public Utilities
Date: February 16, 2021

Agenda Item: Municipal Separate Storm Sewer System NPDES Permit Renewal and Storm Water Management Plan Update

Summary: The City of Moberly is required by the Missouri Department of Natural Resources to have an NPDES (discharge) permit for the City's separate storm sewer system. This permit is issued for a period of five years and must be renewed simultaneously with the State of Missouri's updated general permit for small municipalities.

Recommended Action: Review the Storm Water Management Plan

Fund Name: N/A

Account Number: N/A

Available Budget $: N/A

ATTACHMENTS:

___ Memo	___ Council Minutes
___ Staff Report	___ Proposed Ordinance
___ Correspondence	___Proposed Resolution
___ Bid Tabulation	___ Attorney's Report
___ P/C Recommendation	___ Petition
___ P/C Minutes	___ Contract
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___ Citizen	___ Legal Notice
___ Consultant Report	__X_ Other_____

Roll Call			Aye	Nay
Mayor				
M___	S___	**Jeffrey**	___	___
Council Member				
M___	S___	**Brubaker**	___	___
M___	S___	**Kimmons**	___	___
M___	S___	**Davis**	___	___
M___	S___	**Kyser**	___	___
			Passed	Failed

City of Moberly!

Inter-Office Memorandum

To: City Council Members

Cc: Brian Crane, City Manager

From: Mary West-Calcagno, Director of Public Utilities

Re: Municipal Separate Storm Sewer System NPDES Permit Renewal and Storm Water Management Plan Update

Date: February 9, 2021

The City of Moberly is required by the Missouri Department of Natural Resources to have an NPDES (discharge) permit for the City's separate storm sewer system. This permit is issued for a period of five years and must be renewed simultaneously with the State of Missouri's updated general permit for small municipalities. Utility staff have been working on preparing this update to the stormwater management plan and the permit application, which are due to be submitted not later than April 1, 2021.

A copy of the updated storm water management plan (SWMP) is attached to this memo. The SWMP will be the guidelines for how a regulatory audit will be conducted of our program. The basic questions they will ask are: "Is Moberly doing what they said they would do? If not, have they documented why not, and what measures are put in place instead of the measures that are not being accomplished?" The goal of the SWMP is to be understandable from the general public's point of view to provide protection of the area water ways, private property, and public areas.

Major changes to the document from the 2018 version previously approved by the Council and MDNR are as follows:

Summary of Major Changes to the City of Moberly Stormwater Management Plan (SWMP)

Overall

Added Rachel Hultz as responsible person
Added an iterative evaluation process to assess the effectiveness of the SWMP each year
Added Sugar Creek Lake Source Water Pollution Protection Plan as an attachment

Sections 2 and 3

Changed Minimum Control Measure 2 (MCM 2) to only cover public involvement in permit renewal
Moved all other forms of public involvement to MCM 1
Added a brief explanation of why each target audience for MCM 1 was chosen, and how the city reaches out to each
Added non-homeowner residents as target audience
Added nutrient pollution and construction pollutants as target pollutants
Removed rain barrel program, installation of outfall signs, and article calendar as outreach mechanisms
Expanded Master Gardener partnership to partnerships with local environmental organizations (including the Master Gardeners)

Added brochure updates, social media posts, trash cleanups, and article publication as outreach mechanisms for MCM 1
Changed Stormwater Committee meeting schedule to once per permit cycle
Established forms on city website for submitting stormwater questions or concerns

Section 4

Added storm sewer mapping, household hazardous waste recycling program, targeted presentations, stormwater complaint forms, and brochure distribution to illicit discharge prevention Best Management Practices (BMPs)
Removed educational conference as illicit discharge prevention BMP
Added explanation of how priority areas are chosen

Section 5

Described criteria for stream inspections
Described prioritization mechanism for construction inspections
Added time limit for responses to public complaints
Added stormwater complaint forms as BMP

Section 6

Described time limit for post construction stormwater permit renewal
Updated deadline for requiring post construction stormwater permits
Described inspection criteria
Described inspection frequency
Added storm sewer mapping project, demonstration rain garden, stormwater complaint forms, presentations to target audiences, and brochure distribution as BMPs

Section 7

Added requirement to create pollution prevention Standard Operating Procedures (SOPs)
Described City employee training
Described flood management project assessment method
Listed city-managed National Pollutant Discharge Elimination System permits (NPDES permits)
Added requirement to get feedback from department heads about BMPs
Removed sewer rehabilitation BMP

Section 8

Changed reporting frequency from biannually to annually

Please do not hesitate to reach out with any questions you may have as you review the document. A public presentation of the changes to the SWMP document with an opportunity for questions and answers from the public will be held on March 10, 2021 from 5:30 pm to 6:30 pm in the Municipal Building Large Conference Room. A Public Hearing must be conducted prior to submission to MDNR. This public hearing is scheduled for March 15, 2021 at 5:30 pm in the Municipal Building Large Conference Room also. Written comments regarding the SWMP will be received until March 19, 2021 at 5:00 pm and should be sent to City of Moberly, Stormwater, 101 W Reed Street, Moberly, MO 65270, or may be sent via email to rhultz@cityofmoberly.com.

The 2018 SWMP as well as the draft 2021 SWMP are available on the City's Stormwater website at:
https://www.moberlymo.org/214/Stormwater

Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP)

City of Moberly, Missouri

Prepared for
City of Moberly, Missouri

August 2018

1001 Diamond Ridge, Suite 1100
Jefferson City, MO 65109
573.638.5000
www.barr.com

Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP)

August 2018

Contents

List of Tables

List of Attachments

Acronyms

Acronym	Description
BMP	Best Management Practice
CSO	Combined Sewer Overflow
MDNR	Department of Natural Resources
EPA	U.S. Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SWMP	Stormwater Management Plan
MSOP	Missouri State Operating Permit
WWTP	Wastewater Treatment Plant
MGP	Master General Permit
TMDL	Total Maximum Daily Load

1.0 Introduction

1.1 Location

The City of Moberly (City), which covers approximately 12 square miles, is located in Randolph County in north central Missouri. As of the 2010 census, Moberly had a population of 13,974. While the majority of land use in Moberly is commercial and residential, significant manufacturing industries are also present within the city limits.

The City is a Municipal Separate Storm Sewer System (MS4) community with a Phase II MS4 National Pollutant Discharge Elimination System (NPDES) General Permit (MO-R040030) issued by the Missouri Department of Natural Resources (MDNR). The City developed its previous Stormwater Management Plan (SWMP) in 2013 as a measure to implement this program and comply with their permit. The SWMP describes the City's approach to implementing best management practices (BMPs) for each of the six minimum control measures (MCMs), as outlined in the City's MS4 Missouri State Operating Permit (MSOP), and described in Section 1.2.

Moberly owns and operates a water treatment plant and distribution system as well as a wastewater treatment plant (WWTP) and collection system. Moberly has a separate NPDES permit (No. MO-0117960) for the WWTP and combined sewer overflow (CSO) discharges. Treated effluent discharges from the WWTP to the Tributary to Coon Creek from Outfall 001 (refer to Table 1-1). Moberly utilizes combined sewers, in which stormwater runoff is collected in portions of Moberly's sewage collection system and is treated at the WWTP or directly discharged at CSO. Moberly operates two CSO storage lagoons, permitted as CSO discharge points, that provide storage and primary treatment for the combined sewage and stormwater during rain events. The permitted CSO outfalls from the lagoons only discharge when the system storage capacity is exceeded. Water from four CSOs (#002-005) in Moberly is pumped back to the collection system from storage and treated at the WWTP. During high flows, these outfalls may discharge to the surface waters listed in Table 1-1.

Four major streams and their tributaries receive stormwater from Moberly, including Coon Creek, Sweet Springs Creek, Sugar Creek, and the Elk Fork of the Salt River. Coon Creek and its tributaries receive stormwater from the southeastern part of the City, the Elk Fork of the Salt River and its tributaries receive stormwater from the northeastern part of the City, Sugar Creek and its tributaries receive stormwater from the northwestern part of the City, and Sweet Springs Creek and its tributaries receive stormwater from the southwestern part of the City. Table 1-1 and Table 1-2 include the outfall locations for NPDES permitted discharges from Moberly.

Table 1-1 MO-0117960 Outfall Locations and Receiving Waters

Outfall	Source of Discharge	UTM	Receiving Water
001	Municipal Wastewater	X=553968, Y=4364335	Tributary to Coon Creek
002	Combined Sewer Overflow	X=549992, Y=4363712	Tributary to Coon Creek
003	Combined Sewer Overflow	X=550339, Y=4363535	Tributary to Coon Creek
004	Combined Sewer Overflow	X=546585, Y=4361957	Sweet Spring Creek
005	Combined Sewer Overflow	X=546585, Y=4361957	Sweet Spring Creek

Table 1-2 MO-R040030 Outfall Locations

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
Outfall #4	39.4275576337	-92.4138551980	1308719.27434	1664749.95433
Outfall #5	39.4274803181	-92.4138157183	1308691.12463	1664761.13304
Outfall #6	39.4198616297	-92.4188547619	1305914.88300	1663340.25000
Outfall #7	39.4193398413	-92.4162672727	1305725.50200	1664071.39400
Outfall #8	39.4087674705	-92.4303522776	1301871.39800	1660095.31300
Outfall #9	39.4084300844	-92.4211034938	1301750.66400	1662708.62200
Outfall #10	39.4047116099	-92.4340243932	1300393.37500	1659058.85300
Outfall #11	39.4018162559	-92.4265951112	1299340.43700	1661158.94200
Outfall #12	39.3887017097	-92.4127273553	1294567.29400	1665082.22100
Outfall #13	39.3940471351	-92.4203849338	1296512.22400	1662916.27000
Outfall #14	39.3934263806	-92.4254498918	1296284.90800	1661485.07500
Outfall #15	39.3930886900	-92.4283153100	1296161.25800	1660675.38400
Outfall #16	39.4027355400	-92.4521996200	1299670.40500	1653923.60900
Outfall #17	39.4109356000	-92.4443177100	1302658.34500	1656148.95600
Outfall #18	39.4205053800	-92.4747562900	1306140.04300	1647547.96500
Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

The coordinate system used is NAD83 State Plane Missouri Central (in feet).

1.2 Regulatory Background

As a city with a population between 10,000 and 100,000, Moberly is categorized as a small MS4, or Phase II, owner/operator by the U.S. Environmental Protection Agency (EPA). The MDNR General Permit for Small MS4s, Permit MO-R040030, (MS4 Permit; Attachment A) authorizes Moberly to discharge stormwater. Section 2.1 of the MS4 Permit requires permittees to submit a written SWMP that includes

the six MCMs established by the EPA, evaluation and reporting efforts, and recordkeeping. The six MCMs include:

1. Public Education and Outreach of Stormwater Impacts (Section 4.2.1 of the MS4 Permit);
2. Public Involvement and Participation (Section 4.2.2 of the MS4 Permit);
3. Illicit Discharge Detection and Elimination (Section 4.2.3 of the MS4 Permit);
4. Construction Site Stormwater Runoff Control (Section 4.2.4 of the MS4 Permit);
5. Post-Construction Stormwater Management in New Development and Redevelopment (Section 4.2.5 of the MS4 Permit); and
6. Pollution Prevention/Good Housekeeping for Municipal Operations (Section 4.2.6 of the MS4 Permit).

1.3 Plan Objectives

The objective of this SWMP is to:

- Provide BMPs for each of the six MCMs;
- Provide measurable goals to evaluate BMPs; and
- Ensure the City is in compliance with the proper monitoring, recordkeeping, and reporting requirements set forth by the MS4 permit.

2.0 MCM1: Public Education and Outreach

2.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2.1. The purpose of MCM1 is to establish a public education program to distribute educational material to the community or conduct equivalent outreach activities to:

- Educate the public on the impact of stormwater on water bodies; and
- Provide steps the public can take to reduce pollutants in stormwater runoff.

The City's public education and outreach program includes the target audiences that have been identified (including commercial and industrial entities, see Table 2-1 and Table 2-2). The City plans to inform individuals and groups on opportunities for SWMP involvement, continue to develop their outreach strategy to reach target audiences, and identify any new pollutant source(s) that can addressed by the program. Current lists of target pollutants, audiences, and mechanisms for outreach, are listed in Section 2.2.

The City has employed the strategy of developing printable educational materials that are available to the public. Currently, the City has a number of stormwater printed brochures that are available and distributed as needed (Attachment B). The brochures include the following:

- Best Management Practices for Excavation-Foundation Work
- Best Management Practices for General Construction
- Composting
- Green Lawn Care
- Non-Toxic Pesticides
- Pesticide Safety Tips
- Rain Barrels
- Rain Gardens
- Storm Drain Stenciling
- Summer Watershed Tip
- Pick Up After Your Pet

The City is developing an update to the Source Water Protection Plan for Sugar Creek Lake. This updated plan for the City's drinking water supply will involve a significant amount of stakeholder involvement and public participation. The input received from stakeholders will be used to determine priorities for the plan and to develop some of the plan content. Education of the public regarding stormwater runoff in the Sugar Creek Lake watershed, and developing specific goals to work to improve water quality in the lake, are at the center of this process. The updated Source Water Protection Plan for Sugar Creek Lake is planned to be complete by June 2019.

The Director of Public Utilities and Water Quality Coordinator serve as the responsible persons for MCM1.

2.2 Target Pollutants and Audiences

Table 2-1 provides a list of target pollutants and their associated target audiences for MCM1. Table 2-2 provides the target mechanisms for each audience.

Table 2-1 MCM1 Target Pollutants and Audiences

Target Pollutant	Potential Sources/ Target Audience(s)
Residential Pollutants: • Household hazardous waste • Litter/solid waste • Pesticides and herbicides • Pet wastes • Used oil	• Home owners • Students; grades K-12 • Local college students • City Council
Commercial Pollutants: • Used oil • Sediment • Litter/solid waste	• Business owners • Management of large paved areas • Management of waste disposal
Industrial Pollutants: • Used oil • Sediment • Process/product chemicals • Hazardous materials • Litter/solid waste	• Business owners • Industrial site managers • Developers • Engineers • Management of large paved areas • Management of waste disposal

Table 2-2 MCM1 Target Audiences and Outreach Mechanisms

Target Audience	Target Outreach Mechanism
• Home owners • Students; grades K-12 • Local college students • City Council	• Newspaper articles • Master Gardener's Annual Plant Sale • Household Hazardous Waste Program • Printed brochures
• Commercial business owners	• Breakfast Education Meeting • Newspaper articles • Master Gardener's Annual Plant Sale • Household Hazardous Waste Program • Printed brochures
• Industrial business owners • Industrial site managers	• Breakfast Education Meeting • Printed brochures • City Stormwater Manuals
• Developers • Engineers	• Project meetings • Printed brochures • City Stormwater Manuals

2.3 Best Management Practices (BMPs)

The MS4 Permit requires permittees to develop or design BMPs to address each MCM and include in the SWMP (Section 4.1.1 of the MS4 Permit). Moberly has many ongoing public education BMPs to address MCM1, including:

- Informational articles are developed and published in the local newspaper on stormwater topics to provide information to the public. The City tracks articles and article responses through the City's website or phone calls.
- The City and Magic City Master Gardeners sponsor the Master Gardeners' Annual Plant Sale in May of each year. Educational information on topic such as composting, rain gardens, and rain barrels, is shared at this event. This event is open to the public. Typical attendance is 200 or more participants.
- The City has a Household Hazardous Waste program in place. Methods of outreach and education for this program include the City's website and local radio.
- The City provides stormwater education regarding composting, rain gardens, rain barrels, and the Household Hazardous Waste program using brochures, newspaper articles and in-person communication.

- The City has developed printable educational materials that are available to the public. Currently, the City has the following stormwater printed brochures (Attachment B) that are available and distributed as needed. The brochures include the following topics:
    - Best Management Practices for Excavation-Foundation Work
    - Best Management Practices for General Construction
    - Composting
    - Green Lawn Care
    - Non-Toxic Pesticides
    - Pesticide Safety Tips
    - Rain Barrels
    - Rain Gardens
    - Storm Drain Stenciling
    - Summer Watershed Tip
    - Pick up After Your Pet

The following BMPs will be designed, developed or further developed, between 2019 and 2023 regarding MCM1:

- The City will have an article calendar to plan for educational stormwater topics for newspaper articles throughout the year. This BMP will provide timely information to the public and increase public understanding of how various activities impact water quantity and quality.
- All newly identified or revised MS4 outfall location will be marked in the field with visible signs, at a rate of 20% per year. This BMP can help to bring awareness to the public of stormwater outfalls and locations where the City's stormwater collection system discharges to other waters.
- The City will continue to grow public participation in the stormwater drain stenciling program. Through participation in this program, the public will be educated about stormwater flows, including increased awareness of where and how stormwater is conveyed.

2.4 Measureable Goals

Moberly has established measureable goals for each BMP, as required by Section 4.1.1 of the MS4 Permit. The intent of a measureable goal is to provide quantifiable milestones to document progress toward the MCMs through the established BMPs. Table 2-3 provides Moberly's measurable goals for the BMPs designated for MCM1.

Table 2-3 MCM1 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency
Printed Brochures	Track number of brochures distributed	Ongoing	Annually
Outfall signs posted/updated	Complete all; goal of 20% per year	October 2023	Annually
Breakfast Education Meetings to Business/Industry	Track number hosted; goal of one per year or five total	October 2023	Annually
In-person presentations to service organizations	Track number completed; goal of two per year or 10 total	October 2023	Annually
Rain barrels distributed	Track number distributed	Ongoing	Annually
Storm drain stenciling	Track number completed	Ongoing	Annually

3.0 MCM2: Public Involvement and Participation

3.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2.2. The purpose of MCM2 is to establish a public involvement/participation program to provide opportunities for public involvement in:

- The development and oversite of the permittee's SWMP; and
- The permittee's renewal application.

The City's public involvement/participation program includes, at a minimum:

- A public notice period to allow the public to review the SWMP and renewal application prior to submission of the SWMP and renewal application to the MDNR. The required public review period by the MS4 Permit is at least ten business days;
- A notice of public meeting, if needed, regarding the SWMP and renewal application. The required notice by the MS4 Permit is at least 72 hours prior to the meeting;
- A plan to target all potentially affected stakeholder groups, including but not limited to, commercial and industrial businesses, trade associations, environmental groups, homeowner associations, and educational organizations;
- Opportunities for citizen representatives on stormwater panels or committees, if applicable;
- Volunteer monitoring or stream/lake clean-up activities; and
- Opportunities for citizen volunteers to assist with education on the City's SWMP.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM2.

3.2 Best Management Practices (BMPs)

Moberly has many ongoing public involvement BMPs to address MCM2, including programs regarding:

- Public meetings regarding the SWMP development and renewal of the permit;
- Source water protection planning for Sugar Creek Lake;
- Household Hazardous Waste;
- Rechargeable battery and cell phone recycling;
- Yard waste collection;
- Rain barrels;
- Composting;
- Storm drain stenciling; and
- Drug Take Back (Partnership with the Drug Enforcement Administration).

The City held a public meeting on August 23, 2018 to allow the public to provide input to the content of the updated SWMP, prior to finalizing this plan. The meeting was announced more than 10 days ahead of time via newspaper, radio and social media. Invitee groups to the public meeting included:

- City Council
- Moberly Area Economic Development
- Chamber of Commerce
- Main Street Moberly
- Moberly Area Public Schools
- Industries
- Commercial Businesses
- Developers
- Engineering Companies
- General Public

The following BMPs will be designed or developed between 2019 and 2023 regarding MCM2:

- Develop a stormwater committee of stakeholders (members of the public and City staff) that meets on a regular basis. This group could be used to educate, inform, and support actions to improve stormwater management and greater public outreach. The goal of this BMP is to encourage greater engagement and support for stormwater related issues and activities in the City.

3.3 Measureable Goals

Table 3-1 provides Moberly's measurable goals for the BMPs designated for MCM2.

Table 3-1 MCM2 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency
Hold public meeting for SWMP updates and permit renewal	Track meetings hosted; goal of once per permit renewal and once per update of the SWMP	October 2023	Once per permit cycle
Develop a stormwater committee of stakeholders	Track meetings held; goal of one meeting per year once established	October 2023	Annually
Storm drain stenciling	Track number completed	Ongoing	Annually
Breakfast Education Meetings to Business/Industry	Track number hosted; goal of one per year or five total	October 2023	Annually
Source water protection planning	Track meetings held	Ongoing	Annually

4.0 MCM3: Illicit Discharge Detection and Elimination

4.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2.3. The purpose of MCM3 is to establish procedures to prevent illicit discharges from city outfalls to receiving water bodies and provide enforcement in accordance with Chapter 34, Article II of Moberly's Code of Ordinances (Attachment C), and an Illicit Discharge Detection and Elimination (IDDE) plan (Attachment D). The IDDE MCM includes plans and procedures for:

- Detecting and addressing non-stormwater discharges of the City's stormwater system;
- Screening dry weather flows using field tests designed for determining discharge sources;
- Locating priority inspection areas;
- Tracing sources and eliminating illicit discharges;
- Implementing enforcement;
- Addressing non-stormwater discharges or flows that are a significant contributor of pollutants to the MS4; and
- Informing public employees, businesses, and the general public of the hazards associated with illegal discharges, and describing how the IDDE will coordinate with other MCMs.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM3.

4.2 Target Pollutants and Audiences

Table 4-1 provides a list of target pollutants and their associated target audiences for MCM3. Table 4-2 provides the target mechanisms for each audience.

Table 4-1 MCM3 Target Pollutants and Audiences

Significant Contributors	Target Pollutants	Target Audience(s)
On-site sewer systems	E.coli	• Home owners • Commercial businesses • Industries
Animal waste	E. coli	• General public
Shipping container activity/transport	Incidental or accidental releases of chemicals/products	• Commercial businesses • Industries
Litter	Debris, sediment	• Home owners • Commercial businesses • Industries • Developers • General public
Residential chemical use	Pesticides/herbicides	• Home owners
Agricultural activities	Fertilizers, pesticides, E. coli	• Agricultural business owners
Vehicle service stations	Oil & grease, benzene, toluene, ethylene, and xylene	• Commercial businesses • Industries

Table 4-2 MCM3 Target Audiences and Outreach Mechanisms

Target Audience	Target Outreach Mechanism
• Home owners • Students; grades K-12 • Local college students • City Council • General public	• Newspaper articles • Master Gardener's Annual Plant Sale • Household Hazardous Waste Program • Printed brochures
• Commercial business owners	• Breakfast Education Meeting • Newspaper articles • Master Gardener's Annual Plant Sale • Household Hazardous Waste Program • Printed brochures
• Industrial business owners • Industrial site managers	• Breakfast Education Meeting • Printed brochures • City Stormwater Manuals
• Developers • Engineers	• Project meetings • Printed brochures • City Stormwater Manuals

4.3 Best Management Practices (BMPs)

Chapter 34, Article II of Moberly's Code of Ordinances (Attachment C) and *Illicit Discharge Detection and Elimination Plan* (Attachment D) provide procedures and plans for IDDE. In addition, Moberly has many ongoing BMPs to address MCM3, including the following:

- A map of the storm sewer system (MS4) outfalls (Attachment E).
- The City has established procedures for identifying and tracing an illicit discharge in the IDDE plan.
- The City has established an inspection and enforcing plan for illicit discharges in the IDDE plan.
- The City has an Emergency Response Plan for accidental spills and/or illicit dumping, see Appendix C of the IDDEP.
- The City provides department heads and supervisors a copy of the SWMP.
- The City's Household Hazardous Waste program provides a free service to residents to dispose of household hazardous waste, and thus discourages illicit dumping of these products.

Opportunities for public involvement in this program include those listed in Table 6-1 of the attached IDDE plan.

The following BMPs will be designed, developed or further developed between 2019 and 2023 regarding MCM3:

- The City is working to further develop IDDE training materials for city employees, and implement an updated IDDE plan (Attachment D). This will improve awareness of IDDE and ensure follow up takes place once a potential illicit discharge is identified.
- The City plans to hold an education conference with Moberly Area Economic Development and the Chamber of Commerce, which would include invitations to business owners, industry, developers and the general public. The goal of this meeting is to increase public awareness and engagement around best practices and stormwater issues.

4.4 Measureable Goals

Table 4-3 provides Moberly's measurable goals for the BMPs designated for MCM3.

Table 4-3 MCM3 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency
Outfall signs posted/updated	Complete all; goal of 20% per year	October 2023	Annually
MS4 outfalls inspected	Complete all; 25% per year, beginning in 2020	October 2023	Annually
Priority areas inspected	Complete all; highest priority in 2019, and at least one per year in 2020-2023	October 2023	Annually
Industry contacts made	Track the number and type of contacts	Ongoing	Annually
Concerns investigated	Track the number and description	Ongoing	Annually
Contacts with on-site sewer owners	Track contacts and number of system corrections addressed	Ongoing	Annually

5.0 MCM4: Construction Stormwater Runoff Control

5.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2.4. The purpose of MCM4 is to develop, implement, and enforce a stormwater runoff program for construction activities that result in land disturbance greater than or equal to one acre in size or part of a common plan of development or sale that would disturb land greater than or equal to one acre. Moberly has developed and implemented the *Land Disturbance Manual* in accordance with Chapter 34, Article III of Moberly's Code of Ordinances. The *Land Disturbance Manual* and City Ordinance include the following requirements of the MS4 Permit for this SWMP:

- Sanctions designed to ensure compliance to the extent possible under state and local law;
- Requirements for the construction site operators to control construction-site waste that may cause adverse impacts to water quality;
- Procedures for the permittee to receive and consider information submitted by the public, including coordination with the permittee's public education and involvement programs; and
- Procedures for the permittee to inspect sites and enforce control measures, including prioritization of site inspection.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM4.

5.2 Target Pollutants and Audiences

Table 5-1 provides a list of target pollutants and their associated target audiences for MCM4. Table 5-2 provides the target mechanisms for each audience.

Table 5-1 MCM4 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sediment, including vehicle track-out • Litter • Construction materials/chemicals • Concrete truck washout • Vehicle and equipment fluids	Construction sites • Sediment stockpiles • Construction materials • Waste materials • Vehicle maintenance/fueling	• Developers • Engineers • Contractors • Land owners • Industries • Commercial business owners • Home owners • Do-it-yourself operations

Table 5-2 MCM4 Target Audiences and Outreach Mechanisms

Target Audience	Target Outreach Mechanism
• Home owners • Do-it-yourself operations	• Household Hazardous Waste Program • Printed brochures
• Commercial business owners	• Breakfast Education Meeting • Household Hazardous Waste Program • Printed brochures
• Industrial business owners • Industrial site managers	• Breakfast Education Meeting • Printed brochures • City Land Disturbance Manual
• Developers • Project owners • Engineers	• In-person project meetings • Printed brochures • City Land Disturbance Manual

5.3 Best Management Practices (BMPs)

Chapter 34, Article III of Moberly's Code of Ordinances and *Land Disturbance Manual* provide procedures and plans for target audiences to comply with construction stormwater runoff. In addition, Moberly has many ongoing BMPs to address MCM4, including the following:

- Active construction sites are inspected routinely for track out, appropriate BMP installation, waste management, stormwater inlet protection, and general management of the site, per the City's *Land Disturbance Manual*. The City's goal is to conduct inspections of active sites on a weekly basis, and typically after rain events greater than 0.5 inches. Inspection forms are included in the City's *Land Disturbance Manual*.
- Streams near construction sites are monitored for sediment, color, oil, litter, or other issues by City staff, routinely. These are usually done during construction site inspections.

- The City provides construction stormwater BMP brochures to homeowners, developers and project owners, and tracks the number and type of brochures distributed. Brochures are available at City Hall and the Household Hazardous Waste Collection/Redistribution facility.
- The City tracks and responds to information and/or concerns submitted by the public regarding construction site activity. Information regarding these reports and responses are recorded in a city log book.

Moberly completed the following BMP between 2014 and 2018 regarding MCM5:

- The City's *Land Disturbance Manual* was revised and updated in 2018. As a result, the requirements of the program have been streamlined and revised.

The following BMPs will be designed or developed between 2019 and 2023 regarding MCM4:

- The *Land Disturbance Manual* was revised and updated in 2018. The City will continue to inform stakeholders, provide access to copies of the manual, and follow the procedures in the updated manual to implement the program.
- The City will continue to require that every building permit issued by the City be routed to the Stormwater Department for review and signature, prior to issuance. This will ensure that all projects required to obtain a land disturbance permit are identified, and enter the permitting process, as provided in the *Land Disturbance Manual*.
- All sites that have been issued building permits will be monitored by City stormwater staff approximately every two months. This BMP will help to ensure that unexpected activity at building permit sites that need a land disturbance permit are identified.
- The City's stormwater staff will work with planning and zoning staff to coordinate on building and construction requirements, and work to develop a Frequently Asked Questions (FAQ) handout/brochure that could be provided to the public. This coordination and FAQ document will help the City to better assist and inform the public of the needs and requirements of the land disturbance program.

5.4 Measureable Goals

Table 5-3 provides the Moberly's measurable goals for the BMPs designated for MCM4.

Table 5-3 MCM4 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency
Issue permits for land disturbance sites	Track permit issuance; goal is to issue permits for all active construction sites that require a permit	Ongoing	As needed
Active construction site inspections	Track inspections completed; goal is once per week per permitted site	Ongoing	Weekly
Monitoring streams near active construction sites	Track monitoring activities completed; goal is once after each rain event equal or greater than 0.5 inches	Ongoing	As needed
Printed brochures	Track number of brochures distributed	Ongoing	Annually
Provide the Land Disturbance Manual to owner/developers/engineers	Provide this information up front on all projects; track the number of projects	Ongoing	Annually
Investigate reported concerns and report results	Track all concerns and reports	Ongoing	Annually
Route all building permits through the Stormwater Department for signature	Sign off on all building permits	Ongoing	As needed
Inspect all building permit sites	Track inspections; goal is completion of each site once every two months	Ongoing	Annually
Develop a FAQ document with planning and zoning staff	Completion of the new document	October 2023	Once during the permit cycle

6.0 MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

6.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2.5. The purpose of MCM5 is to develop, implement, and enforce a post-construction stormwater program for construction activities that result in land disturbance greater than or equal to one acre in size or part of a common plan of development or sale that would disturb land greater than or equal to one acre. Moberly has established the *Post-Construction Stormwater Manual* in accordance with Chapter 34, Article IV of Moberly's Code of Ordinances. The *Post-Construction Stormwater Manual* and Ordinance meet the following requirements of the MS4 Permit for this SWMP:

- Strategies to minimize water quality impacts, which include a combination of appropriate structural and non-structural BMPs; and
- An inspection plan with implementation schedules for post-construction BMPs.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM5.

6.2 Target Pollutants and Audiences

Table 6-1 provides a list of target pollutants and their associated target audiences for MCM5. Table 6-2 provides the target mechanisms for each audience.

Table 6-1 MCM5 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sediment • Runoff volumes • Litter • Waste materials • Commercial/industrial products	Post-construction stormwater BMPs, including permanent structural controls	• Developers • Engineers • Contractors • Land owners • Industries • Commercial business owners • Home owners • Home Owners Associations

Table 6-2 MCM5 Target Audiences and Outreach Mechanisms

Target Audience	Target Outreach Mechanism
• Home owners • Home Owners Associations	• Household Hazardous Waste Program • Printed brochures
• Commercial business owners	• Breakfast Education Meeting • Household Hazardous Waste Program • Printed brochures
• Industrial business owners • Industrial site managers	• Breakfast Education Meeting • Printed brochures • City Post-Construction Manual
• Developers • Project owners • Engineers • Realtors • Chamber of Commerce • Moberly Area Economic Development	• In-person project meetings • Breakfast Education Meeting • Printed brochures • City Post-Construction Manual

6.3 Best Management Practices (BMPs)

Chapter 34, Article IV of Moberly's Code of Ordinances and *Post-Construction Stormwater Manual* provide procedures and plans for target audiences to comply with post-construction stormwater runoff. In addition, Moberly has many ongoing BMPs to address MCM5, including the following:

- The City reviews and issues operating permits for post-construction BMPs, per the *Post-Construction Stormwater Manual*. Operating permits are issued for up to one year, and City inspections are initiated upon renewal of the permit.
- The City conducts a pre-construction site assessment for post-construction BMPs and requires protection of sensitive areas.
- The City conducts inspections of permitted post-construction BMPs on an annual frequency, at a minimum. Owners are given time allotments to correct deficiencies, per the *Post-Construction Stormwater Manual* and City Ordinance.
- Streams near post-construction BMPs are monitored on a routine basis by City staff for downstream impacts, such as erosion, sediment, color, oil, or litter.
- Post-Construction BMP sites are inspected to insure sensitive areas are not impacted. Inspection forms are included in the City's *Post-Construction Stormwater Manual*.
- The City tracks and responds to information and/or concerns submitted by the public regarding water quantity/quality issues. Information regarding these reports and responses are recorded in a city log book.
- A demonstration project including a rain garden and various other BMPs are present at City Hall.

Moberly completed the following BMPs between 2014 and 2018 regarding MCM5:

- Relaxed requirements were added to the *Post-Construction Stormwater Manual* in 2018 to allow for grassy swales and native grasses to be left un-manicured.
- A pre-construction site assessment for post-construction BMPs and sensitive areas was more clearly outlined in the *Post-Construction Stormwater Manual* in 2018.
- The City's *Post-Construction Stormwater Manual* was revised and updated in 2018. As a result, the requirements of the program have been streamlined and revised.

The following BMP will be designed or developed between 2019 and 2023 regarding MCM5:

- The *Post-Construction Stormwater Manual* was revised and updated in 2018. The City will continue to inform stakeholders, provide access to copies of the manual, and follow the procedures in the updated manual to implement the program.
- Encourage development of regional BMPs as an alternative to sit-specific post-construction BMPs, per the *Post-Construction Stormwater Manual*. This option will allow business owners and developers to coordinate construction of appropriately designed BMPs, especially where available footprint is an issue.
- Inspect post-construction BMP sites with operating permits at least two to three months prior to the expiration of the permit, and describe any deficiencies in a letter to the owner along with a reminder to apply for permit renewal.
- Inspect and issue permits for all existing post-construction BMPs that do not already have an operating permit.
- Conduct outreach and education on post-construction BMPs for developers, realtors, chamber of commerce, economic development, engineering firms, and City staff.

6.4 Measureable Goals

Table 6-3 provides the Moberly's measurable goals for the BMPs designated for MCM5.

Table 6-3 MCM5 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency
Post-construction BMP inspections	Track inspections completed; goals are once per year per permitted site/permit renewal, and 2-3 months prior to renewal	Ongoing	Annually
Issue operating permits for post-construction BMPs	Track permit issuance; goal is to have operating permits for all post-construction BMPs within five years	October 2023	Annually
Monitoring streams near post-construction BMPs	Track monitoring activities completed; follow up with land owners when issue discovered	Ongoing	As needed
Printed brochures	Track number of brochures distributed	Ongoing	Annually
Provide the Post-Construction Stormwater Manual to owner/developers/engineers	Provide this information up front on all projects; track the number of projects	Ongoing	Annually
Investigate reported concerns and report results	Track all concerns and reports	Ongoing	Annually

7.0 MCM6: Pollution Prevention/Good Housekeeping

7.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2.6. The purpose of MCM6 is to 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. The program includes the following requirements of the MS4 Permit for this SWMP:

- A government employee training program to prevent and reduce stormwater pollution;
- A list of all municipal operations impacted by the operations and maintenance program, including a list of industrial facilities subject to NPDES permits that are owned or operated by the City;
- Maintenance BMPs, schedules, and long-term inspection procedures;
- Controls for reducing or eliminating the discharge of pollutants from City owned/operated outdoor areas;
- Procedures for the proper disposal of waste removed from City's areas of jurisdiction, including dredged material, accumulated sediments, floatables, and other debris;
- Procedures to assess the impacts of water quality for new flood management projects, if applicable; and
- Spill prevention, control, and management practices for all paints, solvents, petroleum products, and petroleum waste products (except fuels) under control of the permittee.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM6.

7.2 Target Pollutants and Audiences

Table 7-1 provides a list of target pollutants and their associated target audiences for MCM6. Table 7-2 provides the target mechanisms for each audience.

Table 7-1 MCM6 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sanitary or combined sewer overflows • Sediment • Litter • Household hazardous waste • Automotive/equipment fluids • Street salts and sand • Chlorine	• Routine City operation and maintenance activities • City construction projects • Treatment of roadways and walkways for ice • City Parks • Wastewater Treatment Facility • Waste management	• City employees • City council members • City officials • Contractors • Consultants

Table 7-2 MCM6 Target Audiences and Outreach Mechanisms

Target Audience	Target Outreach Mechanism
• City employees • City council members • City officials	• In-person meetings • City-developed trainings • City Stormwater Manuals • Printed brochures
• Contractors • Consultants	• Project meetings • Printed brochures • City Stormwater Manuals

7.3 Best Management Practices (BMPs)

Moberly has many ongoing public education BMPs to address MCM6, including:

- Site inspections are conducted at the department headquarters annually.
- City staff receive training annually via training videos.
- The City organizes "Pride in Moberly" city-wide clean up days annually.
- Open channel storm water drainage conveyances have been refurbished using rock, matting, seeding, and mulch to reduce erosion and settlement. The City has a goal of refurbishing additional conveyances.
- Street sweeping activities are conducted weekly.
- Storm drain inspections, cleaning, and repair are conducted as needed.
- Sewer rehabilitation is being performed to reduce inflow and infiltration.
- Sewer jetting and root saw programs are in place to reduce backups and overflows.

The following BMPs will be designed or developed between 2019 and 2023 regarding MCM6:

- The City will provide copies of the updated SWMP to all City Departments.
- The City will conduct a meeting with staff from all departments to inform them about the content and requirements of the SWMP. This will help to increase awareness of City staff to any changes to the SWMP regarding City operations.
- The City will seek additional externally provided training for City staff to attend on the topic of stormwater management for municipal operations.

7.4 Measureable Goals

Table 7-3 provides Moberly's measurable goals for the BMPs designated for MCM6.

Table 7-3 MCM6 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency
Site inspections at each department headquarters	Track location and reports of inspection; goal is to complete each site annually	Ongoing	Annually
City staff training	Record names of staff who complete the training; goal is to conduct training annually	Ongoing	Annually
Host City-wide clean up days	Track completion of these events; goal is once per year	Ongoing	Annually
Refurbish open-channel stormwater drainage ditches	Track refurbishments completed; goal is to complete three during the permit cycle	October 2023	Annually
Street sweeping	Track hours operated, gallons of water used, and tons of material collected/disposed; goal is weekly	Ongoing	Weekly
Sewer rehabilitation, jetting, and root saw work	Track work completed and location	Ongoing	As needed
Provide copies of updated SWMP to City staff, and conduct meeting with City staff to review the contents of the plan	Record meeting attendees names; goal is once per permit cycle	October 2019	Once per permit cycle
Seek external training to supplement City training	Record attendees names and training topic(s)	October 2020	Once per permit cycle

8.0 Recordkeeping and Reporting

8.1 Recordkeeping

This section of the SWMP was developed in accordance with MS4 Permit Section 5.2. The City will retain the most recent version of this SWMP to be made available upon request. In addition, Moberly will maintain the following records for a minimum of three years from the date of application for coverage under the MS4 Permit:

- Activities requiring recordkeeping by this SWMP;
- A copy of the NPDES permit, ordinances, policies, and formal procedures for all six MCMs; and
- Records of the data used to complete the application for the MS4 Permit.

8.2 Reporting

This section of the SWMP was developed in accordance with MS4 Permit Section 5.3. The City will submit a SWMP report to MDNR biennially by February 28th of odd numbered years. Reports will be submitted through the MDNR's Form MO 780-1846 (Attachment F), unless an alternative reporting format is approved. If the MS4 becomes subject to a Total Maximum Daily Load (TMDL), this SWMP will be updated accordingly and the City will become subject to annual reporting. Reports will contain the following required information from January 1 to December 31 of the immediate following year:

- Information regarding progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable (MEP);
- The status of the MS4's compliance with permit conditions;
- Assessment(s) of the appropriateness of identified BMPs and corresponding measureable goals for each MCM;
- A summary of results of information collected and analyzed during the reporting period, including monitoring data or quantifiable values per the MS4's measurable goals;
- A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule);
- Any proposed changes to the permittee's SWMP, including changes to any identified BMPs or measureable goals that apply to the SWMP; and
- If applicable, notice that the permittee is relying on another government entity to satisfy some of the permittee's permit obligations. The permittee will supply the name of the entity, the name of the entity's primary contact person, and other relevant contact information.

Attachment A

State of Missouri, Department of Natural Resources Operating Permit, MO-R040030

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Harry D. Bozoian, Director
DEPARTMENT OF NATURAL RESOURCES
dnr.mo.gov

5.110 Moberly Small MS4
Randolph County
#MO-R040030

December 1, 2016

City of Moberly
101 West Reed Street
Moberly, MO 65270

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, the Missouri Department of Natural Resources has issued and is enclosing a General State Operating Permit for Moberly Small MS4.

Please review the requirements of your permit. Monitoring reports that may be required by this permit must be submitted on a periodic basis. Copies of the necessary report forms, if required, are enclosed for your use. These reports should be mailed to the Water Protection Program, MS4 Coordinator, PO Box 176, Jefferson City, MO 65102. Additional forms can be found on the department's website.

Please note that outfall feature #101 has been designated as your primary outfall for reporting purposes as outlined in *Section 5.3 MS4 SWMP Report* of your permit. As an existing MS4 and not subject to a TMDL you are required to submit your SWMP report on a biennial basis as outlined in *Section 5.3.2* of your permit. All other outfalls identified in this permit are listed as representative outfalls and are only a subset of the MS4s outfalls. The permittee is responsible for mapping the location of all outfalls for incorporation into the SWMP as outlined in *Section 4 Storm Water Management Program* of your permit.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to satisfy the permit requirements, an appointment can be set up by contacting your local regional office at (660) 385-8000. These visits are called Compliance Assistance Visits (CAV) and focus on explaining the requirements to the permit holder.

This general permit is both your federal discharge permit and your new state operating permit and replaces all previous state operating permits and letters of approval for the discharges described within. In all future correspondence regarding this permit, please refer to your general permit number as shown on page one of your permit.

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If you were adversely affected by this decision, you may be entitled to an appeal before the administrative hearing commission pursuant to 10 CSR 20-1.020 and Sections 644.051.6 and 621.250, RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission. Contact information for the AHC is as follows: Administrative Hearing Commission, United States Post Office Bldg., Third Floor, 131 West High Street, Jefferson City, MO 65101, Phone: 573-751-2422, Fax: 573-751-5018, Website: www.oa.mo.gov/ahc.

Please be aware that this facility may also be subject to any applicable county or other local ordinances or restrictions. Please note the expiration date of this permit. If your permit is issued within 30 days of the expiration date of the attached permit, this letter also serves as a notification to resubmit an application for renewal or termination.

If you have questions, please contact Mr. David See at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/dsm

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

General Operating Permit

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No	MOR040030
Owner: Address:	City of Moberly 101 West Reed Street Moberly, MO 65270
Continuing Authority:	City of Moberly 101 West Reed Street Moberly, MO 65270
Facility Name: Facility Address:	Moberly Small MS4 101 West Reed Street MOBERLY, MO 65270
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream - ID#:	See Page 2
USGS# and Sub Watershed#:	See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

FACILITY DESCRIPTION All Outfalls SIC #9511
All Outfalls - Stormwater discharges from Regulated Small Municipal Separate Storm Sewer Systems.

SIC 9511/NAICS 924110

This permit authorizes only wastewater, including storm water, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System, it does not apply to other regulated areas. This permit may be appealed in accordance with RSMo Section 644.051.6 and 621.250, 10 CSR 20-6.020, and 10 CSR 20-1.020.

December 01, 2016
Issue Date

Harry D. Bozoian, Director
Department of Natural Resources

September 30, 2021
Expiration Date

Irene Crawford
Regional Director, Northeast Regional Office

Outfall Number: 001
Legal Description: NE 1/4, NW 1/4, NE 1/4, Sec. 25, T54N, R14W, Randolph County
UTM Coordinates: 549089.959/4367055.813
Receiving Stream: Tributary to Elk Fork Salt River(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

Outfall Number: 002
Legal Description: SW 1/4, NE 1/4, NW 1/4, Sec. 31, T54N, R13W, Randolph County
UTM Coordinates: 550105.835/4365181.662
Receiving Stream: Tributary to Elk Fork Salt River(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

Outfall Number: 003
Legal Description: NE 1/4, NE 1/4, SW 1/4, Sec. 31, T54N, R13W, Randolph County
UTM Coordinates: 550541.555/4364352.098
Receiving Stream: Tributary to Tributary to Coon Creek(U)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

Outfall Number: 004
Legal Description: NE 1/4, SW 1/4, NE 1/4, Sec. 06, T53N, R13W, Randolph County
UTM Coordinates: 550642.405/4363551.221
Receiving Stream: Tributary to Tributary to Coon Creek(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

Outfall Number: 005
Legal Description: NW 1/4, NW 1/4, NE 1/4, Sec. 07, T53N, R13W, Randolph County
UTM Coordinates: 550604.269/4362071.212
Receiving Stream: Coy Branch(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

Outfall Number: 006
Legal Description: SW 1/4, NW 1/4, NE 1/4, Sec. 18, T53N, R13W, Randolph County
UTM Coordinates: 550568.233/4360252.052
Receiving Stream: Tributary to Coon Creek(U)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

Outfall Number: 007
Legal Description: SE 1/4, SW 1/4, SW 1/4, Sec. 02, T53N, R14W, Randolph County
UTM Coordinates: 546632.876/4362292.969
Receiving Stream: Sweet Spring Creek(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 10280203 - 0301

Outfall Number: 008
Legal Description: SW 1/4, NE 1/4, NW 1/4, Sec. 35, T54N, R14W, Randolph County
UTM Coordinates: 546805.774/4365346.073
Receiving Stream: Tributary to Sugar Creek Lake(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 10280203 - 0204

Outfall Number: 101
Legal Description: NE 1/4, NW 1/4, NE 1/4, Sec. 25, T54N, R14W, Randolph County
UTM Coordinates: 549089.959/4367055.813
Receiving Stream: Tributary to Elk Fork Salt River(C)
First Classified Stream - ID#: 8-20-13 MUDD V1.0 (C) 3960.00
USGS# and Sub Watershed#: 07110006 - 0302

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1. **COVERAGE UNDER THIS PERMIT**

1.1 Permit Area:

1.1.1 This permit covers all areas served by a Municipal Separate Storm Sewer System (MS4) for which the applicant is identified as the Continuing Authority.

1.2 Applicability:

1.2.1 This permit authorizes discharges of stormwater from regulated Small MS4s, as defined in 10 CSR 20-6.200. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate National Pollutant Discharge Elimination System (NPDES) permits. The permittee, or co-permittee, is authorized to discharge under the terms and conditions of this general permit if the permittee:

1.2.1.1 Owns or operates a regulated Small MS4 as defined in 10 CSR 20-6.200; located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census or designated for permit authorization by the Missouri Department of Natural Resources (Department); and

1.2.1.2 Submits a general permit application in accordance with Section 2 of this permit.

1.2.2 The following are types of discharges authorized by this permit:

1.2.2.1 *Stormwater discharges.* This permit authorizes stormwater discharges to waters of the state from the regulated Small MS4s identified in Section 1.2.1, except as excluded in Section 1.3.

1.2.2.2 *Non-stormwater discharges.* The permittee is authorized to discharge the following non-stormwater sources provided the permitting authority has not determined these sources to be substantial contributors of pollutants to the permittee's MS4 that required a separate permit:

- Landscape irrigation and lawn watering,
- Rising groundwater,
- Uncontaminated groundwater infiltration (infiltration is defined as water other than wastewater that enters a sewer system, including sewer service connections and foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow),
- Uncontaminated pumped groundwater,
- Discharges from potable water sources,
- Foundation or footing drains,
- Air conditioning condensate,
- Springs,
- Uncontaminated water from crawl space pumps,
- Flows from riparian habitat and wetlands,
- Street wash water,
- Discharges or flows from emergency fire-fighting activities,
- Individual residential car washing, and
- Dechlorinated residential swimming pool discharges.

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1.3 Limitations of Coverage

1.3.1 *Non-stormwater Discharges*. The permittee, as defined herein, shall prohibit non-stormwater discharges into the MS4, except to the extent such discharges are regulated with a separate NPDES permit or as authorized by Section 1.2.2.2 above.

1.3.2 This operating permit does not affect, remove, or replace any requirement of the Endangered Species Act; the National Historic Preservation Act; the Comprehensive Environmental Response, Compensation and Liability Act; or the Resource Conservation and Recovery Act. Determination of applicability to the above mentioned acts is the responsibility of the permittee.

1.4 Discharge Limitations

1.4.1 The permittee shall implement Best Management Practices (BMPs) via an iterative process to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) into the MS4 for the goal of attainment with Missouri's Water Quality Standards. Specific requirements are listed in Parts 4, 5, and 6 of this operating permit.

1.4.2 The permittee shall implement and enforce a Stormwater Management Program (SWMP) per the requirements listed in this operating permit in accordance with section 402(p)(3)(B)(iii) of the CWA, corresponding NPDES regulations, 40 CFR 122.34, and in accordance with the Missouri Clean Water Law (MCWL) and it's implementing regulations under 10 CSR 20-6.200(5)(A)(1 – 6).

1.4.3 The permittee shall comply with all provisions and requirements contained in this permit and with their SWMP including plans and schedules developed in fulfillment of this permit.

1.4.4 If the Department determines a regulated MS4 is causing or contributing to instream excursions of Missouri's Water Quality Standards, then the Department may require corrective action(s) or require an application for a site-specific permit to ensure that BMPs are being implemented via an iterative process to reduce pollutants to the MEP. Additionally, the Department may require the regulated MS4 to submit an application for an alternative general permit.

1.4.5 Newly designated regulated MS4s applying for coverage under this general permit and discharging to waterbodies or watersheds subject to an existing EPA approved or established TMDL may be denied coverage under this general permit and required to apply for and obtain a site-specific operating permit for stormwater discharges from their regulated MS4.

2. AUTHORIZATION TO DISCHARGE AND APPLICATION REQUIREMENTS

2.1 Authorization to discharge stormwater from a regulated small MS4 requires each permittee (existing and recently designated regulated MS4 based on the latest decennial census) to submit a complete application for the MS4 general permit. In addition to the application, permittees shall submit their written SWMP including implementation schedule and items listed under Section 4.1 of this operating permit.

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2.1.1 Each submitted SWMP shall be subjected to a review and rating. If the Department approves the SWMP, it will be presumed to be affordable for the permittee. However, if the Department disapproves the SWMP and requires any additional or different controls or expenses, then the Department will conduct an affordability analysis in support of the disapproval for the permittee. However, permittees may waive the requirement of the Department to conduct an affordability analysis at any time.

2.2 The permittee shall submit their application on the latest version of the application form(s). The application shall be signed and dated by an authorized signatory in accordance with section 6.17 of this operating permit.

2.3 Existing regulated permittees seeking renewal of their MS4 permit shall submit a renewal application within 30 days prior to the expiration date of this operating permit unless the permittee has been notified by the Department that an earlier application is required.

2.4 Recently designated regulated MS4s based on the latest decennial census shall submit their permit application within 180 days following notification by the Department that permit coverage is required.

3. SPECIAL CONDITIONS FOR TOTAL MAXIMUM DAILY LOADS

3.1 MS4s Subject to Total Maximum Daily Loads (TMDL)

3.1.1 Any regulated MS4 identified in an United States Environmental Protection Agency (EPA) approved or established Total Maximum Daily Load (TMDL) with an applicable Wasteload Allocation (WLA) shall implement steps toward the attainment of applicable WLA in accordance with 40 CFR 122.44(k)(2) and (3).

3.1.2 The permittee shall develop a TMDL Assumptions and Requirement Attainment Plan (ARAP) to address the TMDL's assumptions and requirements where applicable. The TMDL ARAP shall be incorporated into the SWMP and include, at a minimum, the following:

3.1.2.1 A process to identify potential sources of the pollutants(s), BMPs to be implemented to address the sources within their MS4, a prioritization of those actions, and a schedule including beginning and ending milestones by month and year. The schedule for the implementation of the TMDL ARAP shall be completed as soon as practicable, but is not limited to the term of this operating permit (i.e., 5 years) as attainment can take years or even multiple permit terms;

3.1.2.2 BMPs developed or designed with a purpose of reducing the pollutant(s) of concern. Each BMP shall contain a description of the BMP, the purpose of the BMP, and the expected result of the BMP.

3.1.2.3 Measurable goals shall be established for each BMP or in conjunction with multiple BMPs. Each measurable goal shall contain a statement clearly indicating how it will be established to determine the appropriateness of identified BMPs and progress toward the expected results of the BMP. Measureable goals shall be quantifiable; however, if it is not feasible to utilize a measurable goal that is quantifiable, then the permittee shall provide justification indicating why the measurable goal cannot be quantifiable. If applicable, measurable goals shall also utilize interim and completion milestone dates, and a periodic frequency of measurement to document progress. It is recommended that interim and final milestone dates are established with a format of month and

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year. If the format of month and year cannot be utilized, the permittee shall ensure that schedules have the minimum format of 1st, 2nd, 3rd, 4th, and 5th year of the operating permit.

3.1.2.4 An iterative process to be utilized by the permittee that documents how each BMP is evaluated and subject to replacement or modification. The permittee shall apply reasonable further progress by replacing or modifying ineffective BMPs with effective BMPs.

3.1.3 If the permittee is subject to section 3.1.1, then the permittee shall draft and submit their TMDL ARAP to the Department as soon as practicable but no later than 30 months after the date EPA approves or establishes the TMDL or the effective date of their operating permit, whichever is later. The initial TMDL ARAP is to be submitted to the Department's MS4 Coordinator for review and rating at Water Protection Program, P.O. Box 179, Jefferson City, MO 65102. The deadline for the TMDL ARAP may be extended by request of the permittee and written approval by the Department.

3.1.3.1 The permittee shall submit annual TMDL ARAP status reports to the Department on January 28th of each year until the TMDL ARAP has been submitted. The annual status report shall provide a brief update on the status of completion of the TMDL ARAP to be submitted to the Department. The deadline for the TMDL ARAP may be extended by request of the permittee and with written approval by the Department. The annual status report shall be submitted to the Department's Water Protection Program, MS4 Coordinator at P.O. Box 176, Jefferson City, MO 65102.

3.1.3.2 If the Department approves the TMDL ARAP, it will be presumed that the TDML ARAP is affordable by the permittee. However, if the Department disapproves a submitted TMDL ARAP and requires any additional or different controls or expenses, the Department will conduct an affordability analysis in support of the disapproval unless waived by the permittee. In addition to the disapproval, the Department shall provide an itemized list of recommendations, discrepancies, and plan corrective action(s) to the permittee in written correspondence, which will also provide deadlines for any corrective action(s).

3.1.3.3 If the TMDL ARAP has been submitted to the Department but has not received approval, then the permittee is not required to implement any actions listed in their TMDL ARAP and shall notify the Department of this in their MS4 SWMP Report.

3.1.3.4 If the TMDL ARAP has received Department approval, the permittee shall implement their TMDL ARAP in accordance to schedules established in the TMDL ARAP. Implementation of all TMDL ARAP control measures shall be documented and retained by the permittee with the permittee's SWMP, and made available to the Department or EPA upon request.

3.1.4 If the permittee is subject to section 3.1.1 of this operating permit and has an approved TMDL ARAP, then the permittee shall provide a summary that lists the BMPs, the expected results of the BMPs, how the measurable goals are utilized to document effectiveness of the BMPs, and the status of the measurable goal in the MS4 SWMP Report.

3.1.5 If the permittee is subject to section 3.1.1 of this operating permit, then the permittee may demonstrate that no additional controls are needed beyond the successful implementation of the six Minimum Control Measures (MCMs), which includes modifications to the BMPs or measurable goals, for the attainment with the TMDL's assumptions and requirements. The demonstration is subject to Department approval. If the permittee is to provide a demonstration

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that no additional controls are needed, they shall contact the Water Protection Program's MS4 Coordinator to begin the process.

3.1.6 If the permittee is subject to section 3.1.1 of this operating permit, then the permittee may submit an Integrated Plan as an approach for the implementation of a TDML's assumptions and requirements. Review and rating of an Integrated Plan is subject to the same requirements of sections 3.1.2 through 3.1.3 of this permit. If the permittee is to utilize an Integrated Plan, they shall contact the Water Protection Program's MS4 Coordinator to begin the process.

3.1.7 Permittees subject to existing TMDL Assumptions and Requirements shall submit their plan and status of implementation to the Department with the first MS4 SWMP Report required by this permit. Existing plans shall be subject to the same conditions listed in items 3.1.2.1; 3.1.2.2; 3.1.2.3; 3.1.2.4; 3.1.3.1; 3.1.3.2; 3.1.3.4; 3.1.4; 3.1.5; 3.1.6.

3.1.8 If the EPA approved or established TMDL indicates that the permittee does not cause or contribute to the impairment, then the permittee is not required to develop and implement any action contained in Part 3 of this permit. .

4. STORMWATER MANAGEMENT PROGRAM (SWMP)

4.1 The SWMP document shall include:

4.1.1 The following information for each of the six (6) minimum control measures described in Section 4.2 of this permit:

4.1.1.1 BMPs developed or designed with a purpose of reducing stormwater pollution. Each BMP shall contain a description of the BMP, the purpose of the BMP, and the expected result of the BMP.

4.1.1.2 Measurable goals shall be established for each BMP or in conjunction with multiple BMPs. Each measurable goal shall contain a statement clearly indicating how it will be established to determine the appropriateness of identified BMPs and progress toward the expected results of the BMP. Measurable goals shall be quantifiable; however, if it is not feasible to utilize a measurable goal that is quantifiable, then the permittee shall provide justification indicating why the measurable goal cannot be quantifiable. If applicable, measurable goals shall also utilize interim and completion milestone dates, and a periodic frequency of measurement to document progress. It is recommended that interim and final milestone dates are established with a format of month and year. If the format of month and year cannot be utilized, the permittee shall ensure that schedules have the minimum format of 1st, 2nd, 3rd, 4th, and 5th year of the operating permit.

4.1.1.3 The person primarily responsible for the SWMP and the person(s) responsible for each minimum control measure if different from the primary responsible person; and

4.1.1.4 An iterative process to be utilized by the permittee that documents how each BMP is evaluated and subject to replacement or modification. The permittee shall apply reasonable further progress by replacing or modifying ineffective BMPs with effective BMPs.

4.1.2 Newly designated regulated MS4s shall fully implement each Minimum Control Measures in accordance with their approved SWMP within five (5) years of receipt of its MS4 operating permit.

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4.1.3 Within one (1) year of the effective date of this permit, the permittee shall revise their SWMP, if necessary, and submit the SWMP to the Water Protection Program's MS4 Coordinator for review and rating.

4.2 Minimum Control Measures – The six (6) Minimum Control Measures that shall be included in the permittee's SWMP document are:

4.2.1 ***Public Education and Outreach of Stormwater Impacts***

4.2.1.1 The permittee shall implement a public education program to distribute educational material to the community or conduct equivalent outreach activities about the impact of stormwater discharges on waterbodies and steps the public can take to reduce pollutants in stormwater runoff. As part of the SWMP, the Public Education and Outreach Program shall include the following information at a minimum:

4.2.1.1.1 A plan on how target audiences are identified for the public education program who are likely to have significant stormwater impacts (including commercial and industrial entities):

4.2.1.1.2 A plan to inform individuals and households about steps they can take to reduce stormwater pollution;

4.2.1.1.3 A plan to inform individuals and groups on how to become involved in the SWMP (with activities such as local stream and lake restoration activities);

4.2.1.1.4 The outreach strategy, including the mechanisms (e.g., printed brochures, newspapers, media, workshops, etc…) to reach target audiences; and

4.2.1.1.5 The pollutant(s) sources that the permittee's education program is designed to address.

4.2.2 ***Public Involvement and Participation***

4.2.2.1 The permittee shall implement a public involvement/participation program that provides opportunities for public involvement in the development and oversight of the permittee's SWMP, and provides opportunities for public involvement of the permittee's renewal application. The public involvement/participation program shall, at a minimum, include the following:

4.2.2.1.1 A public notice period to allow the public to review the SWMP and renewal application prior to the submission of the SWMP and renewal application to the Department. It is recommended that the public review period is at least 10 (ten) business days;

4.2.2.1.2 A notice of public meeting, if needed, regarding the SWMP and renewal application. It is recommended that the notice should be at least 72 hours prior to the meeting;

4.2.2.1.3 A plan to target all potentially affected stakeholder groups, including but not limited to, commercial and industrial businesses, trade associations, environmental groups, homeowner associations and educational organizations;

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4.2.2.1.4 If the permittee utilizes a stormwater management panel/committee, then the permittee shall provide opportunities for citizen representatives on the panel/committee;

4.2.2.1.5 If appropriate, volunteer monitoring or stream/lake clean-up activities; and

4.2.2.1.6 Provide opportunities and work with citizen volunteers willing to educate others about the permittee's SWMP.

4.2.4.2.3 ***Illicit Discharge Detection and Elimination***

4.2.3.1 The permittee 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 permittee's regulated Small MS4. As part of the SWMP document, the permittee's illicit discharge detection and elimination program shall include the development and implementation of, at a minimum:

4.2.3.1.1 A storm sewer map showing the location of all constructed outfalls and the names and locations of all receiving waters of the state that receive discharges from those outfalls. The permittee shall describe the sources of information used for the map(s), and how the permittee plans to verify the outfall locations with field surveys. If already completed, the permittee shall describe how the map was developed and how the map will be regularly updated. The permittee shall make the map information available to the Department upon request;

4.2.3.1.2 To the extent allowable under state or local law an effective prohibition, through ordinance or other regulatory mechanism, of non-stormwater discharges into the permittee's storm sewer system and implementation of appropriate enforcement procedures and actions. The permittee shall identify the mechanism (ordinance or other regulatory mechanism) the permittee will use to effectively prohibit illicit discharges into the Small MS4. If the permittee needs to develop this mechanism, describe the permittee's plan and implementation schedule. If the permittee's ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with the permittee's SWMP;

4.2.3.1.3 A plan and implementation schedule to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the permittee's system;

4.2.3.1.4 A dry weather field screening plan for non-stormwater flows and field tests of selected chemical parameters as indicators of discharge sources. The plan shall also address on-site sewage disposal systems that flow into the permittee's storm drainage system;

4.2.3.1.5 Procedures for locating priority areas which include areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines) or ambient sampling to locate impacted reaches;

4.2.3.1.6 Procedures for tracing the source of an illicit discharge, including the specific techniques the permittee will use to detect the location of the source;

4.2.3.1.7 Procedure for eliminating the illicit discharge;

4.2.3.1.8 A plan to ensure through appropriate enforcement procedures, including fines, and actions that the permittee's illicit discharge ordinance (or other regulatory mechanism) is implemented;

4.2.3.1.9 A plan to inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste. The permittee shall describe how this plan will coordinate with all other minimum control measures, monitoring, and TMDL implementation (if applicable);

4.2.3.1.10 A plan to address non-stormwater discharges or flows (i.e., illicit discharges) the permittee identifies as significant contributors of pollutants to the regulated Small MS4 including authorized non-stormwater discharges contained in Section 1.2.2.2 of this permit.

4.2.4 ***Construction Site Stormwater Runoff Control***

4.2.4.1 The permittee shall develop, implement and enforce a program to reduce pollutants in any stormwater runoff to their regulated Small MS4 from construction activities that result 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. As part of the SWMP, the permittee's construction site stormwater runoff control program shall include the development and implementation of, at a minimum:

4.2.4.1.1 An ordinance or other regulatory mechanism to require operators to implement erosion and sediment control BMPs at construction sites; to include sanctions designed to ensure compliance, to the extent allowable under state or local law; and

4.2.4.1.1.1 If the permittee needs to develop this mechanism, the permittee shall describe the plan and scheduled implementation. If the permittee's ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the permittee's SWMP.

4.2.4.1.2 Requirements for construction site operators to control construction-site waste that may cause adverse impacts to water quality, such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste;

4.2.4.1.3 Procedures for the permittee to consider and review all pre-construction site plans for potential water quality impacts;

4.2.4.1.4 Procedures for the permittee receive and consider information submitted by the public, including coordination with the permittee's public education and involvement programs;

4.2.4.1.5 Procedures for the permittee to inspect sites and enforce control measures, including prioritization of site inspection; and

4.2.4.1.5.1 The permittee shall inspect (or require inspection of) any structure that functions to prevent pollution of stormwater or to remove pollutants from stormwater and ensure that all BMPs are implemented and effective; and a monitoring plan with implementation schedules shall be referenced in the SWMP document.

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4.2.4.1.6 A plan designed to ensure compliance with the permittee's erosion and sediment control regulatory mechanism, including the sanctions and enforcement mechanisms the permittee will use to ensure compliance and procedures for when certain sanctions will be used. Possible sanctions include non-monetary penalties (such as stop work orders), fines, bonding requirements, and/or permit denials for non-compliance.

4.2.5 ***Post-Construction Stormwater Management in New Development and Redevelopment***

4.2.5.1 The permittee 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 permittee's regulated Small MS4. The permittee's program shall ensure that controls are in place that have been designed and implemented to prevent or minimize water quality impacts. As part of the SWMP document, the post-construction runoff control program shall include the following information, at a minimum:

4.2.5.1.1 An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under state or local law. If the permittee needs to develop a mechanism, the permittee shall describe the plan and a schedule for implementation. If the permittee's ordinance or regulatory mechanism is already developed, the permittee shall include a copy of the relevant sections with the SWMP document;

4.2.5.1.2 A plan to ensure adequate long-term operation and maintenance of selected BMPs, including, as appropriate, types of agreements between the permittee and other parties such as post-development landowners or regional authorities;

4.2.5.1.3 Strategies to minimize water quality impacts, which include a combination of structural and/or non-structural BMPs appropriate for the permittee's community, including but not limited to the assessment of site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance. The goal of this approach is to arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, and utilize BMPs that effectively remove stormwater pollution. This can be achieved by reasonably mimicking pre-construction runoff conditions on all affected new development projects, or the permittee may achieve this goal through a method more appropriate for its community;

4.2.5.1.4 An inspection plan with implementation schedules for post-construction BMPs; and

4.2.5.1.5 The permittee shall inspect or require the inspection of post-construction stormwater BMPs to ensure that all BMPs are implemented and effective.

4.2.6 ***Pollution Prevention/Good Housekeeping for Municipal Operations***

4.2.6.1 The permittee 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. As part of the SWMP, the pollution prevention/good housekeeping program shall include the following information, at a minimum:

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4.2.6.1.1 A government employee training program to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. The permittee shall describe any existing, available material the permittee plans to use such as those available from EPA, the state, or other organizations. The permittee shall describe how this plan will coordinate with all other minimum control measures, monitoring and TMDL implementations where applicable;

4.2.6.1.2 A list of all municipal operations that are impacted by this operation and maintenance program. The permittee shall also include a list of industrial facilities that the permittee owns or operates that are subject to NDPES permits for discharges of stormwater associated with industrial activity that ultimately discharge to the permittee's MS4. The permittee shall include the permit number or a copy of the No Exposure Exemption Certification (if applicable) for each facility. NPDES permitted facilities not owned or operated by the permittee are not required to be part of the list;

4.2.6.1.3 Maintenance BMPs, maintenance schedules, and long-term inspection procedures for controls to reduce floatable and other pollutants to the permittee's regulated Small MS4;

4.2.6.1.4 Controls for reducing or eliminating the discharge of pollutants from street, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer station, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas the permittee operates;

4.2.6.1.5 Procedures for the proper disposal of waste removed from the permittee's Small MS4 and areas of jurisdiction, including dredged material, accumulated sediments, floatables and other debris;

4.2.6.1.6 Procedures to assess impacts of water quality for new flood management projects, if applicable. Flood management projects are those projects developed or designed to reduce flooding.

4.2.6.2 All paints, solvents, petroleum products and petroleum waste products (except fuels) under the control of the permittee shall be stored so that these materials are not exposed to stormwater. Sufficient practices of spill prevention, control, and/or management shall be provided to prevent any spill of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

4.2.7 <u>BMP Substitutions</u>

4.2.7.1 BMPs and methods prescribed in Sections 4.2.1.1.1 through 4.2.1.1.5 (Public Education and Outreach) , Sections 4.2.2.1.1 through 4.2.2.1.6 (Public Involvement and Participation), Sections 4.2.3.1.3 through 4.2.3.1.10 (Illicit Discharge Detection and Elimination), and Sections 4.2.6.1.4 through 4.2.6.1.6 (Pollution Prevention/Good Housekeeping for Municipal Operations) may be substituted with alternative BMPs under the following conditions:

4.2.7.1.1 The substitutions are reasonably as protective as those they replace;

4.2.7.1.2 Substitutions and methods are identified in the SWMP, along with rational for substitutions; and

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4.2.7.1.3 Progress on compliance with applicable minimum control measure(s) via substitution(s) is reported in the MS4 SWMP Report.

4.3 Sharing Responsibility

4.3.1 Implementation of one or more of the minimum measures may be shared with another governmental entity or the governmental entity can assume responsibility for the measure via the co-permittee option if:

4.3.1.1 The co-permittee has a MS4 located within or partially within an Urbanized Area as determined by the most recent Bureau of Census, which can include, but is not limited, to: municipalities, county, military bases, large hospitals, prison complexes, universities, sewer districts, and highway departments;

4.3.1.2 The co-permittee, in fact, implements the control measure;

4.3.1.3 The particular control measure, or component of that measure, is at least as stringent as the corresponding permit requirements; and

4.3.1.3 The co-permittee agrees to implement the control measure on the permittee's behalf:

4.3.1.3.1 Written acceptance of this obligation is required;

4.3.1.3.2 This obligation shall be maintained as part of the documented description of the permittee's SWMP;

4.3.1.3.3 If the co-permittee agrees to report on the control measure, the permittee shall supply the co-permittee with the reporting requirements contained in Section 5.3 of this permit.

4.3.1.3.4 If the co-permittee fails to implement the control measures on the permittee's behalf, then the co-permittee shall remain liable for any discharges due to that failure to implement. Additionally, the Department may require corrective actions(s), require an application for a site-specific permit, or require the co-permittee to apply and obtain their own Small Phase II MS4 general permit.

4.4 Reviewing and Updating the SWMP

4.4.1 The permittee shall conduct an annual review of their SMWP in conjunction with preparation of the MS4 SWMP Report required under Section 5.3;

4.4.2 The permittee may change the SWMP during the life of the permit in accordance with the following procedures:

4.4.2.1 Changes adding components, controls, or requirements to the SWMP may be made at any time upon written notification to the Department; or through the MS4 SWMP Report if changes are minor or through a timely resubmittal of the SWMP if major changes are needed;

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4.4.2.2 Changes replacing an ineffective or infeasible BMP specifically identified in the SWMP with an alternate BMP may be made at any time and reported to the Department through the MS4 SWMP Report or a timely resubmittal of the SWMP if major changes are needed. The permittee's modifications shall include a documentation of the following:

4.4.2.2.1 An analysis of why the BMP is ineffective or infeasible (including cost prohibitive);

4.4.2.2.2 Expectations on the effectiveness of the replacement BMP; and

4.4.2.2.3 An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced.

4.4.2.3 The permittee shall give advanced notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

4.4.3 Changes to the SWMP requested by the Department must be made in writing, set forth a time schedule for the permittee to develop the changes, and offer the permittee opportunities to propose alternative program changes to meet the objective of the requested modification. All changes required by the Department will be made in accordance with 10 CSR 20-6.200. The Department may require changes to the SWMP as needed to:

4.4.3.1 Address impacts on receiving water quality caused or affected by discharges from the MS4.

4.4.3.2 Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements; or

4.4.3.3 Include such other conditions deemed necessary by the Department to comply with the goals and requirements of the MCWL.

4.4.4 In the event of a transfer of ownership, change in Continuing Authority, or change in responsibility for SWMP implementation; the permittee shall implement the SWMP on all new areas added to the permittee's portion of the MS4 (or for which the permittee becomes responsible for implementations of stormwater quality controls) as expeditiously as practicable, but not later than one (1) year from the addition of the new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately:

4.4.4.1 Within 90 days of a transfer of ownership, change of continuing authority, or change in responsibility for SWMP implementation, the permittee shall submit a revised plan, if necessary, for implementing the revised SWMP on all affected areas. The plan shall include revised schedules for implementation. Information on all new annexed areas and any resulting updates required to the SWMP shall be included in the MS4 SWMP Report.

4.4.5 Addition of components, controls or requirements by the permittee(s) and replacement of an ineffective or infeasible BMP implementing a required component of the SWMP with an alternate BMP expected to achieve the goal of the original BMP shall be considered minor changes to the SWMP and not a modification to this permit.

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5. **MONITORING, RECORDKEEPING, AND REPORTING**

5.1 Monitoring

5.1.1 The permittee shall retain records of any monitoring information used to complete the application for this operating permit, implementation of any part of this operating permit, and implementation for any part of the permittee's SWMP for a period of at least three (3) years from the date of the sample, measurement, or analysis. This period may be extended by official request by the Department at any time. Monitoring data shall include, if applicable, the below information:

5.1.1.1 All calibrations and maintenance records;

5.1.1.2 All original strip chart recordings for continuous monitoring instrumentation;

5.1.1.3 The date, location, and time of sampling or measurement;

5.1.1.4 The individual(s) who performed the sampling or measurements;

5.1.1.5 The date(s) analyses were performed;

5.1.1.6 The individual(s) who performed the analyses;

5.1.1.7 The analytical techniques or methods used; and

5.1.1.8 The results of such analyses.

5.1.2 Any monitoring conducted for the purpose of implementation of any part of this permit shall be conducted in accordance to test procedures approved under 40 CFR Part 136 unless another method is required under 40 CFR subchapters N or O.

5.2 Recordkeeping

5.2.1 The permittee shall retain records of all activities requiring recordkeeping by the SWMP, a copy of the NPDES permit, a copy of all ordinances, policies, and formal procedures for all six (6) MCMs and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the report or application. This period may be extended by official request of the Department at any time.

5.2.2 The permittee shall retain the most recent version of their SWMP at a reasonable location accessible to the Department.

5.2.3 The permittee shall submit the items required under Part 5 – MONITORING, RECORDKEEPING, REPORTING of this permit, including a copy of the permit, SWMP, or application upon written request by the public.

5.2.3 The permittee shall submit the items contained in Sections 5.2.1 and 5.2.2 of this permit upon request to the Department. The permittee shall retain a written description of the SWMP required by this permit (including a copy of the permit) at a location accessible to the Department.

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5.2.4 The permittee shall submit the items contained in Section 5.2.1 and 5.2.2 of this permit, information and/or application, and description of the SWMP upon written request by the public.

5.3 MS4 SWMP Report

5.3.1 The permittee shall submit MS4 SWMP Reports containing, at a minimum:

5.3.1.1 Information regarding progress toward achieving the statutory goal of reducing the discharge of pollutants to the MEP;

5.3.1.2 The status of the MS4's compliance with permit conditions;

5.3.1.3 Assessment(s) of the appropriateness of identified BMPs and corresponding measureable goals for each Minimum Control Measure;

5.3.1.4 A summary of results of information collected and analyzed during the reporting period, including monitoring data or quantifiable values per the MS4's measurable goals;

5.3.1.5 A summary of the TMDL ARAP, if applicable, containing the implementation status of BMPs and measurable goals specific to the TMDL Assumptions and Requirement Attainment Plan or progress toward implementing the schedule for implementation of the TMDL Assumptions and Requirement Attainment Plan. The summary shall also include any changes to BMPs and corresponding measurable goals;

5.3.1.5.6 If the permittee is utilizing a Department approved integrated planning process, then the permittee shall provide a summary of the status of the integrated plan incorporated with the TMDL ARAP;

5.3.1.7 A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule);

5.3.1.8 Any proposed changes to the permittee's SWMP, including changes to any identified BMPs or measureable goals that apply to the SWMP; and

5.3.1.9 Notice that the permittee is relying on another government entity to satisfy some of the permittee's permit obligations. If applicable, the permittee shall supply the name of the entity, the name of the entity's primary contact person, and other relevant contact information.

5.3.2 The MS4 SWMP Report shall contain the above information for previously unreported calendar year(s). The MS4 SWMP Report shall be submitted based on the schedule below:

Report Frequency	Report Due Dates	Applicability
Annual	February 28th each year*	Newly designated MS4s, MS4s subject to TMDLs
Biennial	February 28th odd years only**	Existing MS4s not subject to TMDLs

* - Annual reports will continue to be due every year on February 28th after expiration of this permit until the permit is renewed.

** - Biennial reports will continue to be due every odd number year on February 28th after expiration of this permit until the permit is renewed.

5.3.3 Annual MS4 SWMP Reports shall contain all required information from January 1st to December 31st each year. Biennial MS4 SWMP Reports shall contain all required information from January 1st of the beginning year to December 31st of the immediate following year.

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5.3.4 Permittees shall submit the MS4 SWMP Reports on the Department approved, *MS4 STORMWATER MANAGEMENT PLAN (SWMP) REPORT* (Form MO 780-1846).

5.3.5 If approved by the Department, permittees may submit the MS4 SWMP Report using an alternative report format.

6. STANDARD PERMIT CONDITIONS

6.1 Duty to Comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri CWL and the Federal CWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal.

6.2 Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment;

6.3 Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems installed by a permittee only when necessary to achieve compliance with the conditions of the permit;

6.4 Inspection and Entry. The permittee shall allow the department or an authorized representative (including an authorized contractor acting as a representative to EPA, or the department) upon the presentation of credentials and other documents as may be required by law to:

6.4.1 Enter the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

6.4.2 Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

6.4.3 Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

6.4.4 Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substance or parameters at any location.

6.5 Monitoring Methods. See Part 5.1 of this operating permit.

6.6 Need to Halt or Reduce Activity Not an Excuse. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

6.7 Permit Actions. This permit may be modified, revoked, reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition;

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6.8 Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the permit expiration date, the permittee must apply for and obtain a new permit. The renewal application shall be submitted at least 30 days prior to expiration of this permit unless the department allows a later deadline not to exceed the expiration date of the permit. Continuation of expiring permits are in accordance with 10 CSR 20-6.010(10)(E) and subsequent amendments;

6.9 Administrative Continuation of the Permit. If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 10 CSR 20-6.010(10)(E) and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date, and who has applied for renewal at least 30 days prior to the expiration date, will automatically remain covered by the continued permit until the earlier of:

6.9.1. Reissuance or replacement of this permit, at which time the permittee shall comply with the application conditions of the new permit to maintain authorization to discharge;

6.9.2. Notice of termination;

6.9.3 Issuance of a site-specific permit or alternative general permit for MS4 discharges; or

6.9.4. A permit decision by the Director not to reissue this general permit, at which time the permittee shall seek coverage under an alternative general permit or a site-specific permit.

6.10 Permit Transfers. Subject to 10 CSR 20-6.010(11), an operating permit may be transferred upon submission to the department. The department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri CWL or the Federal CWA. (See 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory.)

6.11 Procedures for Modification or Revocation.

6.11.1 If at any time the department determines that the quality of waters of the state may be better protected by reopening this permit, or revoking this permit and requiring the owner/operator of the permitted site to apply for a site-specific (individual) permit or alternative general permit, the department may revoke a general permit and require any person to obtain such an operating permit as authorized by 10 CSR 20-6.010(13), 10 CSR 20-6.200(1)(B) or 10 CSR 20-6.200(6);

6.11.2 If this permit is reopened, modified or revoked pursuant to this section, the permittee retains all rights under Chapters 536 and 644 Revised Statutes of Missouri upon the department's reissuance of the permit as well as all other forms of administrative, judicial and equitable relief available under law;

6.11.3 The department may require the permittee to apply for and obtain a site-specific or alternative general permit if:

6.11.3.1 The permittee is not in compliance with the conditions of this general permit; or

6.11.3.2 The discharge no longer qualifies for this general permit due to changed site conditions and regulations; and

6.11.4 The permittee will be notified in writing of the need to apply for a site-specific permit or an alternative general permit. When a site-specific permit or alternative general permit is issued to the authorized permittee, the applicability of this general permit to the permittee will be terminated upon the effective date of the site-specific or alternative general permit, whichever the case may be.

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6.12 Site-Specific Permit or Alternative General Permit. The permittee may apply for a site-specific permit or alternative general permit in lieu of coverage under this general permit. In such cases, the permittee shall submit an application for the alternate permit in accordance with the requirements of 10 CSR 20-6.200 with reasons supporting the request. The request may be granted by issuance of any site-specific permit or an alternative general permit.

6.13 Property Rights. This permit does not convey any property rights of any sort, or any exclusive privilege;

6.14 Duty to Provide Information. The permittee shall furnish to the department, within a reasonable time, any information which the department may request to determine whether cause exists for modifying, revoking, and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the department upon request copies of records required to be kept by this permit;

6.15 Falsification Penalties. Any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both. Second and successive convictions for violations under this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two years, or both;

6.16 Reopener Clause. Nothing in this permit shall prevent the department from re-opening, modifying, or revoking this permit as authorized by law.

6.17 Signatory Requirements.

6.17.1 All permit applications shall be signed and certified in accordance with 40 CFR 122.22 and 10 CSR 20-6.010(2)(B) by either a principal executive officer or by an individual having overall responsibility for environmental matters for the permittee; and

6.17.2 All reports required by this permit, and other information requested by the department shall be signed by a person described in paragraph 6.17.1 of this permit, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

6.17.2.1 The authorization is made in writing by a person designated in Section 6.17.1 of this permit;

6.17.2.2 The authorization specifies an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the permittee. (A duly authorized representative may thus be either a named individual or any individual occupying a named position);

6.17.2.3 The written authorization is submitted to the Director; and

6.17.2.4 If an authorization under 6.10 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new [written] authorization satisfying the requirements of this paragraph must be submitted to the Director prior to or together with any reports, information, or applications signed by an authorized representative.

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Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
PHASE II SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
MO-R040000
MASTER GENERAL PERMIT

The Federal Water Pollution Control Act ("Clean Water Act or CWA" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the CWA). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Permits in Missouri are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operating in accordance with federal and state laws (Federal CWA and Missouri Clean Water Law or CWL Section 644 as amended). NPDES operating permits are issued for a period of five (5) years unless otherwise specified.

The purpose of a fact sheet is to give the reader pertinent information regarding the applicable regulations, rationale for the development of the NPDES Missouri State Operating Permit (operating permit), and the public participation process for operating permit listed below.

A fact sheet is not an enforceable part of an operating permit.

This fact sheet is for a 2015 renewal of Master General Permit MOR040000 for regulated Small Municipal Separate Storm Sewer Systems (MS4s) and has been significantly modified to better provide justification to the terms and conditions of the MS4 general permit MOR040000 due to comment received during the October 31, 2014 to December 31, 2014, public notice period.

Part I - Facility Information

The following MS4 facility information should appear on the certification page of the General Permit Covered Facility operating permit. If the below information listed on the certification page is not correct, please contact the appropriate Regional Office on how to correct the information. This may include an operating permit modification application along with application fee.

- NPDES Permit Number
- Facility Name/Address
- Owner's Name/Address
- Department's Regional office(s) the MS4 is located
- Missouri County or Counties the MS4 is located
- MS4 SIC code and NAICS code
- Facility Description

Part II – Permitted Features

A NPDES Permitted Feature is a term borrowed from the Department's Clean Water Information System (MoCWIS), which is typically a three digit code used to describe if the point source location is an outfall, monitoring location, well, internal monitoring location, stormwater outfall, etc.

Applications for MS4 operating permit (renewal or new) require the MS4 to provide information regarding the location of outfalls from the regulated MS4. In accordance with 10 CSR 20-6.200(1)(C)18, an outfall is defined as, "A point source as defined by 10 CSR 20-2.010 at the point where a municipal separate storm sewer discharges and does not include open conveyances connecting two (2) municipal separate storm sewers, pipes, tunnels or other conveyances which connect segments of waters of the state and are used to convey water of the state."

A point source is, as defined in 10 CSR 20-2.010(54), "Any discernible, confined and discrete conveyance including but not limited to, any pipe, ditch, channel, tunnel conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, separate storm sewer or vessel or other floating craft from which pollutants are, or may be, discharged."

Applications for renewal or to receive (i.e., new permit) of the MS4 general permit require the permittee to provide the legal description, outfall number and receiving stream. In addition, the application for both co-permittees and individual MS4 permittees require a United States Geological Survey map showing the locations of the municipality/area in relation to the local road system and to indicate on the map the municipal/area boundary, receiving stream(s), all known stormwater outlets and the map section, township, and range. From this information, Department permit writers will establish a full description of these permitted features on the permit's certification page with the following:

Permitted Feature ID (e.g., Outfall #001)
Legal Description: ¼, ¼, Section, Township, Range, Direction
UTM Coordinates: X=000000.0, Y=0000000.0 (Easting, Northing respectively)
Receiving Stream: Name & Classification
First Classified Stream and ID: Name, Class, Waterbody ID – currently provided by the department
USGS Basin & Sub-watershed No.: (# – #) [12 digit USGS Hydrologic Unit Code (HUC)]

This permit allows regulated MS4s to discharge stormwater to the following waters, depending on location of the regulated MS4: Missouri or Mississippi River, lakes or reservoirs, losing streams, metropolitan no-discharge waters, special streams, subsurface waters and other waters of the state.

Part III - Rationale and Derivation of Limitations & Permit Conditions

ADDITIONAL FEDERAL ACTS
In accordance with 40 CFR 122.49(b) and (c) the operating permit cites the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA) and places the permittee on notice that the operating permit does not affect, remove or replace the requirements or compliance determination for NPDES operating permits. It is the responsibility of the permittee to determine if activities conducted within their MS4 or stormwater discharging from their MS4 are in compliance with the ESA and NHPA.

Assistance in determining applicability to ESA conditions and requirements can be found in the U.S. Fish and Wildlife Service (FWS) Endangered Species webpage, which is located at: http://www.fws.gov/endangered/. Additionally, the FWS Information for Planning and Conservation (IPaC) web-based project planning tool that streamlines the environmental review process is highly recommended and is located at: http://ecos.fws.gove/ipac/.

Assistance in determining applicability to NHPA conditions and requirements can be found in the Department's State Historic Preservation Office Section 106 Review, which is located at: http://dnr.mo.gov/shpo/sectionrev.htm. Additionally, the Advisory Council on Historic Preservation Citizen Guide to Section 106 Review, which explains the process, is located at: http://www.achp.gov/citizensguide.html.

In addition to the ESA and NHPA, this operating permit does not affect, replace or remove the requirements and compliance determinations with respect to substances not otherwise covered under a NPDES permit and regulated by federal law under the Resource Conservation and Recovery Act or the Comprehensive Environmental Response, Compensation, and Liability Act.

ANTI-BACKSLIDING:
Anti-backsliding is a provision in federal regulations CWA §303(d)(4); CWA §402(o); 40 CFR 122.44(l) that requires a reissued permit to be as stringent as the previous permit with some exceptions. The permit complies with Anti-backsliding regulations.

This operating permit conforms with anti-backsliding in accordance with CWA §402(o)(2)(B)(ii), which states, "The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section." However, while this is a true statement, the department believes this operating permit does not backslide as it is more protective than the previous Master General Permit for Phase II Small MS4 (previous general permit). Regardless, the discussion in support of CWA §402(o)(2)(B)(ii) is given below.

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The previous general permit contained several terms and conditions regarding water quality standards, which were incorrectly established, unenforceable and not in keeping with applicable federal and state statutes and regulations. Specifically, section 1.3.6 established that the permit did not authorize "discharges that cause or contribute to a violation of instream water quality standards." Section 3.1.2 established, "The permittees SWMP document required under section 4 shall include a description of how the permittee's program will control the discharge of measurable pollutants of concern and ensure the permittee's discharge will not cause or contribute to instream exceedances of water quality standards." Section 3.1.3.7 established, "The permittee shall continue meeting the requirements of 3.1.3.4 through 3.1.3.7 for this permit duration until the department determines WLAs are being met or that water quality standards are being met." Additionally, section 4.1.4 requires the permittee to, "implement a program designed to protect water quality in potentially affected waters and ensure that the permitted activities do not cause a violation of the Water Quality Standards." Finally, under section 4.1.4.1, the permit establishes, "Discharge to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria."

Federal regulation 40 CFR 122.34(a) states, "Your NPDES MS4 permit will require at a minimum that you develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act..." It is believed (i.e., not documented in the fact sheet) the previous operating permit was issued under the concept that "to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act" was to require strict and immediate compliance with both numeric and narrative Missouri's Water Quality Standards (WQS).
As noted in the *1999 National Pollution Discharge Elimination System Regulations for Revisions of Water Pollution Control Program Addressing Storm Water Discharges* (64 FR No. 235), "For this reason, today's rule specifies that the 'compliance target' for the design and implementation of municipal storm water control program is 'to reduce the pollutants to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the CWA'. The first component, reduction to the MEP, would be realized through the implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under CWA section 402(p)(3)(B)(iii) of the need to achieve reasonable further progress toward attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to MS4s, as they would to other point sources."

As noted above in 64 FR No. 235, 40 CFR 122.34(a), specifies the "compliance target" (i.e., the goal, what to aim for, etc....) is MEP, protection of water quality, and to satisfy the appropriate water quality requirements of the CWS. Additionally, it establishes that the phrase "to protect water quality" reflects the overall design objective for the municipal program, which is in contrast to the previous general permit as it established water quality shall not be violated rather than what to set goals to achieve (i.e., as a design objective). This is subsequently supported with the third portion of 40 CFR 122.34(a), "to satisfy the appropriate water quality requirements of the CWA" as 64 FR No. 235 clearly establishes that this is achieved via reasonable further progress toward attainment of water quality standards according to the iterative process (i.e., the process of establishing BMPs, evaluating the BMPs, and refocusing on BMPs). The phrase, "via reasonable further progress toward attainment of water quality standards" establishes (1) that water quality is the goal, but more importantly (2) there is a process that allows the permittee to reach attainment with water quality, which is "reasonable further progress." When the previous general operating permit established that violation of water quality were not permitted and that the permittee could not exceed numeric and narrative water quality standards, it removed the ability of the permittee to utilize the iterative process and reasonable further progress.

Additionally, the previous general permit's requirement to not violate WQS without the establishment of numeric limitations is not in keeping with 40 CFR 122.44(d). Specifically, the previous general permit did not allow the specific MS4s to be subject to reasonable potential in accordance with 122.44(d)(ii). Rather, the previous operating permit skips the requirement under 40 CFR 122.44(d)(1)(ii) by assuming the permitting authority has determined the discharges already cause or have reasonable potential to cause or contribute to in-stream excursions above the allowable ambient concentrations of Missouri's WQS. Additionally, the permit fails to establish required numeric effluent limitations per 40 CFR 122.44(d)(1)(iii) and (iv) when it required compliance with numeric water quality standards.

The previous general permit was also in contrast with Missouri's CWL §644.051.4, which states, "...The director, in order to effectuate the purposes of sections 644.006 to 644.141, shall deny a permit if the source will violate any such acts, regulations, limitations or standards or will appreciably affect the water quality standards or the water quality standards are being substantially exceeded, unless the permit is issued with such conditions as to make the source

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comply with such requirements within an acceptable time schedule." The previous operating permit was not in keeping with this statute as it failed to be issued with conditions to make the source comply with such requirements (i.e., numeric effluent limits) and within an acceptable time schedule.

Additionally, 64 FR No. 235 establishes, "Because the six measures representing a significant level of control if properly implement, EPA anticipates that a permit for regulated small MS4 operator implementing the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards, so that additional, more stringent and/or more prescriptive water quality based effluent limitations will be unnecessary." While this places responsibility on the permittee to successfully implement the six MCMs in accordance with 40 CFR 122.34(a), it also places a responsibility onto the NPDES authority to ensure that the MS4 permit establishes clear conditions in the permit to ensure that the MS4 is implementing the six minimum control measures successfully. Thus, a portion of the increased protection comes from simplifying terms and conditions so as to provide clear mechanism for implementing 40 CFR 122.34(a) and (b).

One set of revisions to the operating permit requires the permittee to clearly document the purpose or rather expected result of the BMP. This is the first step in the process of reducing pollutants to the MEP as it places more emphasis on BMP selection and provides more clarity to the permittee when determining measurable goals, which is the second step in reducing pollutants to the MEP. The evaluation of BMPs is just as important as the actual mechanism to reduce pollutants. Without knowing the effectiveness of BMPs, permittees cannot achieve MEP. Likewise, without knowing the effectiveness of BMPs, permittees have a greater potential to mismanage funding for BMPs. Meaning, BMPs that are not effectively evaluated may be draining the permittee's stormwater funds on an ineffective BMP, which places a significant hurdle in the attainment of MEP.

As noted above, this operating permit requires the permittee to develop/design BMPs and conduct evaluations of these BMPs. In addition, this operating permit requires the permittee to develop and implement an iterative process (please see the Iterative Process portion of this fact sheet). Without the iterative process in place, which is a process to replace ineffective BMPs, permittees cannot use reasonable further progress. Reasonable further progress is the process that, by design, replaces ineffective BMPs with effective BMPs, which in time become more protective of water quality; thus, ensuring the requirement under 40 CFR 122.34(a) are continued beyond protection of water quality and satisfaction of the Clean Water Act due to the continued reduction of pollutants to the MEP.

While the above permit requirements, by themselves, are more protective than the previous general permit, this operating permit establishes additional steps on the department that were not previously required. This operating permit requires the department to review and rate (i.e., approve or disapprove) the SWMP, which is the real mechanism of MEP. This is due to the fact that this operating permit establishes the minimum framework but places responsibility onto the permittee to develop and implement BMPs in accordance with 40 CFR 122.34(a) and ultimately section 402(p)(3)(B)(iii) of the CWA (i.e., MEP) to the best of their ability, which includes cost. By conducting the review and rating of the SWMP, the department is ensuring that the permittee is meeting the requirements of 40 CFR 122.34(a); however, SWMP will not be reviewed prior to this operating permit being issued due to changes in this permit will give cause for SWMPs to be revised and resubmitted for review and rating.

ANTI-DEGRADATION:
Anti-degradation consists of policies designed to ensure protection of water quality for a particular waterbody where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Anti-degradation plans are adopted by each state to minimize adverse effects on water.

As per 10 CSR 20-7.031(2)(D), the three (3) levels of protection provided by the anti-degradation policy in subsections (A), (B) and (C) of this section shall be implemented according to procedures developed by the department. On April 20, 2007, the Missouri Clean Water Commission approved "Missouri Anti-degradation Rule and Implementation Procedure" (Anti-degradation Rule), which is applicable to new or upgraded/expanded facilities.

The department has determined that the best avenue forward for implementing the Anti-degradation requirements into the MS4 general permit is by requiring the appropriate development and maintenance of a SWMP. Section 4.1 of the permit directs the permittee to identify reasonable and effective BMPs in the SWMP, document the decision process for each minimum control measure, include a rationale statement for each BMP and measurable goal defined, provide an implementation schedule and develop a plan to evaluate program compliance, appropriateness of identified BMPs and progress towards achieving identified measurable goals. This selection and documentation of appropriate control measures will then serve as the analysis of alternatives and fulfill the requirements of the Antidegradation Rule and Implementation Procedure 10 CSR 20-7.031(3) and 10 CSR 20-7.015(9)(A)5.

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Any facility seeking coverage under this permit, which undergoes expansion or discharges a new pollutant of concern, must update their SWMP and select new BMPs that are reasonable and cost effective. Facilities seeking coverage under this permit are required to develop a SWMP that includes this analysis and documentation of appropriate BMPs. Renewal of coverage for a facility requires a review of the SWMP to assure that the selected BMPs continue to be appropriate.

Adequate implementation of BMPs and terms and conditions described in this permit satisfies anti-degradation requirements. Compliance with the requirements established in this permit for the protection of General Criteria, along with the evaluation and implementation of BMPs as documented in the SWMP, meets the requirements of Missouri's Antidegradation Review [10 CSR 20-7.031(3) and Table A and 10 CSR 20-7.015(9)(A)5.]

APPLICATION REQUIREMENTS:
Small MS4s (as defined under 10 CSR 20-6.200) are to apply and obtain a small MS4 General Permit or site-specific permit in accordance with 40 CFR 122.33 and 10 CSR 20-6.200(5).

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri CWL, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Dischargers of stormwater from regulated Small MS4s, as defined in the Missouri Stormwater Regulations10 CSR 20-6.200 who do not obtain coverage under this or other Missouri general permits, or under a site-specific NPDES permit, will be in violation of the Missouri CWL and its implementing regulations and subject to civil penalties of up to $10,000 per violation per day. For entities covered under a NPDES permit, failure to comply with any NPDES permit requirement also constitutes a violation of the Missouri CWL and its implementing regulations.

INTEGRATED PLANNING
As noted in the June 5, 2012 EPA memorandum, "*Integrated Municipal Stormwater and Wastewater Planning Approach Framework*" EPA has increasingly embraced integrated planning approaches to municipal wastewater and stormwater management. EPA further committed to work with states and communities to implement and utilize these approaches in its October 27, 2011 memorandum "*Achieving Water Quality Through Municipal Stormwater and Wastewater Plans.*"

Integrated planning assist MS4 communities on their critical paths to achieving the human health and water quality objectives of the Clean Water Act by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how best to prioritize capital investments. Integrated planning can also facilitate the use of sustainable and comprehensive solutions, including green infrastructure, that protect human health, improve water quality, manage stormwater as a resource, and support other economic benefits and quality of life attributes that enhance the vitality of communities.

For more information regarding Integrated Planning please review both of the memorandums cited under this portion of the factsheet or contact the MS4 Coordinator.

ITERATIVE PROCESS
The iterative process is documented process consisting of action items and analysis that is to be conducted by the permittee to ensure that BMPs are effective and that the permittee is meeting the MEP standard. The process starts with the evaluation of a BMP with its designated measurable goal, which is the reason quantifiable measurable goals greatly assist in the iterative process vs. tracking measurable goals. If the BMP is found effective, then the permittee with regards to the BMP continues as normal until the next round of evaluation. If the BMP is found to be ineffective, then the permittee is required to conduct analysis to determine if the ineffective BMP is truly ineffective or if the measurable goal set was ill-chosen or unattainable due to no fault of the permittee.

If the measurable goal was ill-chosen or unattainable, then the permittee would need to conduct analysis to determine a more appropriate measurable goal, preferably quantifiable. If the measurable goal wasn't ill-chosen or unattainable, then the permittee is to conduct analysis, research, or review to determine a replacement BMP that is to be effective at reaching the existing measurable goal or new measurable goal that is more "protective" than the previous measurable goal. However, if the replacement BMP requires a new measurable goal, preferably quantifiable, then it is advantageous for the permittee to develop an appropriate measurable goal for the BMP. The replacement of the ineffective BMP with an effective BMP provides the permittee with compliance with reasonable further progress.

This process should occur as an annual evaluation; however, it would be naïve to believe that all BMPs can be evaluated annually. Thus, BMPs are to be evaluated every 5 years (i.e., the life of the permit) as a minimum and as required by this operating permit.

MAXIMUM EXTENT PRACTICABLE (MEP):
Prior to 1987, municipal stormwater was subject to the same controls as other point sources like industrial and domestic discharges, which was section 301(b) of the CWA. However, in 1987, "Congress retained the existing, stricter controls for industrial stormwater discharges but prescribed new controls for municipal stormwater discharges," *NRDC v. EPA, 966 f.2D 1292, 9th Cir. 1992 (NRDC v. EPA).* This "new control" was established in section 402(p)(3)(B)(iii) of the CWA, which states, "*Permits for discharges from municipal storm sewers – shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, designs and engineering methods, and such other provisions as the Administrator or State determines appropriate for the controls of such pollutants.*"

The argument for "new controls" contained in the case of NRDC v. EPA was subsequently supported in the case of *Defenders of Wildlife v. Browner*, in which it was concluded that section 402(p)(3)(B) of the CWA "replaces" the requirements of 301(b) of the CWA with the MEP standard for MS4 discharges, and that it creates a "lesser standard" than section 301(b) of the CWA establishes on other types of discharges. Thus, MEP is a technology-based standard established by Congress in Section 402(p)(3)(B)(iii) of the CWA. As established in the *1999 National Pollution Discharge Elimination System Regulations for Revisions of Water Pollution Control Program Addressing Storm Water Discharges* (64 FR No. 235), MEP is, "*...the statutory standard that establishes the level of pollutant reduction that operators of regulated MS4s must achieve,*" (i.e., not water quality standards).

In addition to indicating that MEP is the statutory requirement, the EPA also clearly stated that MEP is applicable to the six (6) minimum controls measures in 64 FR No. 235, which states, "*The first component, reduction to the MEP, would be realized through implementation of the six minimum measures.*" The description of MEP continues in 64 FR No. 235, with "*EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards.*" The iterative process, mentioned is also defined in 644 FR. No 235 with the following, "*...implement an iterative process of using BMPs, assessment, and refocused BMPs, leading toward the attainment of water quality standards.*"

Therefore, compliance is determined by the successful implementation of the six MCMs in accordance with the conditions established in the operating permit, BMPs designed to reduce pollutants to the MEP and the utilization of the iterative process.

MEASURABLE GOALS
Measureable goals are described in the Phase II rule as BMPs designed objectives or goals that quantify the progress of program implementation and performance of your BMPs. They are objective markers or milestones that the MS4 permittee or the permitting authority will use to track the progress and effectiveness of BMPs in reducing pollutants to the MEP. At a minimum, your measurable goal should contain descriptions of actions that will be taken to implement each BMP, what you anticipate to be achieved by each goal, and the frequency and dates for such actions to be taken. BMPs and Measurable Goals are the mechanisms that are used to establish a clear and specific baseline against which future progress at reducing pollutants to the MEP can be measured.

There are a number of different ways MS4 permittees can establish measureable goals. It is recommended that the below categories when developing goals:

- **Tracking implementation over time** – Where a BMP is continually implemented over the permit term, a measurable goal can be developed to track how often, or where, this BMP is implemented.
- **Measuring progress in implementing the BMP** – Some BMPS are developed over time, and a measurable goal can be used to track this progress until the BMP implementation is completed.
- **Tracking total numbers of BMPs implemented** – Measureable goals can be used to track BMP implementation numerically (e.g., the number of wet detention basins in place or the number of people changing their behavior due to the receipt of educational materials.

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- **Tracking program/BMP effectiveness** – Measurable goals can be developed to evaluate BMP effectiveness, for example, by evaluating a structural BMP's effectiveness at reducing pollutant loading, or evaluating a public education campaign's effectiveness at reaching and informing the target audience to determine whether it reduces pollutants to the MEP. A measurable goal can also be a BMP design objective or performance standard.
- **Tracking environmental improvement** – The ultimate goal of the NPDES stormwater program is environmental improvement, which can be a measurable goal. Achievement of environmental improvement can be assessed and documented by ascertaining whether state water quality standards are being met for the receiving waterbody or by tracking trends or improvements in water quality (chemical, physical, and biological) and other indicators, such as the hydrologic or habitat condition of the waterbody or watershed.

Additionally, it is recommended that measurable goals include, where appropriate, the following items:

- The activity, or BMP, to be completed;
- A schedule or date of completion; and
- A quantifiable target to measure progress toward achieving the activity or BMP.

Measurable goals that include these items (not necessarily all three) are easy quantifiable, which leads to being easily tracked, and ultimately leading to a clear demonstration of reducing pollutants to the MEP. However, just because the MS4 permittee has a measureable goal does not equate that it is effective as a measurable goal. In order to help in the selection of measurable goals that will work for the MS4 permittee, it is recommended that the below criteria are used in selecting measurable goals:

- **Consider the objective for each minimum measure** – The BMP that permittees chose should work toward one or more common objectives related to stormwater quality improvement and reducing pollutants to the MEP. Objectives should be based on what is known about existing pollutant sources and problems in the watershed and what is required by the minimum measure. The objective can be something the MS4 permittee can quantify or it can be a goal or purpose statement.
- **Review the programs that are already in place for each minimum measure** – Use a self-audit/self-analysis. Coordination with other agencies, non-profit groups, citizen groups, etc.... to identify existing initiatives that can be used as part of the stormwater management program.

- **Corresponding BMP** – Select BMPs that can be utilized for more than one minimum control measure each other and work toward meeting each minimum measure. These BMPs should address the minimum measures objective identified above and meet the regulatory requirement in the minimum measure. Likewise, when a BMP can be utilized for more than one minimum control, the measurable goal can also be used on more than one minimum measure.
- **Milestones for implementation** – Measurable goals should include a timeframe and a quantity to measure, if possible. To assist in this, MS4s should consider the following questions:
    - When will BMP be implemented?
    - What and when can institutional, funding, and legal issues, if any, need to be resolved before implementation can occur?
    - How will progress of implementation be tracked? (Spreadsheets or databases are very useful in tracking progress.
    - How can the BMP be measured to demonstrate pollutants are being reduced to the MEP? Changes in behavior, number of BMPs implemented, or documented improvements in water quality are results that can demonstrate this.
- **Evaluation and Effectiveness of each BMP** - MS4s will need to ascertain what effects individual and collective BMPs have on water quality and associated indicators. Instream monitoring, such as physical, chemical, and biological monitoring is ideal because it allows the MS4 to determine if the BMP is improving water quality resulting from management efforts. Intermediate goals can provide documentation of progress toward the measurable goal. Ultimately, the evaluation method that is used by the MS4 permittee for each BMP should lead to a determination of the environmental benefits of each minimum measure and overall effectiveness of the SWMP in reducing pollutants to the MEP.

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MINIMUM CONTROL MEASURES (MCMS)

The Phase II rule defines a small MS4 stormwater management program as being comprised of six (6) Minimum Control Measures (MCMs) that, when administered in concert, are expected to result in the reduction of the discharge of pollutants into receiving water bodies. Operators of regulated small MS4s are required to design their programs to do the following: reduce the discharge of pollutants to the MEP, protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act per 40 CFR 122.34(a).

Proper implementation of the measures will improve water quality as indicated in 64 FR. No. 235, which states, "*Absent to the contrary, EPA presumes that a small MS4 program that implements the six minimum measures in today's rule does not require more stringent limitations to meet water quality standards. Proper implementation of the measures will significantly improve water quality.*" The department considers narrative effluent limitations requiring the implementation of BMPs to be the most appropriate in accordance with 40 CFR 122.44(k)(2) and (3).

The national menu of BMPs for each specific MCM can be found at:
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu

Public Education and Outreach

Terms and conditions related to this MCM are in accordance with 40 CFR 122.34(b)(1). Below guidance is per 40 CFR 122.34(b)(1)(ii) and are not requirements, but is highly encouraged.

- Storm water educational materials provided by your State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s may be used.
- The public education program should inform individuals and households about the steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes.
- It is recommended that the program inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups.
- It is recommended that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include:
    - Distributing brochures or fact sheets (like those already created by the state or EPA),
    - Recreational guides,
    - Alternative information sources (web sites, bumper stickers, refrigerator magnets, and posters/place mats),
    - Sponsoring speaking engagements before community groups,
    - Library of educational material,
    - Volunteer citizens/tasks force
    - Storm drain stenciling (e.g., "Do Not Dump – Drains to River"),
    - Stormwater hotlines for the reporting of polluters
    - Economic incentives,
    - Tributary signage
    - Providing public service announcements,
    - Implementing educational programs targeted at school age children, and
    - Conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups.

- In addition, EPA recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges.
- It is also recommended that the outreach program is tailored to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

Public education and outreach is needed due to the fact that an informed and knowledgeable community is crucial to the success of a stormwater management program since it helps ensure greater support which allows the public to gain a greater understanding of the reasons why it is necessary and important. Public support is particularly beneficial when operators of small MS4s attempt to institute new funding initiatives for the program or seek volunteers to help implement the program.

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In addition, Measurable Goals are required in this operating permit, which are intended to gauge permit compliance and program effectiveness. Successful and obtainable measureable goals reflect the needs and characteristics of the operator and the area served by its small MS4, and are chosen using an integrated approach that fully addresses the requirements and intent of the program. Examples of measureable goals are as follows:

- BMP – Stormwater Public Education for radio or television.
- Measurable Goal – Increase the number of dog owners who pick up after their pets.
- Achievement/Progress Determination: Conduct a survey at the beginning, during, and at the end of the permit term to gauge any change.

Public Participation/Involvement
This MCM is required in accordance with 40 CFR 122.34(b)(2). Below guidance is per 40 CFR 122.34(b)(2)(ii) and is not a requirement, but is highly encouraged.

- It is recommended that the public be included in developing, implementing, and reviewing your storm water management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups.
- Opportunities for members of the public to participate in program development and implementation include:
  - Serving as citizen representatives on a local storm water management panel,
  - Attending public hearings,
  - Working as citizen volunteers to educate other individuals about the program,
  - Assisting in program coordination with other pre-existing programs, or
  - Participating in volunteer monitoring efforts. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

Public can provide valuable input and assistance to regulated small MS4s; therefore, it is encouraged that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a stormwater management program because it allows for broader public support, which means citizens who participate in the development and decision making process are partially responsible for the program may be less likely to raise legal challenges and more likely to take an active role. An active public can also result in shorter implementation times due to fewer obstacles in the form of public and legal challenges and increase sources in the form of citizen volunteers.

Example BMPs for this program can include, but are not limited to the below:

- Public meetings/citizen panels: allow citizens to discuss various viewpoints and provide input concerning appropriate stormwater management policies and BMPs.
- Volunteer water quality monitoring: gives citizens first-hand knowledge of the quality of local water bodies and provides a cost-effective means to collecting water quality data.
- Volunteer educators/speakers: can conduct workshops encourage public participation, and staff special events.
- Storm-drain stenciling: important and simple activity that can be conducted by citizens (especially students).
- Community clean-ups: can be conducted along local waterways, beaches, and around storm drains.
- Citizen watch groups: can aid local enforcement authorities in the identification of polluters.
- "Adopt a Storm Drain" program: encourages individuals or groups to keep storm drains free of debris and to monitor what is entering local waterways through the storm drains.

Measurable goals for this program can include, but are not limited to the below:
- BMP – Volunteer water quality monitoring.
- Measurable Goal – Increase the number of citizen/groups conducting water quality monitoring.
- Achievement/Progress Determination: Determine number of citizens/groups conducting water quality monitoring at the beginning, during, and at the end of the permit term. Determine if there has been an increase along with any relevant data to be used.

Illicit Discharge Detection and Elimination (IDDE)
This MCM is required in accordance with 40 CFR 122.34(b)(3). Below guidance is per 40 CFR 122.34(b)(3)(iv) and is not a requirement, but is highly encouraged.

- It is recommended that the plan to detect and address illicit discharges include the following four components:
  - Procedures for locating priority areas likely to have illicit discharges;
  - Procedures for tracing the source of an illicit discharge;

- Procedures for removing the source of the discharge; and
- Procedures for program evaluation and assessment.

- It is recommended that the plan contain:
  - Visually screening outfalls during dry weather and
  - Conducting field tests of selected pollutants as part of the procedures for locating priority areas.

- Illicit discharge education actions may include storm drain stenciling,
- A program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and
- Distribution of outreach materials.

Discharges from MS4s often include waste and wastewater from non-stormwater sources. A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the MS4.

Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drain) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high level pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human life.

The Illicit Discharge Detection and Elimination (IDDE) plan is dependent upon several factors, including the permittee's available resources, size of staff, and degree and character of illicit discharges. As guidance only, the four steps of a recommended plan are outlined below:

Locate Problem Areas – It is recommended that the priority areas be identified for detailed screening of the system based on the likelihood of illicit connections (e.g., areas with older sanitary sewer lines) Methods that can locate problem areas include:

- Visual Screening,
- Water sampling from manholes and outfalls during dry weather,
- The use of infrared and thermal photography,
- Cross-training field staff to detect illicit discharges, and
- Public complaints.

Find the Source – Once a problem area or discharge is found, additional efforts usually are necessary to determine the source of the problem. Methods that can find the source of the illicit discharge include:

- Dye-testing buildings in problem areas,
- Dye- or smoke-testing buildings at the time of sale,
- Tracing the discharge upstream in the storm sewer,
- Employing a certification program that shows that buildings have been checked from illicit connections,
- Implementing an inspection program of existing septic systems, and
- Using video to inspect the storm sewer.

Remove/Correct Illicit Connections – Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts in resolving the problem should occur before taking legal action; however, the MS4 needs to have the ability to enforce the IDDE plan.

Document Actions Taken – As a final step, all actions taken under the IDDE plan should be documented. This illustrates that progress is being made to eliminate illicit connections and discharges. Documented action should be included in reports as required by your operating permit and may include:

- Number of outfalls screened,
- Any complaints received and corrected,
- Number of discharges and quantities of flow eliminated, and the number of dye- or smoke-test conducted.

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Measurable goals can include, but are not limited to the below example:

- BMP – 24 Hour Hotline
- Measurable Goal – Respond within 24 hours or less upon receipt of a citizen complaint.
- Achievement/Progress Determination: May require the development of a compliant tracking system to log times calls were received and time response was implemented.

Construction Site Runoff Control

This MCM is required in accordance with 40 CFR 122.34(b)(4). Below guidance is per 40 CFR 122.34(b)(4)(iii) and is not a requirement, but is highly recommended.

- Examples of sanctions to ensure compliance may include non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance.
- It is recommended that procedures for site plan review include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements.
- Procedures for site inspections and enforcement of control measures could include steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.
- It is encouraged that the MS4 provide appropriate educational and training measures for construction site operators.
- MS4s may wish to require a storm water pollution prevention plan for construction sites within your jurisdiction that discharge into your system.
    - See §122.44(s) (NPDES permitting authorities' option to incorporate qualifying State, Tribal and local erosion and sediment control programs into NPDES permits for storm water discharges from construction sites).
    - Also see §122.35(b) (The NPDES permitting authority may recognize that another government entity, including the permitting authority, may be responsible for implementing one or more of the minimum measures on your behalf.)

Polluted stormwater runoff from construction sites often flows to MS4 and ultimately is discharged into local waterbodies. Of the pollutants that have the potential to be discharged, sediment is usually the main point of concern. According to the 2000 National Water Quality Inventory, States and Tribes report that sediment is one of the most widespread pollutants affecting assessed rivers and streams, second only to pathogens (bacteria). Sources of sediment include agriculture, urban runoff, construction and forestry. However, sediment runoff raters from construction sites are typically 10 to 20 times greater than those of agricultural lands and 1,000 to 2,000 times greater than those from forest lands.

During a short time period, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation and contribution of other pollutants from construction sites can cause physical, chemical, and biological harm to Missouri's waters.

Some BMPs for the construction program include:

Regulatory Mechanism – Through the development of ordinances or other regulatory mechanism, the small MS4 operator will need to establish a construction program that controls polluted runoff from construction sites with a land disturbance of greater than or equal to one acre. Because there may be limitations on regulatory authority, the small MS4 operator is required to satisfy this minimum control measure only to the MEP and allowable State, Tribal, or local law.

Site Plan Review – The small MS4 will need to include in its construction program requirements for the implementation of appropriate BMPs on construction sites to control erosion and sediment and other waste at the site. To determine if a construction site is in compliance with such provisions, the MS4 operator can review the site plans submitted by the construction site before ground is broken.

Site plan reviews can aid in compliance and enforcement efforts since it alerts the small MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities. The tracking of sites is useful not only for the MS4 operator recordkeeping and reporting purpose, which are required under this permit, but also for members of the public interested in ensuring that sites are in compliance.

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Inspections and Penalties – Once construction commences, BMPS should be in place and the MS4 operator enforcement activities should begin. To ensure that the BMPs are properly installed, the MS4 operator is required to develop procedures for site inspection and enforcement of control measures to deter infractions. Procedures conduce include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soli and receiving water quality. Inspections give MS4s an opportunity to provide additional guidance and education, issue warnings, or assess penalties.

Information Submitted by the Public – A final consideration, but is highly recommended, is that the MS4 is developed to contain procedures for the receipt and considerations of public inquiries, concerns, and information submitted regarding local construction activities. This provision is intended to further reinforce the public participation component of the regulated MS4 and recognize the crucial role that public can play in identifying instances of non-compliance.

MS4s are required to only consider the information submitted, and may not need to follow-up and respond to every complaint or concern. Although some form of enforcement action or reply is not required, MS4s is required to demonstrate acknowledgement and consideration of the information submitted.

Measurable goals for this program can include, but are not limited to the below:

- BMP – Direct or indirect education of construction site operators and contractors about proper selection, installation, inspection, and maintenance of BMPs.
- Measureable Goal – 80% will have attended erosion/sediment control training for all projects that occurred in the MS4's jurisdiction during the permit term.
- Achievement/Progress Determination: This goal could be tracked by documenting attendance at local, State, or Federal training programs. Attendance can be encouraged by decreasing permitting fees for those contractors who have been trained and provide proof of attendance when applying for permits.

Post-Construction Runoff Control

This MCM is required in accordance with 40 CFR 122.34(b)(5). Below guidance is per 40 CFR 122.34(b)(5)(iii) and is not a requirement, but is highly encouraged.

- If water quality impacts are considered from the beginning stages of a project, new development and potentially redevelopment provide more opportunities for water quality protection.
- It is recommended that the BMPs chosen:
  - Be appropriate for the local community,
  - Minimize water quality impacts, and
  - Attempt to maintain pre-development runoff conditions (i.e., reasonably mimic).

- In choosing appropriate BMPs, it is encouraged that the MS4 participate in locally-based watershed planning efforts which attempt to involve a diverse group of stakeholders including interested citizens.
- When developing a program that is consistent with this measure's intent, it is recommended that the MS4 adopt a planning process that:
  - Identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment),
  - Implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs),
  - Operation and maintenance policies and procedures, and
  - Enforcement procedures.

- The development of this program should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality.
- In addition to assessing these existing documents and programs, you should provide opportunities to the public to participate in the development of the program.
- Non-structural BMPs are preventative actions that involve management and source controls such as:
  - Policies and ordinances that provide requirements and standards to direct growth to identified areas,
  - Protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition),
  - Provide buffers along sensitive water bodies,
  - Minimize impervious surfaces, and minimize disturbance of soils and vegetation;
  - Policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure;

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  - Education programs for developers and the public about project designs that minimize water quality impacts, and
  - Measures such as minimization of percent impervious area after development and minimization of directly connected impervious areas.

- Structural BMPs include:
  - Storage practices such as wet ponds and extended-detention outlet structures,
  - Filtration practices such as grassed swales, sand filters and filter strips, and
  - Infiltration practices such as infiltration basins and infiltration trenches.

- It is recommended that the MS4 ensure the appropriate implementation of the structural BMPs by considering some or all of the following:
  - Pre-construction review of BMP designs;
  - Inspections during construction to verify BMPs are built as designed;
  - Post-construction inspection and maintenance of BMPs; and
  - Penalty provisions for the noncompliance with design, construction or operation and maintenance.

- Storm water technologies are constantly being improved, and EPA recommends that your requirements be responsive to these changes, developments or improvements in control technologies.

Post-construction stormwater management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving waterbodies. Many studies indicate that prior planning and design for minimization of pollutants in post-construction stormwater discharges is the most cost-effective approach to stormwater quality management.

The Phase II rule applies to redevelopment projects that alter the footprint of an existing site or building in such a way that there is a disturbance of equal to or greater than one acre of land. Redevelopment projects do not include such activities as exterior remodeling. Guidelines and BMPs (both non-structural and structural) for the development and implementation of this program include, but are not limited to the below:

Planning Procedures – runoff problems can be addressed efficiently with sound planning procedures. Local master plans, comprehensive plans, and zoning ordinances can promote improved water quality in many ways, such as guiding the growth of a community way from sensitive areas to areas that can support it without compromising water quality.

Site-Based BMPs – these BMPs can include buffer strips and riparian zones preservation, minimization of disturbance and imperviousness , and maximization of open spaces.

Stormwater Retention/Detention BMPs – control stormwater by gathering runoff in wet ponds, dry basins, or multi-chamber catch basins and slowly release it to receiving water bodies or drainage systems. The practices can be designed to both control stormwater volume and settle out particulates for pollutant removal.

Infiltration BMPs – are designed to facilitate the percolation of runoff through the soil to ground water resulting in the reduction of stormwater quantity, which reduces the mobilization of pollutants. Examples are:
- Basins/trenches,
- Dry wells, and
- Porous pavement.

Vegetative BMPs – are landscaping features that, with optimal design and good soil conditions, remove pollutants, and facilitate percolation of runoff resulting in the maintenance of natural site hydrology, promoting healthier habits, and increase aesthetic appeal. Examples are:
- Grassy swales,
- Filter strips,
- Artificial wetlands, and
- Rain gardens.

Measurable goals for this program can include, but are not limited to the below:
- BMP – Reduce/Replace road surface areas directly connected to storm sewer systems (using traditional curb and gutter infrastructure) with stormwater conveyance approaches such as grassy swales and similar.

- Measureable Goal – Reduce/Replace new development by 20% and re-development by 10% during the permit term.
- Achievement/Progress Determination: Ensure that 20% of new projects and 10% of re-development projects use alternative stormwater conveyance systems vs. traditional curb and gutter approach. This can be tracked by linear feet of curb and gutter not installed in projects that would have historically used them.

Pollution Prevention/Good Housekeeping

This MCM is required in accordance with 40 CFR 122.34(b)(6). Below guidance is per 40 CRFR 122.34(b)(6)(ii) and is not a requirement, but is highly encouraged.

- EPA recommends that, at a minimum, you consider the following in developing your program:
  - Maintenance activities and schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from your separate storm sewers;
  - Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations;
  - Procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and
  - Ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices.

- Operation and maintenance should be an integral component of all storm water management programs.
- This measure is intended to improve the efficiency of these programs and require new programs as needed.
- Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

This program for municipal operations is a key element of the small MS4 stormwater management program. This measure requires the small MS4 operating to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that:

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

While this plan is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the MS4, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

Some guidelines and BMPs for this plan include:

Maintenance activities, maintenance schedules, and long-term inspection procedures – for structural and non-structural controls to reduce floatables and other pollutants discharge from the storm sewers.

Controls for reducing or eliminating the discharge of pollutants – from areas such as roads and parking lots, maintenance and storage yards (including salt/sand and snow disposal areas), and waste transfer stations. These controls could include programs that promote recycling (to reduce litter), minimize pesticide use, and ensure the proper disposal of animal waste.

Procedures for the proper disposal of waste – removed from separate storm sewer systems and areas listed in the Controls for reducing or eliminating the discharge of pollutants, including dredge spoil, accumulated sediments, floatables, and other debris.

Ways to ensure that new flood management projects assess the impacts on water quality – and examine existing projects for incorporation of additional water quality protection devices or practices. It is encouraged coordination with flood control managers for the purpose of identifying and addressing environmental impacts from such projects.

Measurable goals for this program can include, but are not limited to the below:

- BMP –Incorporate the use of road salt alternatives for highway deicing and reduce the use of traditional road salt.
- Measureable Goal – Reduce road salt usage by 50% in permit term.

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- Achievement/Progress Determination: Use alternative deicing for roads and highways leading to the reduction of traditional road salt by 50% by the end of the permit term.

PESTICIDE RULE:
The department has developed a Pesticide General Permit #MOG-870000 for point source discharges resulting from the application of pesticides. This permit has been developed as a result of federal requirements under NPDES.

The general permit authorizes the discharge of pesticides that leave a residue in water when such applications are made into, over or near waters of the United States. The department has determined that entities most likely affected by this permit include public health entities, including mosquito or other vector control districts and commercial applicators that service this sector. Others potentially affected by this permit include resource and land management entities such as public and private entities managing public land, park areas and university campuses, as well as utilities maintaining easements and right-of-ways, golf courses and other large residential developments which maintain a large grounds area. In addition, permits may be required for applications involving pesticide use for agricultural related activities when pesticides are applied to crops grown in or near a water of the United States.

The department is collaborating closely with the Missouri Department of Agriculture, which already administers the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) along with the Missouri Pesticide Use Act.

The permittee/facility is subject to the pesticide rule. To determine if a permit is required, see general permit #MOG-870000 located at http://dnr.mo.gov/env/wpp/permits/wpcpermits-general.htm. The thresholds listed in Table 1 of the pesticide general permit will assist in determining if a permit is required. If a permit is required, the permittee/facility shall apply for either the Pesticide General Permit or a site-specific pesticide permit from the department.

STORMWATER MANAGEMENT PROGRAM AND PLAN (SWMP):
The SWMP is a documented implementation plan describing a schedule of MS4 program activities including prohibitions of practices, implementation of required practices, development of standards for urban growth, maintenance procedures, education, trainings, inspections and other management practices to prevent or reduce the pollution of waters of the state.

This permit in accordance with 10 CSR 20-6.200 and 40 CFR Part 122 requires the permittee to develop and implement a SWMP. The SWMP shall address the six minimum control measures - public education and outreach, public involvement/participation process, illicit discharge detection and elimination, construction site stormwater runoff control, post-construction stormwater management and pollution prevention/good housekeeping for municipal operations. In addition, the SWMP addresses TMDL implementation plan components. The SWMP also includes, but is not limited to, BMPs, pertinent local regulations, policies, procedures, interim milestones, measurable goals, measures of success, responsible persons/positions for each of the measurable goals, and any applicable TMDL assumptions and requirements.

SWMP ORDINANCES:
To the extent allowable under state or local law, ordinances (or other regulatory mechanisms if a non-traditional MS4) are required to be developed, implemented and enforced within five years of initial permit issuance under the following sections, in accordance with 40 CFR 122.34(b):

1. Illicit discharge detection and elimination – to prohibit non-stormwater discharges into the storm sewer system, and implement appropriate enforcement procedures and actions;
2. Construction site stormwater runoff control – to require erosion and sediment controls at construction sites, as well as sanctions designed to ensure compliance; and
3. Post-construction – to address post-construction runoff from new development and redevelopment projects, and sanctions designed to ensure compliance. The "Missouri Guide to Green Infrastructure: Integrating Water Quality into Municipal Stormwater Management" (May 2012) was written specifically to aid MS4s in developing and implementing the post-construction runoff program. The guide can be viewed at http://www.dnr.mo.gov/env/wpp/stormwater/mo-gi-guide.htm

EPA and the department and certain MS4s have developed compliant model ordinances that may be adapted for use by other interested MS4s.

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SWMP REPORTING FREQUENCY:
Previous versions of this operating permit required annual reporting of the SWMP; however, the annual reporting will now only be required for new MS4 permittees in accordance with 40 CFR 122.34(g)(3) and MS4 permittees subject to TMDLs (water quality schedules over one calendar year require annual reporting). For MS4 permittees that have obtained MS4 permits (either site-specific or general permits) prior to this version of the Small Phase II MS4 general permit, they will be required to submit the MS4 SWMP report biennial (2nd and 4th year of the operating permit) in accordance with the same federal regulation 40 CFR 122.34(g)(3).

In addition, the MS4 SWMP Report Form 780-1846 has been revised. Please note that this operating permit does not require the Qualitative Monitoring Program anymore; however, the report form still list this. The Qualitative Monitoring Program portion of the report form will be removed after the public notice of this operating permit.

The MS4 SWMP Report is attached to this factsheet under Addendum 1. Additionally, as noted in the operating permit, MS4s may adopt their own report form. However, it must be approved by the Department prior to being utilized.

WATER QUALITY STANDARDS
As noted previously, the nature of the MS4 program is technology-based, which is in accordance with Section §402(p)(3)(B)(iii) of the CWA with the establishment of the technology-based standard MEP. Many in the MS4 community believe that MEP is the only standard applicable for compliance determination, which for the most part (specifically for the six (6) minimum control measures, is correct). Given the litigious nature surrounding the "agreeability" of MS4 compliance with WQS, MS4 permits have been the subject of court cases for several years.

40 CFR 122.34(a)(1) clearly requires that the MS4 permit will require the MS4 permittee to, "*...develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act.*" While this regulation seems to be in contradiction to Section §402(p)(3)(B)(iii) of the CWA due to the fact that it appears to require the permittee to "*...protect water quality*" and "*satisfy the appropriate water quality requirements...*" it actually is not; however, has been mistakenly applied to require strict, immediate compliance with WQS even in previously issued Missouri MS4 Master General Permits.

As noted in 64 FR No. 235, "*The Court, did, however, disagree with the EPA's interpretation of the relationship between CWA sections 301 and 402(p). The Court reasoned that MS4s are not compelled by section 301(b)(1)(C) to meet all State water quality standards, but rather the Administrator or the State may rely on section 402(p)(3)(B)(iii) to require such controls.*" The discussion continues with, "*...the 1996 Policy describes how permits would implement an iterative process using BMPs, assessment, and refocused BMPs leading toward attainment of water quality standards. The ultimate goal of the iteration would be for water bodies to support their designated uses...*" and "*EPA also believes the iterative approach toward attainment of water quality standards represents a reasonable interpretation of CWA section 402(p)(3)(B)(iii).*"

A break-down of 40 CFR 122.34(a) is given in 64 FR No. 235, as follows, "*The first component, reduction to the MEP, would be realized through implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under the CWA section 402(p)(3)(B)(iii) of the need to achieve reasonable further progress toward the attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to MS4s, as they would other point sources.*"

303(d) LIST, TOTAL MAXIMUM DAILY LOAD (TMDL)
Section 303(d) of the CWA requires that each state identify waters that are not meeting water quality standards. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) List helps state and federal agencies keep track of waters that are impaired but not addressed by typical water pollution control programs. Federal regulations require permitting authorities to develop TMDLs to address impaired waters listed per Section 303(d) of the CWA. A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is impaired. Please visit the Department's website to determine if you are listed in an approved or established TMDL at: http://dnr.mo.gov/env/wpp/tmdl/index.html.

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Federal regulation 40 CFR 122.34(a) establishes the requirements applicable to all MS4s with, "*Your NPDES MS4 permit will require at a minimum that you develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act.*" EPA translated this regulation into three parts in 64 FR No. 235, as follows, "*The first component, reductions to the MEP, would be realized through implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under CWA section 402(p)(3)(B)(iii) of the need to achieve reasonable further progress toward attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to MS4s, as they would to other point sources.*"

The above citation of 64 FR No. 235 clearly states that MEP is specific to the six (6) MCMs and clearly establishes that Wasteload Allocations (WLAs) are applicable to MS4s. However, unlike other traditional point sources that utilize treatment facilities, the EPA clearly indicated that attainment of the WLA is to be conducted via "*the iterative BMP process.*" Thus, requiring any condition for the attainment of water quality standards in addition to the MCMs is going beyond MEP but the process for attainment of the WLA is still achieved with BMPs using the iterative process of establishing BMPs, evaluating the BMPs, and refocusing on BMPs.

However, just because a WLA for any given pollutant(s) of concern (POC) has been established in a TMDL for a MS4, additional BMPs or modifications to BMPs for the six MCMs should not be required as a trigger action. Rather, the MS4 permittee subject to an effective and approved TMDL should first make a determination if the implementation of their MCMs is adequately meeting the requirements and assumptions of the TMDL. As noted in 64 FR No. 235, "*At this time, EPA determines that water quality-based controls, implemented through the iterative process today are appropriate for the control of such pollutants and will result in reasonable further progress towards the attainment of water quality standards.*" While potentially rare this does indicate that no further action may be necessary to implement the requirements and assumptions of the TMDL as the MS4 community may, through successful implementation to the MEP for each of the MCMs, have already demonstrated "*reasonable further progress.*" This, rightfully so, places the burden of support on the MS4 community; however, in order for the MS4 community to continue operating only under the six MCMs, the determination of beneficial use re-attainment must be reviewed and timely approved by applicable program staff (i.e., the MS4 program coordinator and Watershed Protection Section staff).

If the requirements and assumptions of the TMDL are not being met, then the MS4 will need to, at a minimum, develop BMPs that target the given POC with the goal or design for the reduction of the pollutant. Due to the nature of stormwater controls via the iterative process, subsequent determinations can and should be made by the MS4 community to determine if "*reasonable further progress*" has resulted in the attainment of the WLA.
In addition to the initial determination or additional BMPs as required in the MS4 general permit, integrated planning actions may be considered as actions taken to specifically restore a waterbody's beneficial uses. Regardless, if the MS4 permittee uses integrated planning or BMPs design to reduce pollutants, other factors need to be considered in accordance with 64 FR No. 235, which states, "*If the permitting authority (rather than the regulated small MS4 operator) needs to impose additional or more specific measures to protect water quality, then that action will most likely be the result of an assessment based on a TMDL or equivalent analysis that determines sources and allocations of pollutant(s) of concern. EPA believes that the small MS4's additional requirements, if any, should be guided by its equitable share based on a variety of considerations, such as cost effectiveness, proportionate contribution of pollutants, and ability to reasonably achieve Wasteload reductions. Narrative effluent limitations in the form of BMPs may still be the best means of achieving those reductions.*"

In addition to the above, the TMDL portion of the permit (Part 3) requires the development and implementation of a TMDL Assumption and Requirement Attainment Plan (ARAP). While the TMDL ARAP is not a Schedule of Compliance actions and schedules established in the TMDL ARAP will be subjected to the federal regulations on Schedules of Compliance [40 CFR 122.47]. Specifically if the development and implementation of the TMDL ARAP is to be conducted in a period of time extending one calendar year, then the permittee will be required to report annually for either the status of the development of the plan or for the implementation of the plan based on 40 CFR 122.47(a)(3)(ii).

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Regarding the time period allowed for development of the TMDL ARAP (i.e., as soon as practicable not exceeding 30 months), the Department has determined the 30 month time period is appropriate as it allows the permittee the necessary time and flexibility that is needed to ultimately achieve attainment with the TMDLs assumptions and requirements. The Department has experience in the facilitation of an adaptive management plan, along with EPA Region 7, with a MS4 community that addressed the assumption and requirements of an applicable TMDL. The time period to develop the adaptive management plan took more than 30 months, but the assumptions and requirements of the TMDL were more complex than other straight forward TMDLs. Thus, the 30 month maximum time period allows the permittee to determine or develop appropriate BMPs, measurable goals, funding sources, local votes, strategic planning, opportunity to engage interested parties and stakeholders, etc… However, it would be naïve to believe that all regulated MS4s could develop a plan in 30 months, which is why the permit also indicates that the permittee can request an extension to the 30 months.

Permittees seeking approval of the extension will need to provide appropriate justification of why the extension is needed, a revised time schedule of compliance, and reason for failing to meet the 30 month maximum time; however, the allowance of extending the time period beyond 30 months is not guaranteed.

Part IV - Administrative Requirements & Public Notice of Small MS4's SWMPs

COST ANALYSIS FOR COMPLIANCE (CAFCOM):
Pursuant to Section 644.145, RSMo, when issuing permits (under this chapter) that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the department shall make a cost analysis for compliance upon which to base such permits and decisions to the extent allowable under this chapter and the Federal Water Pollution Control Act. Where permit modifications, permit renewals, or sewer extensions do not impose new requirements and/or do not require rate increases, the cost analysis for compliance may receive a less detailed review. Permits that do not include new requirements may be deemed affordable.

Existing Permittees – New Requirements:
The results of the CAFCOM below were drafted during in accordance with the previous draft permit (i.e., 3rd round). This operating permit does not require the same level of sampling or parameters to be sampled. Thus, if the below was determined affordable under the previous draft operating permit, then it is affordable under this draft operating permit.

DEFINITIONS
All definitions contained in 10 CSR 20-6.200 shall apply to this permit and are incorporated herein by reference. For convenience, simplified explanations of some regulatory/statutory definitions have been provided, but in the event of a conflict, the definition found in the regulation takes precedence.

Control Measure as used in this permit refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the state.

Director refers to the Director of staff, Water Protection Program, Missouri Department of Natural Resources.

Discharge when used without a qualifier, refers to "discharge of a pollutant" as defined at 40 CFR 122.2.

Illicit Connection means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge refers to any discharge to a municipal separate storm sewer that is not entirely composed of stormwater, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from emergency fire-fighting activities.

Load Allocation is similar to Wasteload allocation, except refers to nonpoint source pollutants; whereas, Wasteload allocation pertains to point source pollutants. Per EPA, load allocation refers to the portion of the loading capacity attributed to (1) the existing or future nonpoint sources of pollution, and (2) natural background sources. Wherever possible, nonpoint source loads and natural loads should be distinguished.

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MS4 is an acronym for "Municipal Separate Storm Sewer System" and is used to refer to a Large, Medium, or Small MS4 (e.g., "the Joplin Small MS4").

Permittee, as used in this permit refers to the holder of this general permit.

Representative Outfalls: Representative outfalls can be outfalls that discharge to the primary stem of principal watercourses in separate sub-regional watersheds and are representative of various land uses. Representative outfalls are listed in the permit as a subset of ALL of the MS4's outfalls.

Site-specific Permit also means individual permit (per EPA's definition) and one that is specific to the permittee's facility or discharges.

Stormwater means stormwater runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Management Program and Plan (SWMP) refers to a comprehensive documented program and plan to manage the quality of stormwater discharged from the municipal separate storm sewer system.

Wasteload allocation per 10-CSR-20.010 means the amount of pollutants each [point source] discharger is allowed by the department to release into a given stream after the department has determined the total amount of pollutants that may be discharged into that stream without endangering its water quality. Point sources are typically permitted.

PUBLIC NOTICE AND COVERAGE FOR AN INDIVIDUAL ENTITY:
Per 10 CSR 20-6.020(1)(B) &(C), public notification of the issuance of this master general permit was required; however, public notification of issuance to individual applicants under this permit is not required. A public meeting was held March 5, 2013, at the Lewis & Clark State Office Building from 10 a.m. to 11 a.m. No comments were received as a result of this public meeting. The draft Master General Permit renewal was placed on Public Notice for 30 days in accordance with 10 CSR 20-6.020(1)(B) & (C). The first public comment period for that public notice expired on May 6, 2013. Comments were received from the Association of Missouri Cleanwater Agencies, the Metropolitan St. Louis Sewer District and the University of Missouri. The permit was revised as a result of public comments and the permit was public noticed for a second 30-day period from November 1 through December 2, 2013.

SUMMARY OF KEY ISSUES ADDRESSED IN RESPONSE TO OCTOBER 31, 2014 PUBLIC NOTICE INPUT:
Several changes were made to the permit in response to public comments during the most recent public notice period, which started on October 31, 2014. Detailed responses were provided to the commenters. Copies of the comment response letters may be obtained via an Open Records/Sunshine Law request.

SUMMARY OF KEY ISSUES ADDRESSED IN RESPONSE TO THE APRIL 8, 2016 PUBLIC NOTICE INPUT:
The changes made to this operating permit after the April 8, 2016, public notice are in response to comments received from EPA on July 6, 2016 (See Appendix A).

PUBLIC NOTICE OF SMALL MS4'S SWMPS:
In addition to this actual operating permit, MS4s applying for coverage under this general permit are required to submit their SWMP as required by this operating permit. The MS4s SWMPs are located at the Department website: http://dnr.mo.gov/env/wpp/stormwater/swmp.htm. SWMPs are subject to the same public notice and hearings as the MS4 general operating permit. SWMPs, under this operating permit, are subject to a review and rating. MS4s have one year from the effective date to submit their updated SWMP, if needed, for a review and rating.

COST ANALYSIS:
The previously public noticed permit established in the Conclusion and Findings that "All regulated MS4s under this permit will incur added costs for monitoring requirements per Section 5. Only certain communities will also incur costs for TMDL plan development per Section 3. The department has determined that costs for monitoring and TMDL plan development are affordable. The monthly household costs are estimated for all scenarios to range from $0.01 to $2.92 per month for the first 2.5 years and then $0.01 - $0.65 per year thereafter depending on the community. This considers that the cost for TMDL plan development is a one-time cost for a period of 30 months and that the cost of plan development may be shared in some scenarios but not others. This does not consider that some MS4s may need to develop more than one TMDL plan. Cost analyses can be revisited if the TMDL plan identifies specific implementation measures beyond current efforts."

WS #5.

Additionally, the department determined in the previously public notice permit that, "...the cost for developing a plan to address the TMDL assumptions and requirements (in addition to annual monitoring requirements) is affordable for affected communities, based on the limitation of this finding to one-time plan development, a reasonable 30-month provision plan completion period and much available guidance. The process to develop a plan is expected to include stakeholder input and to take one staff person an estimated 12 months full-time to research the needed information, coordinate public meetings, and establish a work plan and schedule. Dependent upon salary, contributing partnerships, available information and TMDL assumptions and requirements, the cost of plan development per year might range from $4,000 - $100,000 per community. These costs in addition to an annual monitoring cost of $3,720 results in an estimate of total increased user costs shown as a percentage of MHIs that range from 0.02% to 0.03%. More information is needed to determine a more detailed estimate of plan costs for each affected MS4."

Finally, the previously public notice permit established, "the department has determined the cost for monitoring per Section 5 of the permit is affordable. This paragraph addresses communities that do not also have to develop a TMDL plan. The new sampling requirements are affordable for affected communities, especially for those communities who will be readily able to incorporate these efforts into existing program operations for sampling, analyses and reporting. Monitoring requirements will more than likely be covered through general revenue unless otherwise covered by dedicated stormwater funding. , monitoring may cost up to $3,720 per year per community, depending on proximity to local laboratory services. More information is needed to determine a more detailed estimate of monitoring costs for each affected MS4."

This version of the draft Phase II Small regulated MS4 general permit does not place any requirement beyond that of the previously public noticed permit and is therefore found to be affordable by all regulated Phase II Small MS4s.

Revised Date of Fact Sheet: July 7, 2016

MICHAEL J. ABBOTT, ENVIRONMENTAL SCIENTIST
MUNICIPAL SEPARATE STORMWATER SEWER SYSTEM (MS4) PROGRAM COORDINATOR
STORMWATER AND CERTIFICATION UNIT
WATER PROTECTION PROGRAM
michael.abbott@dnr.mo.gov
573-526-1139

Appendix A – EPA July 6, 2016 Comments

WS #5.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

JUL 2016

Mr. John Madras
Director, Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Mr. Madras:

We have reviewed the draft proposed Missouri General Municipal Separate Stormwater Sewer System (MS4) Permit (MOR040000) that was placed on public notice May 8, 2016. Please find our comments on the permit below:

1. Section 3 – If a permittee is not already meeting an applicable Waste Load Allocation (WLA) and a schedule of compliance is needed, then regulations require that the WLA be met "as soon as possible." The instructions for the *Total Maximum Daily Load (TMDL) Assumptions and Requirement Attainment Plan* (ARAP) should make it clear that all plans, and implementation of plans, should be such that WLAs will be met as soon as possible.

2. Section 3.1.1 –This permit provision requires that the MS4 "…shall implement steps toward the goal of attainment with the applicable WLA …" The language should be modified to be consistent with the CWA requirement that the MS4 must achieve attainment with the applicable WLA, not merely implement steps towards that goal.

3. Section 3.1.3 – Regulations require that water quality based limits be met "as soon as possible." If the Department believes that 30 months of planning is part of a process to meet WLAs as soon as possible, then that should be documented in the Fact Sheet for the permit.

4. Section 3.1.3.2 – After discussing this provision with Department personnel, we understand that any disapproval notice would explain what changes need to be made to a plan and would give a deadline for resubmittal of the TMDL ARAP. The inclusion of deadline for resubmittal, appears to negate the need for provision 3.1.3.3.

5. Section 3.1.7 – It is possible that TMDLs may not specifically name a certain point source even though the narrative of the TMDL makes it clear that there are WLAs that apply to the source. We are concerned that the current language of this provision might allow a permittee to ignore a TMDL in such a case if the TMDL did not specifically name them. Please consider a language change that would close this loophole.

6. New Discharges to TMDL-Limited Waterbodies – It is possible that newly regulated MS4 might discharge to a waterbody with a TMDL does not allow a WLA for the new discharge. One way

Continue to next page.

to deal with this situation is to not allow coverage for such an MS4 under this general permit, but require application for an individual permit.

7. Section 4.1.2 - The provision needs to make clear that the five years for full implementation is only available for MS4s that are being regulated under this permit for the first time. Currently regulated MS4s should already be fully implementing the six minimum control measures.

8. Sections 3.1.2.3 – The provision needs to require that if interim milestones are more than a year apart then progress must be reported on or before a year has passed from the last milestone.

9. Section 4.2.7 references sections of the permit that were in a previous draft but have since been removed.

If you have any questions or would like additional information, please contact either Glenn Curtis at (913) 551-7726, or Mark Matthews at (913) 551-7635.

Sincerely,

Glenn Curtis, Chief
Wastewater and Infrastructure
Management Branch

Enclosure

Attachment B

City of Moberly Stormwater Public Outreach Materials

Stormwater Pollution Prevention: It Begins in Your Back Yard!

Please keep local waterways and environmental protection in mind whenever you, or people you hire, work on your house or property. Changes made to the land during construction can be detrimental to area waters. The greatest potential for water pollution is during excavation when vegetation is cleared and the area is graded to create the building site. The resulting bare soil is highly vulnerable to erosion. Removal of vegetation prior to construction activity is a major contributor to sediment moving off site and entering nearby creeks and lakes via the storm drain system. Many of Moberly's storm drains flow directly to area creeks and lakes. Polluted storm water leaving construction sites can be a serious threat to aquatic life, wildlife, livestock and the City's public drinking water supply. Home repair, remodeling, construction and excavation activities involve materials, wastes and by-products that can be toxic to the environment if allowed to leave the work site. Proper handling, use and disposal of these materials is an essential part of environmental stewardship.

For more information on environmental protection and stewardship contact:

The City of Moberly
Stormwater Pollution Prevention Program

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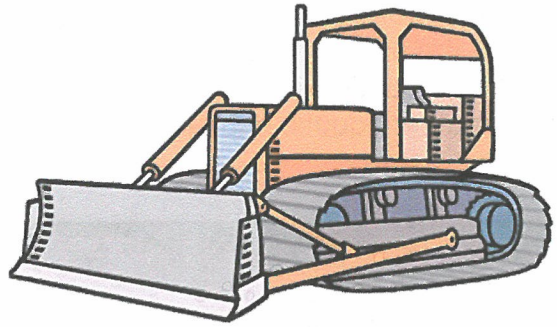
660.263.7164

City of Moberly
www.moberlymo.org

Stormwater Pollution Prevention Program

City of Moberly!

Best Management Practices for Excavation/Foundation Work



Pollution Prevention Through Education and Involvement

Reasons for Concerns...

Pollutants such as petroleum products, chemicals from construction products and concrete truck washout are added to the site during construction. Paints, solvents, sealants, cleaning agents and caulks may be found on construction sites. Trace metals including lead, zinc, copper, chromium, cadmium and nickel are often left on construction sites by the heavy equipment used. These pollutants can attach to the soil particles or remain suspended in the stormwater and move off site.

Uncontrolled stormwater runoff from construction sites can significantly impact streams and lakes. Sediment in the runoff from construction sites can reduce the amount of sunlight reaching aquatic plants, clog fish gills and smother aquatic habitat and spawning areas.

Improper grading practices that disrupt natural stormwater patterns might lead to poor drainage, high-runoff velocities, and increased peak flows during storm events. Clearing and grading the entire site without vegetated buffers promotes offsite transport of sediments and other pollutants. Design the grading plan with erosion and sediment control and stormwater management goals in mind; to ensure that the plan is implemented as intended, carefully supervise grading crews.

Soils exposed from land grading activities are very vulnerable to erosion

The property owner is ultimately responsible for correcting any pollution problems caused by construction activities.

Pollution Prevention Strategies

- ✓ Minimize needless clearing and grading.
- ✓ Maintain natural vegetation where possible.
- ✓ Schedule grading and excavation projects during dry weather whenever possible.
- ✓ Schedule and limit construction to minimize soil exposure and compaction.
- ✓ Stabilize exposed soils immediately.
- ✓ Cover excavated materials and stock piles of dirt, sand, gravel, etc. with plastic tarp during rain events.
- ✓ Replant as soon as possible, with temporary vegetation such as annual grass seed if necessary. Revegetation provides excellent erosion control.
- ✓ Apply mulch to protect the soil surface from the erosive force of raindrop impact and reduce the velocity of overland flow.
- ✓ Protect down slope drainage courses, streams, and storm drains with wattles or temporary drainage swales.
- ✓ Use check dams or ditches to divert runoff around excavations.
- ✓ Check all graded areas and supporting erosion and sediment control practices periodically, especially after heavy rainfalls.

Stormwater Pollution Prevention:
It Begins in Your Back Yard!

This brochure is for homeowners, and do-it-yourself remodelers. Keep local waterways and environmental protection in mind whenever you or people you hire work on your house or property. The property owner is ultimately responsible for correcting any pollution problems caused by construction activities.

Sugar Creek Lake

For more information on environmental protection and stewardship contact:

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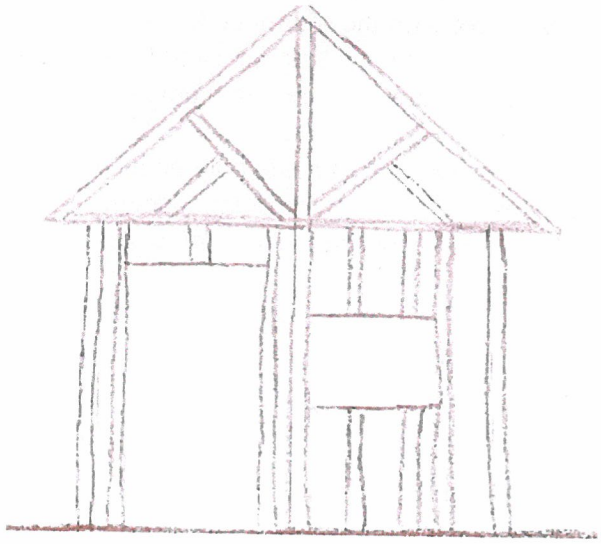
Best Management Practices For General Construction

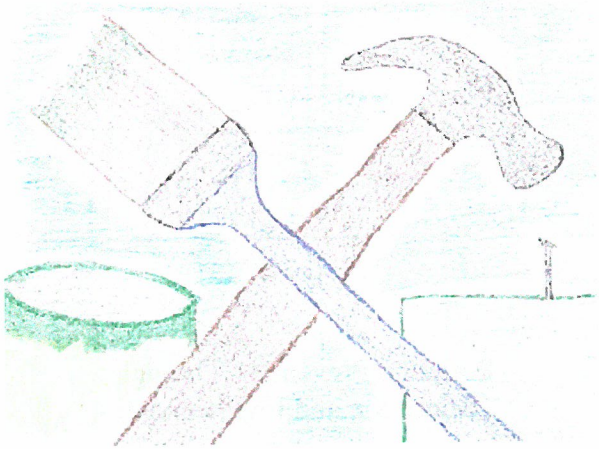


Pollution Prevention Through Education and Involvement

Construction Site Activities

Sediment is the most common pollutant carried away from the worksite by storm water. Sediment creates a long list of problems once it enters local waterways and lakes. Sediment clouds the water, blocking light and increasing the temperature. It disturbs the food chain by killing invertebrates, water plants and other foods the fish feed on. It can also kill the fish out right by clogging the gills.

Sediment will also carry other pollutants away from the worksite. Pesticides, cement wash, cleaning solvents, paints, asphalt and various vehicle fluids such as fuel, oil and grease mix with the sediment and are deposited in the local streams and lakes. It all adds up to water pollution and environmental damage. The contractor, site supervisor, owner or operator of a site may be held responsible for environmental concerns caused by subcontractors or employees



Reasons for concern...

Many of Moberly's storm drains flow directly to area creeks and lakes. Storm water pollution can be a serious threat to aquatic life, wildlife, livestock and the City's public drinking water supply. The storm drain in the street or the ditch or gutter along side the road is a direct connection to area waterways and lakes. Home repair, remodeling, construction and excavation activities involve materials, wastes and by-products that can be toxic to the environment if allowed to leave the work site. Pollutants such as petroleum products, chemicals from construction products and concrete truck washout are added to the site during construction. Trace metals including lead, zinc, copper, chromium, cadmium, and nickel are left on the site by the heavy equipment used. Proper handling, use and disposal of these materials are an essential part of environmental stewardship.

Pollution Prevention Strategies

- ✓ Develop and implement erosion/sediment control plans for roadway embankments.
- ✓ Schedule excavation and grading work during dry weather whenever possible.
- ✓ Check for and repair leaking equipment.
- ✓ Perform major equipment repairs at designated areas in your maintenance yard away from any storm water drainage areas.
- ✓ Protect drainage ways by using earth dikes, sand bags, or other controls to divert or trap and filter runoff.
- ✓ Keep all construction debris away from the street, gutter and storm drains.
- ✓ Clean up all spills and leaks using "dry" methods with absorbent materials and/or rags, or dig up, remove, and properly dispose of contaminated soil.
- ✓ Cover and maintain dumpsters. Check frequently for leaks. Keep dumpsters under a roof or covered with a tarp.
- ✓ Schedule construction to minimize soil exposure and compaction.
- ✓ Pay attention to weather forecasts and prepare for impending rains. Verify dumpsters are covered, paints and other chemicals are covered and no oil spills are present.
- ✓ Clean mud and debris from silt fences.
- ✓ Protect and preserve existing vegetation whenever possible.

Why compost?

The United States Environmental Protection Agency reports that together, food scraps and yard trimmings constitute 23 percent of the U.S. municipal solid waste stream, with some estimates as high as 30 percent. Now that's a lot of garbage. Garbage, that is causing landfills to reach capacity creating the need for more landfills. Garbage, that is costing the consumer more every day to have hauled away. Garbage, that can be turned into a useful, economical product called compost.
All organic material contains carbon and nitrogen in differing ratios. Straw, dried leaves and sawdust, known as "browns", are higher in carbon. "Greens", which include grass clippings, garden weeds, kitchen wastes, and cow, horse and chicken manures, have a greater concentration of nitrogen. The proper amount of moisture and air combined with these greens and browns create a habitat for billions of microbes, organisms, fungi and bacteria, which aid in the decomposition process.
Composting is the easiest and cheapest way to recycle, reduce and reuse and it is something we all can do.

For more information on environmental protection and stewardship contact:

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Composting

Pollution Prevention Through Education and Involvement

Getting started…

- ✓ An inexpensive, three-sided compost bin can be constructed of concrete blocks, discarded pallets, chicken wire or most any type of building material. (Need to leave the fourth side open or with an easy access opening for stirring and/or removal of finished compost.)
- ✓ The optimal size of a compost pile/bin is 3 feet by 3 feet by 3 feet. This provides the insulation needed to maintain sufficient temperatures for more rapid decomposition.
- ✓ Build the compost bin/pile over soil that has been loosened. The loose soil will allow worms, bugs and microorganisms to migrate upward and aid in decomposition.
- ✓ The easiest way to compost is just dig a hole in the corner of your garden and fill it with kitchen and yard waste.
- ✓ Stir occasionally to add oxygen and add water if too dry.
- ✓ Compost is ready when it is dark in color and smells like dirt.
- ✓ Compost will be ready in 2 months to a year depending on the materials added and the time of year.

What to add…

Animal manure
(cow, rabbit, horse, ect.)
Cardboard boxes
Cardboard rolls
Clean paper
Coffee grounds and filters
Cotton rags
Dryer and vacuum cleaner lint
Eggshells
Fireplace ashes
Fruits and vegetables
Grass clippings
Hair and fur
Hay and straw
Houseplants Leaves
Nut shells
Shredded newspaper
Tea bags
Wool rags
Yard trimmings

What not to add…

- Black walnut tree leaves or twigs
  Releases substances that might be harmful to plants
- Coal or charcoal ash
  Might contain substances harmful to plants
- Dairy products (e.g., butter, egg yolks, milk, sour cream, yogurt)
  Create odor problems and attract pests such as rodents and flies
- Diseased or insect-ridden plants
  Diseases/insects might survive and be transferred back to other plants
- Fats, grease, lard, or oils
  Create odor problems and attract pests such as rodents and flies
- Meat or fish bones and scraps
  Create odor problems and attract pests such as rodents and flies
- Pet wastes (e.g., dog or cat feces, soiled cat litter)
  Might contain parasites, bacteria, germs, pathogens, and viruses harmful to humans
- Sawdust
  Can be harmful if it comes from treated (CCA) lumber.
- Yard trimmings treated with chemical pesticides
  Might kill beneficial composting organisms

Green and Growing!

When you think about water pollution does your lawn or garden ever come to mind? The United States Environmental Protection Agency (USEPA) names non-point source pollution as the major contributor to water degradation. Rainfall, as if flows across your lawn or garden, picks up excess fertilizers, pesticides and herbicides and deposits them in area creeks and lakes. It is hard to imagine your one little lawn as having any kind of impact on area waterways and as it stands alone, the impact may be minimal but the USEPA estimates that North American households use 136 million pounds of pesticides, herbicides and fertilizers every year. That amounts to 10 times more per acre than farmers use for crops.

The natural approach to lawn care will require you to back up and look at the lawn as a whole community of organisms dependent on each other. A healthy lawn requires biological activity in the soil. Microorganisms and beneficial bugs break down organic matter while earthworms keep the soil aerated with their tunnels and feed on dead and decaying matter. A healthy lawn is not necessarily a "perfect" lawn but an attractive, inviting lawn just the same.

For more information on environmental protection and stewardship contact:

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"Green"
Lawn Care

Pollution Prevention Through Education and Involvement

Tips for a Greener Lawn

- ✓ Develop and maintain a healthy soil. Test your soil BEFORE applying fertilizers. Over fertilizing will do more harm than good.
- ✓ Use a grass that is suitable for your area. Tall fescue does well in Missouri. Mix with other grasses so as to prevent a single disease from wiping out your entire lawn.
- ✓ Allow a little clover; it fixes nitrogen in the lawn.
- ✓ Set your mower to 3 or 4 inches, or the highest setting. Mowing high will produce a healthier grass with fewer pest problems. The grass will grow thicker and develop a deeper root system allowing for better drought tolerance and disease resistance.
- ✓ Keep your mower blades sharp. A sharp blade will make a clean cut preventing tearing and injury.
- ✓ Top dress the lawn with finished compost in the spring or fall.
- ✓ Overseed by sprinkling grass seed throughout the lawn in the spring and fall. This will help fill in bare spots and choke out the weeds.

Yard Waste Ordinance

In July, 2006, the Moberly City Council adopted an ordinance directly addressing yard wastes deposited on the city streets. This ordinance has little to do with the aesthetic value of clean streets, but rather was implemented to protect property and the environment.

Grass clippings, leaves and plant prunings are a significant source of problems and pollution when allowed to wash into storm drains. Yard wastes that enter the storm drain system will decrease the flow capacity and/or cause blockages, increasing the risk of street and basement flooding. Yard wastes that find their way through the storm drain system enter local creeks and lakes. As this organic matter decomposes it uses up the oxygen required by aquatic life. The excess nutrients promote algae growth further depleting the oxygen supply. Improperly discarded yard wastes create problems in the street, in the storm drain system and in local creeks and lakes.

Yard Waste Solutions

- ✓ Use a mulching lawn mower to chop leaves and grass clippings. When left on the lawn they serve as a source of slow-release nutrients and build soil organic manner. Most standard mowers can be retrofitted with a mulching blade kit.
- ✓ Leaves and grass clippings can also be used as mulch in flower and vegetable gardens. Mulch is valuable in conserving soil moisture, regulating soil temperature and suppressing weeds while building soil organic matter.
- ✓ Start a compost pile. Leaves, grass clippings and plant prunings along with (vegetable) kitchen wastes are easily composted and are a valuable soil conditioner.
- ✓ The City has a yard waste collection site at the City Street Barn. Grass clippings, leaves, plant prunings and small limbs will be accepted. Composted material can also be picked up at the City Street Barn.

The U.S. Environmental Protection Agency estimates that North American household use 136 million pounds of pesticides every year. Excessive application and misuse of pesticides results in heavily polluted stormwater runoff that is discharged directly into area lakes and streams. Homeowners use 10 times more chemicals per acre, in the form of pesticides, herbicides and fertilizers, than farmers use on crops. These chemicals are often washed off the lawn or garden with only a small amount of rainfall, or the lawn sprinkler that is used to water them in. The excess water carries these chemicals to the gutters and storm drains and deposits them in the nearest water body through the storm water drainage system.

The United States Environmental Protection Agency (USEPA) considers stormwater runoff from yards, gardens, driveways, streets and parking lots to be one of the most significant sources of contamination in the nation's waters Pesticides are one of the main groups of Persistent Organic Pollutants or POPs that are presently polluting lakes, rivers and streams throughout North America.

For more information on environmental protection and stewardship contact:

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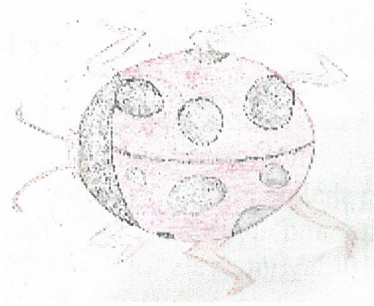
Non-toxic Pesticides



Pollution Prevention Through Education and Involvement

Mosquito control

Granulated Garlic
When broadcast on the lawn, it will repel mosquitoes for up to 30 days. Use about one cup per 1000 square feet and include the potted plants. Garlic is also good for the soil and plants as it controls fungal diseases and feeds the soil with trace minerals. The effect lasts long after the smell is gone.
Granulated garlic works equally well repelling pests on most garden plants. Always test a small area for sensitivity before broadcasting the whole crop.

USDA Recommendation for General Purpose Spray
Mix one teaspoon of liquid dishwashing detergent with one cup of vegetable oil and shake vigorously. Add a quart of tap water and apply with a spray bottle. Use at 10-day intervals for white flies, spider mites, aphids, and various insects on carrots, celery, cucumbers, eggplant, peppers and others. Spray on a single leaf or plant first to test the strength. If it causes tip burn, dilute. This is a contact insecticide, spray mist directly on the pest.

Grasshoppers
Tomato plants are a natural insect repellent. To keep grasshoppers away from your garden plant tomato plants throughout the garden rather than in just one spot. If you till your garden in the fall you can kill most of their eggs. You will need to go down about 6 inches to reach most of them. Heavy mulch will make it difficult for the survivors to get out of the ground.

Hot pepper spray works!
2 large yellow onions
1-2 cloves garlic
8-10 hot peppers or "hot sauce"
Blend all ingredients in a food processor with 2 cups of water and let stand for 12-24 hours. Strain. Use ½ cup mixture to a quart of water. Test a few leaves first to be sure it is not too strong. If it is, dilute by adding more water. Store in fridge. Hot pepper spray works on a large variety of unwanted insects. Handle with care! Will burn eyes.

Alcohol Spray
2 cups rubbing alcohol
1 quart water
Pour into spray bottle.
Apply mixture to a leaf or two and wait 24 hours to test for possible damage.
If it appears to strong, dilute.

Get to Know Your Bugs!
Entomologists estimate that more than 90% of insects are beneficial. These beneficial insects prey on the garden pests, pollinate our flowers and produce, burrow air holes to aid root growth and eat garden debris. Half of the remaining 10% are considered neutral, a part of the garden food chain, leaving only 5% that create the damage. An ideal garden has small numbers of all common bugs, and the pests need only be controlled, not eliminated. Unfortunately, pesticides kill the "good guys" along with the unwanted.
Daddy Longlegs: Most active at night, prey on aphids, mites, leafhoppers and other garden insects.
Ground Beetles: Live under paving stones and eat slugs and their eggs.
Ladybugs: Voracious aphid eaters! Ladybugs are recognized as one of the most beneficial garden insects.


Mantid , often called praying mantid.

Did you know…

Homeowners use 10 times more chemicals per acre, in the form of pesticides, herbicides and fertilizers, than farmers use on crops. A study published by the United States Environmental Protection Agency reports that North American households use approx. 136 million pounds of pesticides every year. Pesticides are one of the main groups of Persistent Organic Pollutants (POPs) that are presently polluting lakes, rivers and streams throughout North America and ultimately, our oceans. These chemicals can be washed off the lawn or garden with the lawn sprinkler that is used to water them in. The excess water carries these chemicals to the gutters and storm drains and deposits them in the nearest water body through the storm water drainage system. Over application and misuse of pesticides will result in heavily polluted stormwater runoff with even a small amount of rainfall.

For more information on environmental protection and stewardship contact:

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Pesticide Safety Tips

Pollution Prevention Through Education and Involvement

First things first…

Entomologists estimate that greater than 90% of the world's insect populations are beneficial. Beneficial insects either prey on the garden pests or contribute to garden health by eating debris, pollinating flowers, burrowing air holes or other helpful garden tasks. About half of the remaining 10% are little more than a part of the food chain. They may nibble a leaf or two before becoming a meal for the "good" bugs. Before you begin any type of pesticide treatment you must first identify the problem pest. It may be necessary to study the damage your plants receive. Try checking the underside of the leaf where many insects lay their eggs. Many pests are nocturnal and can be caught in the act after dark with a flashlight. Once the pest is identified you can better choose the least invasive method of control. Keep in mind your garden needs the good bugs and the good bugs need a few bad bugs to munch on while they tend to their garden chores.

Before you begin…

Become knowledgeable about the product you are using! Read the label carefully BEFORE you purchase it. Know exactly what you are using along with how and where it can be used.

Caution! Warning! Danger!

While pesticides are some times needed, they can be dangerous to humans, pets, wildlife and the environment. To determine the toxicity level of any pesticide to humans look for the signal words printed on the label. The least toxic products carry the signal word **CAUTION** on the label. The signal word **WARNING** is for the next level of toxicity and **DANGER** is used for the most toxic.
Always look for and use the least toxic chemical that will do the job and spot-spray just the infested areas rather than broadcasting over a wide area. Never apply pesticides when rain is eminent. Stormwater runoff during rain events will transport a large portion of the pesticide to area waterways, streams and lakes.

Getting started…

- ✓ Always check the weather forecast before applying any pesticide. Never apply pesticides when rain is eminent.
- ✓ Always read and follow label directions exactly. Look for special precautions and restrictions.
- ✓ Wear protective clothing when handling pesticides. Be sure to include safety glasses or goggles.
- ✓ Remove children, their toys and all pets from the area before treatment and keep them away until the pesticide has dried or AS RECOMMENDED BY THE LABEL.
- ✓ Do not apply outdoors on a windy day. Take precautions to keep the residue from drifting onto the adjoining property.
- ✓ Always purchase pesticides in the smallest amount needed. NEVER apply more than is recommended on the label. More is never better when dealing with pesticides.

What is a Watershed?

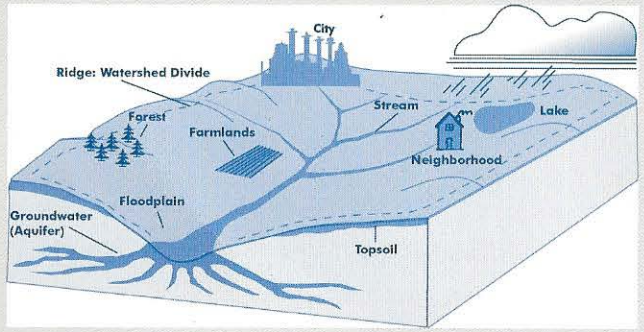
A watershed is an area of land that drains to a common point, such as a nearby creek, stream, river or lake. Every small watershed drains to a larger watershed that eventually flows to the ocean.

Watersheds support a wide variety of plants and wildlife and provide many outdoor recreation opportunities. By protecting the health of our watersheds we can preserve and enhance the quality of life for Kansas City area residents.

What is Stormwater Runoff?

Stormwater is water from rain or melting snow. It flows from rooftops, over paved streets, sidewalks and parking lots, across bare soil, and through lawns and storm drains. As it flows, runoff collects and transports soil, pet waste, salt, pesticides, fertilizer, oil and grease, litter and other pollutants. This water drains directly into nearby creeks, streams and rivers, without receiving treatment at sewage plants.

Polluted stormwater contaminates streams, rivers and lakes. It can kill or damage plants, fish and wildlife, while degrading the quality of our water.



A typical watershed system

For more information, visit www.marc.org/water or call 816/474-4240.

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600 Broadway, Suite 300
Kansas City, Missouri 64105
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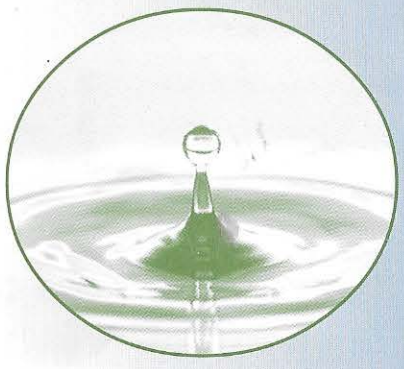
WS #5.

Pick Up After Your Pet

Summer Watershed Tip

If not disposed of properly, pet waste flows directly into waterways, untreated



Good Neighbors Care About Clean Water

Facts About Pet Waste

Every time it rains the potential exists for thousands of pounds of pet waste to wash down storm drains and into streams, rivers and lakes. If not disposed of properly, pet waste flows directly into nearby streams and creeks without being treated at wastewater treatment facilities.

Pet waste can contain bacteria that threaten the health of animals and people, especially children. Pet waste also contains nutrients that encourage excess weed and algae growth. This water then becomes cloudy and green — unattractive for swimming, boating and fishing. Excess nutrients are a major cause of water quality decline.

When pet waste is washed into lakes and streams, the waste decays, using up oxygen and sometimes releasing ammonia. Low oxygen levels and ammonia combined with warm temperatures can kill fish and other aquatic life.

Good neighbors care about clean water

What's the Problem?

A recent USGS study of streams and creeks in the Kansas City region showed that bacteria associated with pet waste was the source of approximately one-quarter of the bacteria in samples collected from local waterways.

When pet waste is disposed of improperly, water quality isn't the only thing that suffers — your health may be at risk, too.

Pets, children playing outside, and adults gardening are most at risk for infection from some of the bacteria and parasites found in pet waste. Diseases that can be transmitted from pet waste include the following:

Salmonellosis: the most common bacterial infection transmitted to humans by other animals. Symptoms include fever, muscle aches, headache, vomiting and diarrhea.

Toxocariasis: roundworms usually transmitted from dogs to humans, often without noticeable symptoms, but may cause vision loss, a rash, fever or cough.

Toxoplasmosis: a parasite carried by cats that can cause birth defects if a woman becomes infected during pregnancy, and can also be a problem for people with depressed immune systems.

Many of our local waterways do not meet state water quality bacteria standards for recreational use. Pet waste is one of the components of non-point source pollution that contributes to our water quality problems, and is one that each of us can help correct.

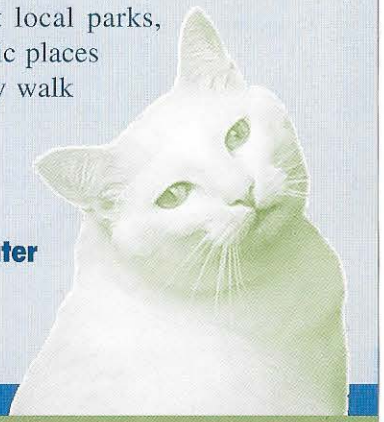
What Can You Do?

Pet waste should never enter storm drains and surface water. Many local communities require pet owners to pick up after pets when away from their property, and to pick up waste from their property if it attracts flies and can pose a health risk.

Fortunately, there are actions pet owners can take to help keep our water clean:

- Pick up pet waste from your yard. It is not a fertilizer.
- Carry disposable bags while walking your dog to pick up and dispose of waste properly. If you dispose of pet waste in the trash, wrap it carefully to avoid spillage during collection.
- Flush your pet's waste down the toilet, so it can be treated at a sewage treatment plant.
- Bury pet waste in your yard, at least 12 inches deep and cover with at least eight inches of soil to let it decompose slowly. Bury the waste in several different locations and keep it away from vegetable gardens.
- Communities are encouraged to provide pet waste disposal bags at local parks, along trails and in public places where people frequently walk their dogs.

For more information, visit www.marc.org/water or call 816/474-4240.



MARC
Mid-America Regional Council

Good For You, Good For All!

Collecting rainwater for use during drier times is an ancient and traditional practice stemming from the necessity to keep water within reach. Today we have a constant supply of water at our finger tips, but collecting rain water is still an important practice for a number of reasons.

First... During the warmer months it is estimated that nearly 40% of household water is used for lawn and garden maintenance. 40% is a substantial savings.

Second... Your lawn and garden, potted plants, trees and shrubs will thrive. Rainwater is oxygenated, with no added chlorine or fluoride and it is naturally soft.

Third... and maybe the most relevant to today, rain barrels are an important line of defense against storm water runoff pollution. Water collected in a rain barrel would normally flow off your roof and leave your yard as storm water runoff. Depending on the layout of the yard, this runoff can travel across driveways, lawns and gardens picking up pollutants and depositing them in the storm drain system and ultimately, local waterways. The pollutants include excess pesticides, herbicides, fertilizers and pet wastes from the lawn and garden, along with driveway pollutants such as grease, oil and antifreeze.

A rain barrel can save on the water bill, help the lawn and garden grow and reduce pollution. Some things never go out of style.

For more information on environmental protection and stewardship contact:

The City of Moberly
Stormwater Pollution Prevention Program

Geri Blakey, Program Coordinator
gblakey@cityofmoberly.com
660.263.7164

www.moberlymo.org
City of Moberly

WS #5.

Stormwater Pollution Prevention Program

City of Moberly!

Rain Barrels

Pollution Prevention Through Education and Involvement

Rainfall amounts and collection rates…

A modest home with a roof area of 1000 square feet can expect to collect approximately 600 gallons of water for every inch of rainfall. Note: a steeply sloped roof will collect less rainfall

To calculate the square feet of your house's roof or catchment area, measure the length of the outside walls in two directions and then add 2 feet on each for the eaves.
Example:
The house plus the eaves is 30 ft by 32 feet.
Multiply, 30x32=960 sq feet.

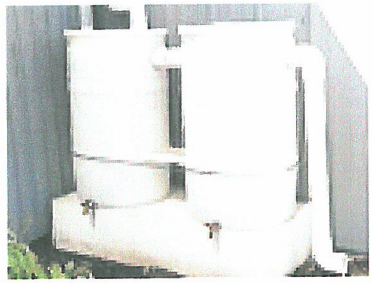
Barrels can be set up in tandem from two barrels to as many barrels as you want for larger catchment areas.

Materials, tools and equipment…

- ✓ Drill
- ✓ 1" hole bit
- ✓ Adjustable wrench or pliers
- ✓ Three-quarters inch faucet
- ✓ Jig saw
- ✓ Caulk
- ✓ Flexible downspout
- ✓ Overflow pipe and/or valve

Procedure…

- ✓ Make sure your barrel is clean and free of chemicals before starting.
- ✓ On the top of the barrel, mark the spot where the downspout will enter. Use the jig saw to make the cut.
- ✓ Mark a spot two to three inches from the bottom of the barrel for the faucet. Use the hole saw to make the cut.
- ✓ Wrap the faucet threads with Teflon tape; screw the faucet into the hole.
- ✓ Apply a liberal bead of caulk where the faucet meets the barrel.
- ✓ An overflow line should be placed somewhere near the top of the barrel.
- ✓ Elevate your barrel with cinder blocks, railroad ties or decorative stones to increase pressure and flow.



Important considerations…

- CHILDPROOF YOUR BARREL!!
  Children can drown in a very small amount of water. Secure the barrel and/or PREVENT access to small children.
- Mosquito prevention
  If you are unable to mosquito proof your barrel add 1 tablespoon of cooking oil to the barrel once a week or so. Mosquito larvae breathe through a tube like structure at the water's surface. The cooking oil will disrupt the surface causing the larvae to drown.
- Winterize you barrel
  Be sure to disconnect the downspout and empty your barrel before freezing temperatures set in to avoid the formation of damaging ice.
- Always keep the overflow valve/line open.
  During severe storms the rainfall may be excessive causing damage to your barrel or creating a backup in the downspout.
- Paint your barrel
  Barrels can be painted to look pretty or match your house.
- Prefabricated rain barrels
  Not everyone has the needed tools to build a rain barrel. Prefabricated rain barrels can be found at some local lawn and garden stores or just google rain barrels.

The United States Environmental Protection Agency and the Missouri Department of Natural Resources tout them as "micro-detention basins" for on-site treatment of stormwater run off. Developers refer to them as "Low Impact Development", the natural alternative to the traditional curb and guttering method of piping it up (storm water runoff) and shipping it out as a waste product. By whatever name you chose to call them, Rain Gardens have proven themselves to be an effective means of stormwater run off detention, storage and treatment in the urban environment as well as a beautiful, easily maintained addition to any size lawn. Rain gardens are planted in shallow depressions and designed to collect rain water run off from roofs, driveways, other impervious surfaces and the lawn and garden when they become saturated. Rain gardens keep the rain water close to where it falls, removing pollutants as it percolates through the soil on its return to recharge the ground water. Individual rain gardens may seem too small to make a difference but collectively they produce substantial neighborhood and community environmental benefits.

For more information on environmental protection and stewardship contact:

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Stormwater Pollution Prevention Program

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Stormwater Pollution Prevention Program

City of Moberly!

Rain Gardens

Pollution Prevention Through Education and Involvement

Frequently Asked Questions

Does a rain garden become a pond?
No. Rain gardens are designed to collect the rain water and then allow it to absorb slowly into the soil.

Are rain gardens a breeding ground for mosquitoes?
No. Mosquitoes need 7 to 12 days to lay and hatch eggs. Standing water collected in the rain garden will percolate out, usually in less than 24 hours. Also, rain gardens attract birds and dragonflies that eat mosquitoes.

Where should I locate my rain garden?
Near the house or garage to catch roof and/or driveway runoff or further out in the lawn to collect water from a larger area. The following should be considered in the placement

- At least 10 feet from any building so infiltrating water doesn't seep into the foundation.
- Do not place over a septic system.
- Build in full or partial sun, not directly under a large tree.

How big should my rain garden be?
Your rain garden can be almost any size you choose, but time and cost are usually contributing factors. The size of the rain garden will depend on

- How deep the garden will be
- What type of soils in the garden
- How much roof, lawn, driveway etc will drain to the garden.
- How much time you can donate for the first year or two

What do I plant in my rain garden?

- Use a majority of native plants. They typically thrive in local conditions. Many are well tolerant of spring floods and summer droughts and most have deep roots that break up clay soils for better infiltration.
- Consider how tall and how wide the mature plants will be and space accordingly.
- Locate plants in your garden based on how much water they will tolerate. Place plants that like wetter conditions in the lowest spot and those that need drier soils around the edges.

Does a rain garden require a lot of maintenance?
No. As with any new plantings, some watering and weeding will be needed for the first year or two, but once established rain gardens need only minimal attention. Mulching with shredded hardwood mulch will help deter weeds and unwanted grasses.

Where can I find help to develop and maintain my rain garden?

www.grownative.org
Mo Dept of conservation
Grow Native
PO Box 630
Jeff City, Mo. 651022

www.shawnature.org
Shaw Nature Reserve a division of Missouri Botanical Gardens

Storm Drain Stenciling

The Storm Drain Stenciling Project is sponsored by the City of Moberly to raise public awareness concerning the interconnectedness of the City of Moberly's storm drain conveyance system and local lakes, creeks and streams. Storm drains are actually part of the local watershed.

Storm drains turn every city street into waterfront property. When rain falls faster than the ground is able to absorb it, it travels downhill in the form of runoff. Rooftops, streets, parking lots and other impervious surfaces prevent the absorption of rain and create a greater volume of runoff that flows into storm drains on its way to the local watershed areas. Storm drains are usually NOT connected to the local wastewater treatment facility and therefore do NOT receive any treatment before being discharged to area waters.

Storm drain stenciling is a great activity for all types of organizations, kids and adults. Through participation members of your group will become more aware of the close link between city streets and local waterways. And you will leave behind a gentle, constant reminder for others. What goes down the storm drain will end up in your local waters.

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Storm Water Pollution Prevention Program

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Stormwater Pollution Prevention Program

City of Moberly!

Storm Drain Stenciling

Pollution Prevention Through Education and Involvement

What is a watershed?

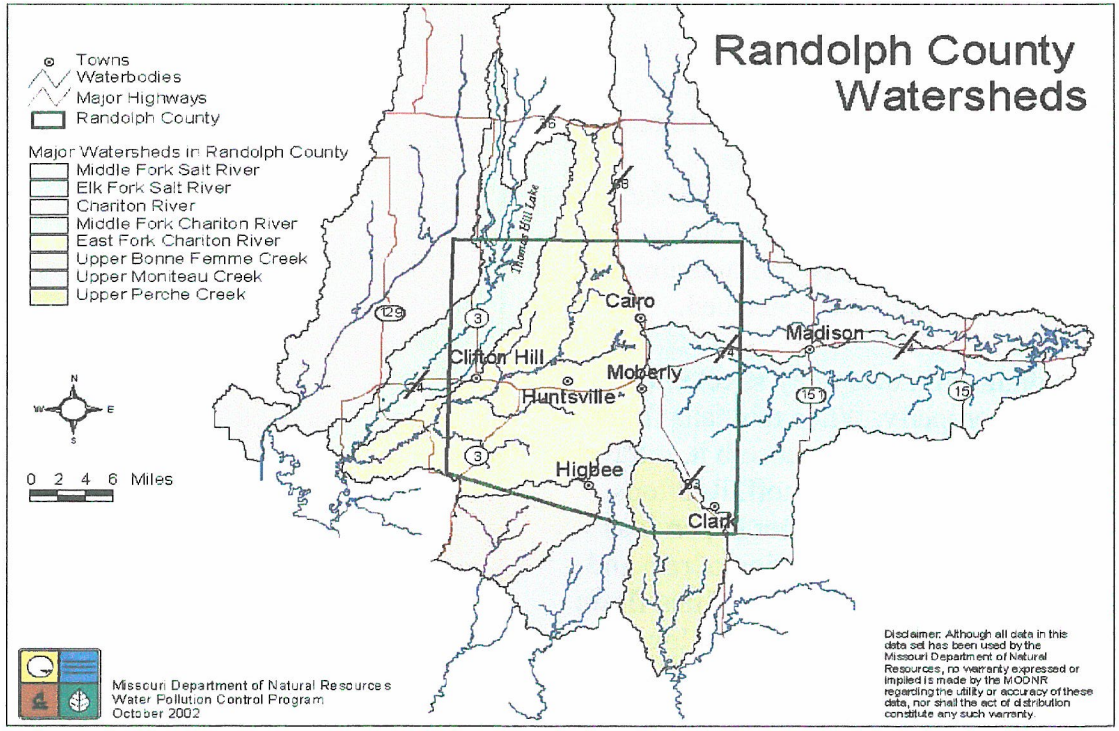
A watershed is any area of land that drains to a particular body of water or any larger area of land and it creeks and streams that drain to a larger particular body of water.

An example:

Sweet Springs Creek is one of the City's four storm water receiving streams. It accepts the storm water runoff from the southwest side of town and is approximately 11 miles in length.

- Technically, a person can stand on a bridge on Seven Bridges Rd and spit in Sweet Springs Creek and it will reach the ocean.
- Sweet Springs Creek runs into the Middle Fork of the Chariton River near Clifton Hill.
- The Middle Fork flows into the Little Chariton River over by Keytesville.
- The Little Chariton flows into the Missouri River by Glasgow.
- The Missouri River merges with the Mississippi near St. Louis and then flows all the way to the Gulf of Mexico.

Therefore, technically, a person can stand on a bridge on Seven Bridges Road and spit in an ocean a 1000 miles away…



Protecting our Watersheds begins at home...

Household Chemicals

- Chemicals commonly used in the lawn, garden and home are toxic. Use less toxic or non-toxic alternatives whenever possible.
- Buy only the amount needed and apply only as directed.
- Dispose of properly!! Never pour them down the storm drain or household drain.

Landscaping and Gardening

- Select native plants. They require less fertilizer, water and discourage pests.
- Compost yard trimmings and kitchen wastes.
- Use landscaping techniques such as grass swales in low areas and porous walkways to increase infiltration of rain water and decrease runoff.
- Install a rain garden to capture excess runoff and recharge ground water.
- Install a rain barrel under gutters or eaves to collect rainwater for use in gardens and flowerbeds.

What is a Watershed?

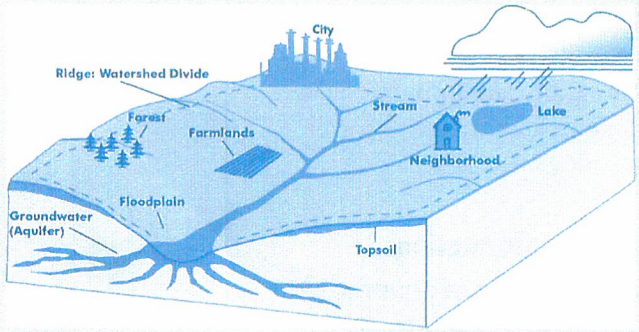
A watershed is an area of land that drains to a common point, such as a nearby creek, stream, river or lake. Every small watershed drains to a larger watershed that eventually flows to the ocean.

Watersheds support a wide variety of plants and wildlife and provide many outdoor recreation opportunities. By protecting the health of our watersheds we can preserve and enhance the quality of life for Kansas City area residents.

What is Stormwater Runoff?

Stormwater is water from rain or melting snow. It flows from rooftops, over paved streets, sidewalks and parking lots, across bare soil, and through lawns and storm drains. As it flows, runoff collects and transports soil, pet waste, salt, pesticides, fertilizer, oil and grease, litter and other pollutants. This water drains directly into nearby creeks, streams and rivers, without receiving treatment at sewage plants.

Polluted stormwater contaminates streams, rivers and lakes. It can kill or damage plants, fish and wildlife, while degrading the quality of our water.



A typical watershed system

For more information, visit www.marc.org/water or call 816/474-4240.

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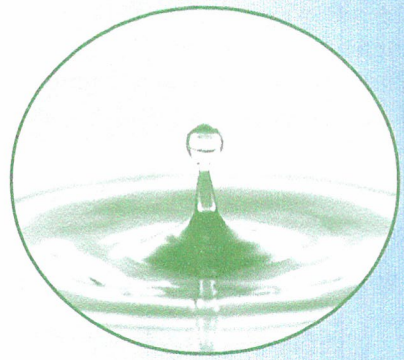

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WS #5.

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Attachment C

Chapter 34 of the City of Moberly's Code of Ordinances

Chapter 34 - STORMWATER MANAGEMENT AND CONTROL

ARTICLE I. - IN GENERAL

Sec. 34-1. - Purpose and policy.

(a) This chapter sets forth uniform requirements related to stormwater activity for the city and enables the city to comply with applicable state and federal laws. The objectives of this chapter are:

(1) To prevent erosion and sediment from land disturbance activities from creating a nuisance and entering neighboring properties and waters of the state;

(2) To prevent the introduction of pollutants into the publically owned treatment works (POTW) that will interfere with the operation of the POTW or which will pass through the POTW into receiving waters;

(3) To encourage the use of best management practices (BMPs) during construction and post construction activities;

(4) To improve the water quality in receiving streams;

(5) To provide for fees and penalties for land disturbance and stormwater permits; and

(6) To enable the city to comply with its municipal separate storm sewer system (MS4) permit.

(b) This chapter shall apply to all development, construction, and excavation activity within the city. This chapter authorizes the issuance of land disturbance permits, authorizes monitoring, compliance and enforcement activities; establishes administrative review procedures, requires land disturbance inspection and reporting; and provides for the setting of fees for the equitable distribution of costs resulting from the program established herein.

(Code 1987, § 28-185; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-2. - Administration.

Except as otherwise provided herein, the director of public utilities shall administer, implement, and enforce the provisions of this chapter. Any powers granted to or duties imposed upon the director may be delegated by the director to other city personnel.

(Code 1987, § 28-186; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-3. - Abbreviations and acronyms.

The following abbreviations and acronyms shall have the designated meanings:

(1) BMP: Best management practice.

(2) EPA: Federal Environmental Protection Agency.

(3) MDNR: State department of natural resources.

(4) MS4: Municipal separate storm sewer system.

(5) NPDES: National pollutant discharge elimination system.

(4) POTW: Publicly owned treatment works.

(5) SWPPP: Stormwater pollution prevention plan.

(Code 1987, § 28-187; Ord. No. 8799, § 1, 1-22-2013)

Secs. 34-4—34-29. - Reserved.

ARTICLE II. - ILLICIT DISCHARGES

Sec. 34-30. - Purpose and objectives.

The purpose of this article is to provide for the health, safety, and general welfare of the citizens of the city through the regulation of non-stormwater discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This article establishes methods for controlling the introduction of pollutants into the MS4 to comply with requirements of the NPDES permit process. The objectives of this article are:

(1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user.

(2) To prohibit illicit connections and discharges to the municipal separate storm sewer system.

(3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this article.

(Code 1987, §§ 28-172, 28-188; Ord. No. 8216, § 1(I), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-31. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Authorized enforcement agency means employees or designees of the city designated to enforce this article.

Best management practices (BMPs) means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Clean Water Act means the federal Water Pollution Control Act (33 USC 1251 et seq.) and any subsequent amendments thereto.

Construction activity means activities subject to NPDES construction permits. Currently, these include construction projects resulting in land disturbance of one acre or more. Such activities include, but are not limited to, clearing and grubbing, grading, excavating, and demolition.

Hazardous materials means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal discharge means any direct or indirect non-stormwater discharge to the storm drain system, except as exempted in this article.

Illicit connections means either of the following:

(1) Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system, including, but not limited to, any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to

enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether the drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency; or

(2) Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Industrial activity means activities subject to NPDES industrial permits as defined in 40 CFR 122.26 (b)(14).

National pollutant discharge elimination system (NPDES) stormwater discharge permit means a permit issued by EPA (or by a state under authority delegated pursuant to 33 USC 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-stormwater discharge means any discharge to the storm drain system that is not composed entirely of stormwater.

Person means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant means anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Premises means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm drainage system means publicly owned facilities by which stormwater is collected or conveyed, including, but not limited to, any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Stormwater means any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Stormwater pollution prevention Plan (SWPPP) means a document which describes the best management practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, or receiving waters to the maximum extent practicable.

Wastewater means any water or other liquid, other than uncontaminated stormwater, discharged from a facility.

(Code 1987, §§ 28-173, 28-189; Ord. No. 8216, § 1(II), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-32. - Applicability.

This article shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

(Code 1987, §§ 28-174, 28-190; Ord. No. 8216, § 1(III), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-33. - Responsibility for administration.

The city shall administer, implement, and enforce the provisions of this article. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the director of public utilities to persons or entities acting in the beneficial interest of or in the employ of the agency.

(Code 1987, §§ 28-175, 28-191; Ord. No. 8216, § 1(IV), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-34. - Ultimate responsibility.

The standards set forth herein and promulgated pursuant to this article are minimum standards; therefore, this article does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

(Code 1987, §§ 28-177, 28-193; Ord. No. 8216, § 1(VI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-35. - Discharge prohibitions.

(a) *Prohibition of illegal discharges.* No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

(1) The following discharges are exempt from discharge prohibitions established by this article: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising groundwater, groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if dechlorinated, typically less than one ppm chlorine), firefighting activities, and any other water source not containing pollutants.

(2) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

(3) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

(b) *When prohibition does not apply.* The prohibition shall not apply to any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

(c) *Prohibition of illicit connections.*

(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(3) A person is considered to be in violation of this article if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

(Code 1987, §§ 28-178, 28-194; Ord. No. 8216, § 1(VII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-36. - Suspension of MS4 access.

(a) *Suspension due to illicit discharges in emergency situations.* The city may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or waters of the United States, or to minimize danger to persons.

(b) *Suspension due to the detection of illicit discharge.* Any person discharging to the MS4 in violation of this article may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for a reconsideration and hearing.

(c) *MS4 access reinstated to premises without approval.* A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this section, without the prior approval of the authorized enforcement agency.

(Code 1987, §§ 28-179, 28-195; Ord. No. 8216, § 1(VIII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-37. - Industrial or construction activity discharges.

Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with the permit may be required in a form acceptable to the director of public utilities prior to the allowing of discharges to the MS4.

(Code 1987, §§ 28-180, 28-196; Ord. No. 8216, § 1(IX), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-38. - Monitoring of discharges.

(a) *Applicability.* This section applies to all facilities that have stormwater discharges associated with industrial activity, including construction activity.

(b) *Access to facilities.*

(1) The utilities director or his designee shall be permitted to enter and inspect facilities subject to regulation under this article as often as may be necessary to determine compliance with this article. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

(2) Facility operators shall allow the city ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.

(3) The city shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring or sampling of the facility's stormwater discharge.

(4) The city has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

(5) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected or sampled shall be promptly removed by the operator at the written or oral request of the director of public utilities and shall not be replaced. The costs of clearing such access shall be borne by the operator.

(6) Unreasonable delays in allowing the city access to a permitted facility is a violation of a stormwater discharge permit and of this article. A person who is the operator of a facility with a NPDES permit to discharge stormwater associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for conducting any activity authorized or required by this article.

(7) If the city has been refused access to any part of the premises from which stormwater is discharged, and he is able to demonstrate probable cause to believe that there may be a violation of this article, or that there is a need to inspect or sample as part of a routine inspection and sampling program designed to verify compliance with this article or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

(Code 1987, §§ 28-180.1, 28-196.1; Ord. No. 8216, § 1(X), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-39. - Prevention, control, and reduction of stormwater pollutants.

(a) The city will adopt requirements identifying best management practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of stormwater, the storm drain system, surface waters or groundwaters.

(b) The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premises which is, or may be, the source of an illicit discharge may be required to implement, at the person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system.

(c) Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section.

(d) BMPs shall be part of a SWPPP as necessary for compliance with requirements of the NPDES permit.

(Code 1987, §§ 28-180.2, 28-196.2; Ord. No. 8216, § 1(XI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-40. - Watercourse protection.

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

(Code 1987, §§ 28-180.3, 28-196.3; Ord. No. 8216, § 1(XII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-41. - Notification of spills.

(a) Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or waters of the nation, the person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release.

(b) In the event of a release of hazardous materials, the person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, the person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the director of public utilities within three business days of the phone notice.

(c) If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

(Code 1987, §§ 28-180.4, 28-196.4; Ord. No. 8216, § 1(XIII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-42. - Enforcement.

(a) Upon violation of a prohibition or failure to meet a requirement of this article, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require, without limitation:

(1) The performance of monitoring, analyses, and reporting;

(2) The elimination of illicit connections or discharges;

(3) That violating discharges, practices, or operations shall cease and desist;

(4) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;

(5) Payment of a fine to cover administrative and remediation costs; and

(6) The implementation of source control or treatment BMPs.

(b) If abatement of a violation or restoration of affected property are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. The notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

(Code 1987, §§ 28-180.5, 28-197; Ord. No. 8216, § 1(XIV), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-43. - Appeal of notice of violation.

Any person receiving a notice of violation may appeal the determination of the director of public utilities. The notice of appeal must be received within 15 days from the date of the notice of violation. Hearing on the appeal before the city manager or his designee shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the city or their designee shall be final.

(Code 1987, §§ 28-180.6, 28-198; Ord. No. 8216, § 1(XV), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-44. - Enforcement measures after appeal.

If the violation has not been corrected pursuant to the requirements set forth in the notice of violation or, in the event of an appeal, within 30 days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take the measures necessary to abate the violation or restore the property. It is unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

(Code 1987, §§ 28-180.7, 28-199; Ord. No. 8216, § 1(XVI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-45. - Cost of abatement of the violation.

Within 15 days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within 15 days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the city by reason of such violation. The liability shall be paid in not more than 12 equal payments. Interest at the rate of percent per annum shall be assessed on the balance beginning on the first day following discovery of the violation.

(Code 1987, §§ 28-180.8, 28-200; Ord. No. 8216, § 1(XVII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-46. - Injunction relief.

It is unlawful for any person to violate any provision or fail to comply with any of the requirements of this article. If a person has violated or continues to violate the provisions of this article, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

(Code 1987, §§ 28-180.9, 28-201; Ord. No. 8216, § 1(XVIII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-47. - Alternative compensatory actions authorized.

In lieu of enforcement proceedings, penalties, and remedies authorized by this article, the city may impose upon a violator alternative compensatory actions such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.

(Code 1987, §§ 28-180.10, 28-202; Ord. No. 8216, § 1(XIX), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-48. - Violations deemed a public nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this article is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

(Code 1987, §§ 28-180.11, 28-203; Ord. No. 8216, § 1(XX), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-49. - Criminal prosecution.

Any person that has violated or continues to violate this article shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of $1,000.00 per violation per day or imprisonment for a period of time not to exceed 30 days. The authorized enforcement agency may recover all attorneys' fees, court costs and other expenses associated with enforcement of this article, including sampling and monitoring expenses.

(Code 1987, §§ 28-180.12, 28-204; Ord. No. 8216, § 1(XXI), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-50. - Remedies not exclusive.

The remedies listed in this article are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

(Code 1987, §§ 28-180.13, 28-205; Ord. No. 8216, § 1(XXII), 5-22-2008; Ord. No. 8799, § 1, 1-22-2013)

Secs. 34-51—34-76. - Reserved.

ARTICLE III. - LAND DISTURBANCE

Sec. 34-77. - Purpose and objectives.

The purpose of this article is to establish controls on activities related to land disturbance through the following objectives:

(1) To protect the quality of local streams, lakes, and other bodies of water from the effects of increased erosion and sediment discharge.

(2) To protect the welfare of individuals and their property by reducing the amount of sediment that leaves land disturbance sites.

(3) To protect the environment and aquatic habitat of fish and other species.

(4) To reduce the need for maintenance of storm sewers and ditches as well as the dredging of lakes and ponds.

(Code 1987, § 28-207; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-78. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

City public utilities means the department that has the authority to manage, enforce, and regulate land disturbance activities within the city.

Drainageway means a natural or artificial watercourse, including, but not limited to, streams, rivers, creeks, ditches, channels, canals, waterways, gullies, ravines, or washes in which water flows in a definite direction or course, either continuously or intermittently, including any area adjacent to it that is subject to inundation by reason of overflow or floodwater and meets any of the following conditions:

(1) Provides for conveyance of stormwater runoff from an upstream property or development.

(2) Defined as waters of the United States by the U.S. Army Corps of Engineers.

(3) Supports riparian area or sensitive habitat.

(4) Tributary area equal to or greater than 20 acres.

(5) Alternation or filling will change the manner in which runoff is discharged onto a downstream property and potentially results in a negative impact to that downstream property.

Erosion control means any method, including the use of best management practices, which reduces the potential for soil particles to become dislodged and carried by wind or water.

Land disturbance includes the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity that bares soil or rock or involves the diversion or piping of any natural or manmade watercourse.

Land disturbance field manual gives requirements and guidance relating to land disturbance, similar to the land disturbance manual, but only addresses field requirements and guidance relating to land disturbance. It is intended to be used by the person performing the land disturbance and not the engineer that develops the plans.

Land disturbance manager means the person responsible for ensuring that the site is in accordance with the standard land disturbance permit as well as performing site inspections and maintaining the required records.

Land disturbance manual gives requirements and guidance relating to land disturbance

Land disturbance permit means the permit obtained from the city public utilities department prior to commencement of land disturbance activities as defined in the most current land disturbance manual.

Sediment control means any method, including the use of best management practices, used to capture or contain sediment particles after they have been eroded.

Stop work order means a written notice posted at the site of the land disturbance by the city's land disturbance inspector that requires land disturbance activities cease until requirements of the stop work order are met and signed stop work order release form is obtained. The stop work order is enforceable as provided in this Code.

(Code 1987, § 28-208; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-79. - Permits; design and construction requirements.

(a) The city shall administer and enforce this article with the issuance of land disturbance permits. Requirements and guidance for the land disturbance permit are contained within the most current edition of the land disturbance manual with a supplemental land disturbance field manual.

(b) Before conducting land disturbance activities that are equal to or greater than one acre, or are part of a larger common plan of development or sale that will disturb one or more acres over the life of the project within the city limits, a land disturbance permit must be obtained.

(c) Before conducting land disturbance activities when installing utilities with 1,000 feet or more of length within the city limits, a land disturbance permit must be obtained.

(d) Before conducting land disturbance activities located within 100 feet or more of a drainage way within the city limits, a land disturbance permit must be obtained.

(e) Before conducting fill or excavation of 50 or more cubic yards of material, not related to building of a detached single-family residential unit within the city limits, a land disturbance permit must be obtained.

(f) Land disturbance activities less than one acre in size in the city may require erosion and sediment control measures and a land disturbance permit if city public utilities deems it necessary to prevent sediment and erosion from occurring.

(g) The land disturbance manual with supplemental land disturbance field manual may be updated and expanded from time to time at the discretion of the city based on improvements in engineering, science, monitoring, or local maintenance experience.

(h) In addition to the requirements set forth by the city, all other local, state, and federal permits, ordinances, laws, and regulations relating to land disturbance must be followed. Any construction or land disturbance activity that will result in the disturbance of one acre or more must obtain a land disturbance permit from the state department of natural resources.

(Code 1987, § 28-209; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-80. - Fees.

Fees are shown in the appendix of the most current version of the city's land disturbance manual.

(Code 1987, § 28-210; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-81. - Inspections.

All land disturbance activities shall be subject to inspection by the city. Representatives of the city shall have the right to enter upon any land for making an inspection or acquiring information to determine whether the property conforms to the requirements of this article.

(Code 1987, § 28-211; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-82. - Enforcement.

The city public utilities department shall have the authority and responsibility to manage, enforce, and regulate land disturbance activities within the city.

(Code 1987, § 28-212; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-83. - Violations and penalties.

(a) All persons are required to obtain a land disturbance permit before performing any activities that are stated in section 34-79. If land disturbance activities are performed without a permit, but require a permit, or a level I violation occurs on a permitted site, the city public utilities department will place a posted stop work order at the location of the land disturbance activity. This stop work order revokes or suspends the land disturbance permit for permitted sites and stops work on permitted and non-permitted sites. The order shall state what is required prior to continuing the land disturbance activity and the time frame in which these actions must occur.

(1) In the case that the permit is revoked, reapplication for a permit is required and for suspensions the permittee must obtain a signed stop work order release from the city public utilities department prior to commencing land disturbance activities.

(2) If the stop work order is removed by anyone other than the city, or the land disturbance act continues without following the requirements of the stop work order, then the person performing the work and the owner of the property are in violation of the land disturbance code.

(3) If the land disturbance activities stop after the stop work order is posted at the site but actions required by the order are not followed within the time frame stated on the order, then the owner of the property is in violation of the land disturbance code.

(4) If the property owner chooses stop work and does not obtain or renew a permit, the property owner will still be required to reestablish the original topography and vegetation of the site prior to the land disturbance activities in a form amenable to the stormwater coordinator within the timeframe stated on the stop work order. If the property owner does not reestablish the site to standard and time stated in the order, the property owner will be in violation of this land disturbance code.

(5) Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor and each day during which any violation of the provisions of this article is committed, continued, or permitted, shall constitute a separate offense. Upon conviction of any such violation, such person, partnership, or corporation shall be punishable by a fine of not more than $1,000.00 for each offense. In addition to any other penalty authorized by this section, any person, partnership, or corporation convicted of violating any of the provisions of this article shall be required to bear the expense of restoration.

(b) The city may revoke a land disturbance permit if failure to comply with any term, condition, limit, deadline or other provision of the land disturbance permit occurs.

(c) The city may recover all attorneys' fees, court costs, stabilization of disturbed areas, cleanup costs, and other expenses associated with enforcement of this article through required fiscal securities and any other forms available.

(Code 1987, § 28-213; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-84. - Appeal of notice of violations.

Any person receiving a notice of violation may appeal the determination of the city public utilities department. The notice of appeal must be received within 15 days from the date of the notice of violation in written form. Hearing on the appeal before the director of public utilities shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the director of public utilities shall be final.

(Code 1987, § 28-214; Ord. No. 8799, § 1, 1-22-2013)

Secs. 34-85—34-100. - Reserved.

ARTICLE IV. - POST CONSTRUCTION

Sec. 34-101. - Purpose and objectives.

The purpose of this article is to establish controls on the quantity and quality of stormwater released from post construction developments through the following objectives:

(1) To protect against increased flooding and decreased water quality of downstream areas and streams due to effects of development.

(2) To protect the welfare of individuals and their property by reducing the effects of development.

(3) To protect the environment and aquatic habitat of fish and other species.

(Code 1987, § 28-215; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-102. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Administrative variance means a variance that is considered by the city to be complicated and which will require a more extensive review. These administrative variances shall be reviewed by the city engineer or outside consultants designated by the city.

Applicants means the owner and contractor who complete and sign the post-construction stormwater permit application.

Best management practice (BMP) means a measure implemented to control stormwater.

City public utilities means the department within the city that has the authority and responsibility to manage, enforce, and regulate stream buffer activities within the city.

Construction means the implementation of a proposed plan of improvements by a contractor that may include excavating, site grading, utility work, paving, building, and other activities that may contribute to the disturbance of land and elevated levels of erosion and sediment.

Design engineer means the professional engineer responsible for the design of the post-construction stormwater BMPs.

Development means the process of creating new residential, commercial, office, or other land uses through the process of construction.

Drainageway means any natural or artificial watercourse, including, but not limited to, streams, rivers, creeks, ditches, channels, canals, waterways, gullies, ravines, or washes in which water flows in a definite direction or course, either continuously or intermittently, including any area adjacent to it that is subject to inundation by reason of overflow or floodwater and meets any of the following conditions:

(1) Provides for conveyance of stormwater runoff from an upstream property or development.

(2) Defined as waters of the United States by the U.S. Army Corps of Engineers.

(3) Supports riparian area or sensitive habitat.

(4) Tributary area equal to or greater than 20 acres.

(5) Alternation or filling will change the manner in which runoff is discharged onto a downstream property and potentially results in a negative impact to that downstream property.

Erosion means the process by which the land surface is worn away by the action of wind, water, ice, and gravity.

Hydrograph means the distribution of runoff over time.

Inspector means the city representative who visits sites to check for compliance with the post-construction stormwater permit.

Permittees means the owner and contractor who obtain a post-construction stormwater permit.

Post-construction stormwater permit process means the process applicants proceed through to obtain a stormwater permit from the city.

Post-construction stormwater program means the program developed and administered by the city to regulate the quantity and quality of stormwater within the incorporated limits of the city.

Pre-development condition means the natural condition of a site before development occurred.

Professional engineer means an individual currently registered with the state board of registration as a professional engineer, practicing engineering in accordance with state law.

Sediment basin means an impoundment that captures sediment-laden runoff and releases it slowly, providing prolonged settling times to capture coarse and fine-grained soil particles.

Seeding and mulching means seeding disturbed areas with permanent grasses and spreading straw mulch to provide immediate protection against raindrops and wind erosion and, as the grass cover becomes established, to provide long-term stabilization of exposed soils.

Staff variance means a variance that is considered by the city to be minor in nature.

Stormwater means runoff generated as a result of a precipitation event.

Stormwater permit means the permit obtained from the city prior to commencement of land-disturbing activities as defined in the city post-construction stormwater manual.

Stormwater pollution prevention plan (SWPPP) means the complete package of required information submitted to the city for review and acceptance for a land disturbance permit which include drawings, land disturbance report, report checklist, and option of probable cost example worksheet.

Stormwater quality depth (SQD) means the depth of runoff from a one-year 24-hour storm.

Stormwater quality release rate (SQR) means the discharge that will drain the stormwater quality volume from the detention basin in 24 hours.

Stormwater quality volume (SQV) means the total volume of runoff from a one-year 24-hour storm.

Time of concentration (tc) means the time it takes for runoff to flow from the hydraulically most remote point in the watershed to the point of analysis.

(Code 1987, § 28-216; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-103. - Permits; design and construction requirements.

(a) The city shall administer and enforce this article with the issuance of post-construction stormwater permits. Requirements and guidance for the post-construction stormwater permits are contained within the most current edition of the post-construction stormwater manual.

(b) Before conducting development activities that are equal to or greater than one acre, or are part of a larger common plan of development or sale that will develop one or more acres over the life of the project within the city limits, a post-construction stormwater permits must be obtained. Other project requirements for post-construction stormwater permits are contained within the most current edition of the post-construction stormwater manual.

(c) Development activities less than one acre in size in the city may require post-construction stormwater permits if city public utilities deems it necessary.

(d) The post-construction stormwater manual may be updated and expanded from time to time at the discretion of the city based on changes in rules and regulations of the federal environment protection agency and the state department of natural resources, improvements in engineering, science, and monitoring, and local maintenance experience.

(e) In addition to the requirements set forth by the city, all other local, state, and federal permits, ordinances, laws, and regulations of post-construction stormwater manual must be followed.

(Code 1987, § 28-217; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-104. - Fees.

Fees are shown in the most current version of the city's post-construction stormwater manual.

(Code 1987, § 28-218; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-105. - Inspections.

All post-construction stormwater BMPs shall be subject to inspection by the city. Representatives of the city shall have the right to enter upon any land for the purposes of making an inspection or acquiring information to determine whether the property conforms to the requirements of this article.

(Code 1987, § 28-219; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-106. - Enforcement.

The city public utilities department shall have the authority and responsibility to manage, enforce, and regulate post-construction stormwater activities within the city.

(Code 1987, § 28-220; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-107. - Violations.

(a) All persons are required to obtain a post-construction stormwater permit before performing any activities that are stated in section 34-103. If activities requiring post-construction stormwater permit are performed without a permit, but require one, the city public utilities department will place a posted stop work order at the location of the activity. This stop work order stops work on non-permitted sites. The order shall state what is required prior to continuing activity and the time frame in which these actions must occur.

(1) If the stop work order is removed by anyone other than the city, or the act continues without following the requirements of the stop work order, then the person performing the work and the owner of the property are in violation of the post-construction stormwater code.

(2) If the land disturbance activities stop after the stop work order is posted at the site but actions required by the order are not followed within the time frame stated in the order, then the owner of the property is in violation of the post-construction stormwater code.

(3) If the property owner chooses stop work and not obtain a permit, the property owner will still be required to reestablish the original topography and vegetation of the site prior to activities in a form amenable to the stormwater coordinator within the timeframe stated in the order. If the

property owner does not reestablish the site to standards and time stated in the order the property owner will be in violation of this post-construction stormwater code.

(4) Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor and each day during which any violation of any of the provisions of this article is committed, continued, or permitted, shall constitute a separate offense. Upon conviction of any such violation, such person, partnership, or corporation shall be punished by a fine of not more than $1,000.00 for each offense. In addition to any other penalty authorized by this section, any person, partnership, or corporation convicted of violating any of the provisions of this article shall be required to bear the expense of such restoration.

(b) The city may revoke a post-construction stormwater permit if failure to comply with any term, condition, limit, deadline or other provision of the post-construction stormwater permit occurs.

(c) The city may recover, through required fiscal securities and any other forms available, all attorneys' fees, court costs, cleanup costs, and other expenses associated with enforcement of this article, including, without limitation, the costs of stabilizing disturbed areas and completing necessary post-construction stormwater BMPs.

(Code 1987, § 28-221; Ord. No. 8799, § 1, 1-22-2013)

Sec. 34-108. - Appeal of notice of violations.

Any person receiving a notice of violation may appeal the determination of the city public utilities department. The notice of appeal must be received within 15 days from the date of the notice of violation in written form. Hearing on the appeal before the director of public utilities shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the director of public utilities shall be final.

(Code 1987, § 28-222; Ord. No. 8799, § 1, 1-22-2013)

Attachment D

City of Moberly's Illicit Discharge Detection and Elimination Plan

Illicit Discharge Detection and Elimination Plan

City of Moberly, Missouri

Prepared for
City of Moberly, Missouri

August 2018

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Illicit Discharge Detection and Elimination Plan

August 2018

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1.0 Introduction

The City of Moberly, Missouri has developed this illicit discharge detection and elimination (IDDE) plan in accordance with the Missouri Department of Natural Resources (MDNR) National Pollutant Discharge Elimination System (NPDES) State Operating Permit Number MO-R040030 (MS4 Permit) and Ch. 34, Art. II of Moberly's Code of Ordinances (IDDE Ordinance). Per Moberly's IDDE Ordinance, the purpose of IDDE is to provide for the health, safety, and general welfare of the citizens of Moberly. The plan applies to City employees, residents, and workforce, including contractors. The objective of this plan is to develop prevention and detection procedures regarding illicit connections and illicit discharges to the City of Moberly's stormwater system.

Moberly's MS4 Permit provides the following definitions:

Illicit Connection means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge refers to any discharge to a municipal separate storm sewer that is not entirely composed of stormwater, except discharges authorized under a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from emergency fire-fighting activities.

Ch. 34, Art. II, Section 34-31 of Moberly's Code of Ordinances further defines an illicit connection illegal (illicit) discharge:

Illicit Connection means either of the following: Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency; or, any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Illegal Discharge means any direct or indirect non-stormwater discharge to the storm drain system, except as exempted (in Ch. 34, Art. II of Moberly's Code of Ordinances).

The following discharges are exempt by Moberly's IDDE ordinance, Ch. 34, Art. II, Section 34-35:

- Water line flushing or other potable water sources;
- Landscape irrigation or lawn watering;
- Diverted stream flows;
- Rising groundwater;
- Groundwater infiltration to storm drains;
- Uncontaminated pumped groundwater;

- Founding or footing drains (not including active groundwater dewatering systems);
- Crawl space pumps;
- Air conditioning condensation;
- Springs;
- Non-commercial washing of vehicles;
- Natural riparian habitat or wetland flows;
- Swimming pools, if dechlorinated (typically less than 1 ppm chlorine);
- Fire-fighting activities;
- Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety;
- Dye testing, upon verbal notification to the authorized enforcement agency; and
- Any other water source not containing pollutants.

2.0 Illicit Discharge Identification

The following sections describe the methods for identification of an illicit discharge to the City's municipal separate storm sewer system. The release or suspected release of an illicit discharge should be reported to the appropriate authorities, as described in Section 2.5. To prevent and detect illicit discharges, the City will inspect stormwater outfalls regularly, identify and inspect priority areas, and address illicit discharges, as needed.

2.1 Priority Inspection Areas

The City has identified priority inspection areas, by considering the following criteria:

- Areas with older infrastructure
- Areas that have primarily industrial and/or commercial use
- Areas with a history of past illicit discharges
- Areas with on-site sewage disposal systems
- Areas upstream of sensitive waters
- Areas that are susceptible to flooding
- Areas of active development
- Areas with significant shipping container activity or transport
- Transportation corridors
- Large paved areas or parking lots
- Gas stations and truck stops
- City Parks Department properties
- Distribution centers
- Vehicle service centers

Using the above criteria, the City has identified priority inspection areas, and had marked these locations for focused inspection on a map of the City, as shown in Appendix A. A minimum schedule for inspection of priority areas is described in Section 2.2.

2.2 Identification Plan

As discussed in Section 1.0 of Moberly's Stormwater Management Plan (SWMP), Moberly has identified 19 stormwater outfalls that discharge to four major drainage areas within the City (see Table 2-1). Appendix B includes a map with the locations of stormwater outfalls within the City. The City plans to inspect outfalls on a regular basis to provide for the health and safety of the public.

Table 2-1 Stormwater Outfall Locations

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
Outfall #4	39.4275576337	-92.4138551980	1308719.27434	1664749.95433
Outfall #5	39.4274803181	-92.4138157183	1308691.12463	1664761.13304
Outfall #6	39.4198616297	-92.4188547619	1305914.88300	1663340.25000
Outfall #7	39.4193398413	-92.4162672727	1305725.50200	1664071.39400
Outfall #8	39.4087674705	-92.4303522776	1301871.39800	1660095.31300
Outfall #9	39.4084300844	-92.4211034938	1301750.66400	1662708.62200
Outfall #10	39.4047116099	-92.4340243932	1300393.37500	1659058.85300
Outfall #11	39.4018162559	-92.4265951112	1299340.43700	1661158.94200
Outfall #12	39.3887017097	-92.4127273553	1294567.29400	1665082.22100
Outfall #13	39.3940471351	-92.4203849338	1296512.22400	1662916.27000
Outfall #14	39.3934263806	-92.4254498918	1296284.90800	1661485.07500
Outfall #15	39.3930886900	-92.4283153100	1296161.25800	1660675.38400
Outfall #16	39.4027355400	-92.4521996200	1299670.40500	1653923.60900
Outfall #17	39.4109356000	-92.4443177100	1302658.34500	1656148.95600
Outfall #18	39.4205053800	-92.4747562900	1306140.04300	1647547.96500
Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

Note: The coordinate system used is NAD83 State Plane Missouri Central (in feet), and this data is in standard UTM zone 15.

Based on the priority inspection areas established in Figure 1, Moberly will develop a list of areas of highest priority for inspection. The first inspection year will include inspections of the highest priority areas and any associated outfalls located in these areas. After the first year of inspections, Moberly plans to annually inspect a minimum of 25% of their total outfalls and at least one priority inspection area. Additional information regarding outfall inspections is provided in Section 2.3.

2.3 Significant Contributions

Moberly has identified the following significant contributors and their related parameters of concern (see Table 2-2). The City may sample for parameters of concern at each outfall, if deemed necessary, to trace potential illicit detections track significant contributions over time. Table 2-2 will be periodically reviewed by the City and updated as needed.

Table 2-2 Significant Contributors and Parameters of Concern

Significant Contributors	Pollutants of Concern
On-site sewer systems	E. coli
Animal waste	E. coli
Shipping container activity/transport	Incidental or accidental releases of chemicals/products
Litter	Debris, sediment
Residential chemical use	Pesticides/herbicides
Agricultural activities	Fertilizers, pesticides, E. coli
Vehicle service stations	Petroleum products

2.4 Inspection Procedures

Dry and wet weather outfall screening will occur annually, according to the outfall inspection plan provided in Section 2.2. Considerations for both dry and wet weather screening are provided in Table 2-3. Field observations and outfall sampling (when needed) will be performed during the inspections to further evaluate discharges. An inspection form for outfall inspections is provided in Appendix C.

Table 2-3 Outfall Screening Considerations

Screening Type	Strategies/Considerations
Dry weather	• Appropriate screening times include during dry weather (a minimum of 48 hours after a rain event) when trees are not shedding • If necessary, place sandbags at the outfall to pond flow for sampling • Note travel of stormwater • Complete the inspection form, collect a grab sample, and document the inspection with photographs
Wet weather	• Appropriate screening times include during wet weather (a maximum of 48 hours after a rain event but preferably within 24 hours) • Note travel of stormwater • Complete the inspection form, collect a grab sample, and document the inspection with photographs

Sampling will include a grab sample at each outfall, which will be analyzed in-house at the City's laboratory. If the City decides to further investigate a particular pollutant source, the City may also use a

certified laboratory for sample analysis. The list of parameters that the City may sample for include, but are not limited to:

- 5-day biological oxygen demand (BOD_5)
- Ammonia (NH_3)
- Chemical oxygen demand (COD)
- Chloride
- Chlorine
- Conductivity
- E. coli
- Hardness, Total
- Metals, Total
- Nitrogen, Total
- Oil and grease
- pH
- Phosphorus, Total
- Surfactants
- Temperature
- Total Suspended Solids (TSS)

Data from each outfall inspection and sample analysis will be kept in City records, so that stormwater quality data can be reviewed or analyzed as needed.

2.5 Source Tracing

If evidence of an illicit discharge is reported to Moberly or discovered during an inspection, the Public Utility Department will take the following steps:

1. The inspector will systematically examine structures upstream of the discovered discharge until evidence of the discharge is no longer present or a source is located.
2. The inspector may take sample(s) of the discharge upstream and at the outfall to determine potential sources.
3. The inspector will attempt, through systematic inspection (and using data, if needed), to locate the source of the illicit discharge.
4. If a source cannot be located through systematic inspections, then Moberly may also consider dye testing, televising, or smoke testing as additional tools to help identify the source.
5. Once the potential source is discovered, Moberly will identify and contact the responsible party to initiate corrective actions. Section 3.0 provides further detail regarding illicit discharge enforcement.

3.0 Illicit Discharge Reporting

In the event of an illicit discharge, or upon the suspected release of an illicit discharge, emergency response agencies will be notified immediately.

Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetland, or area like a road ditch that drains into one of the above. If applicable, report oil releases to:

National Response Center
(800)-424-8802

It is required by state law that spills of a petroleum product in excess of 50 gallons be reported to the MDNR. Spills of hazardous materials should be reported to both the MDNR and the City immediately. In addition, any reportable spills of oil or any spills of hazardous materials will be reported to the following number:

Missouri Department of Natural Resources
24-hour Spill Line
(573) 634-2436

In the event of any type spill that is reported to the state or federal government, the City will also be notified.

City of Moberly, Public Utility Department
(660) 269-8705, ext. 2073

City of Moberly, Police Department
(660) 263-0346

In the event of a release of a non-hazardous material, authorized enforcement agencies will be notified in person or by phone no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed to the Director of Public Utilities within three business days of the original notice.

If the discharge of prohibited materials originates at a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record for a minimum of three years that includes a description of the discharge and actions taken to prevent its recurrence.

4.0 Emergency Spill Response Plan

The City's Emergency Spill Response Plan provides procedures for city staff to respond to and mitigate releases and spills. The City maintains this plan and ensures that all appropriate city staff have access to a copy of the plan. Emergency responders are trained to respond to spills and releases and to take appropriate safety measures.

Emergency responders will coordinate with the City's Public Utility Department to notify them of releases. If the release or spill is from an unknown source, the City will attempt to identify the source of the release using the procedures outlined in Section 2.5. The City's current Emergency Spill Response Plan is provided in Appendix D.

5.0 Enforcement

If a person or entity that violates a prohibition or failed to meet a requirement of Chapter 34, Article II of Moberly's IDDE ordinance, the authorized enforcement agency may order compliance by written Notice of Violation to the responsible person. Such notice may require without limitation:

1. The performance of monitoring, analyses, and reporting;
2. The elimination of illicit connections or discharges;
3. That violating discharges, practices, or operations shall cease and desist;
4. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
5. Payment of a fine to cover administrative and remediation costs; and
6. The implementation of source control or treatment Best Management Practices (BMPs).

Violators may also be subject to suspension of their MS4 discharge access and criminal prosecution to the fullest extent of the law.

If abatement of a violation and/or restoration of affected property are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

Violators have the option to appeal a Notice of Violation; Moberly's decision regarding an appeal shall be final. If violations not corrected as outlined in the Notice of Violation or hearing decision, authorized enforcement agencies may take any and all measures necessary to abate the violation and/or restore the property and the property owner will be notified of the abatement costs within 15 days after abatement. The property owner may file a written protest of the abatement costs within 15 days of the assessment.

In lieu of enforcement proceedings, penalties, and remedies authorized by Chapter 34, Article II of Moberly's Code of Ordinances, Moberly may impose alternative compensatory actions upon a violator, such as storm drain stenciling, attendance at compliance workshops, creek clean-ups, etc.

6.0 Education and Outreach

Education and outreach efforts are performed by the City to inform citizens about IDDE. Educational materials developed by the City of Moberly are included in Attachment B of Moberly's Stormwater Management Plan. For the 2019-2023 MS4 Permit cycle, the City of Moberly will conduct IDDE outreach activities to businesses, industries, and the public on a calendar year basis, as outlined in Table 6-1. The City will continue to develop outreach methods and will add to this list, as needed. Moberly's Stormwater Management Plan provides additional information regarding stormwater education and outreach for the City.

Table 6-1 City of Moberly Outreach Plan, 2019-2023

Outreach Type/Event	Outreach Targets	Outreach Methods
Printed Brochures	Business owners, developers, general public	Written information
Breakfast Education Meeting	Industry-specific targets	In-person presentations, written information
Education Conference with Economic Development and Chamber of Commerce	Business owners, industry, developers, general public	In-person presentations, written information
Meetings with Developers/Land-owners on Construction Activities	Industry, developers, land-owners	In-person communication, written information

Appendix A

Priority Inspection Areas Map

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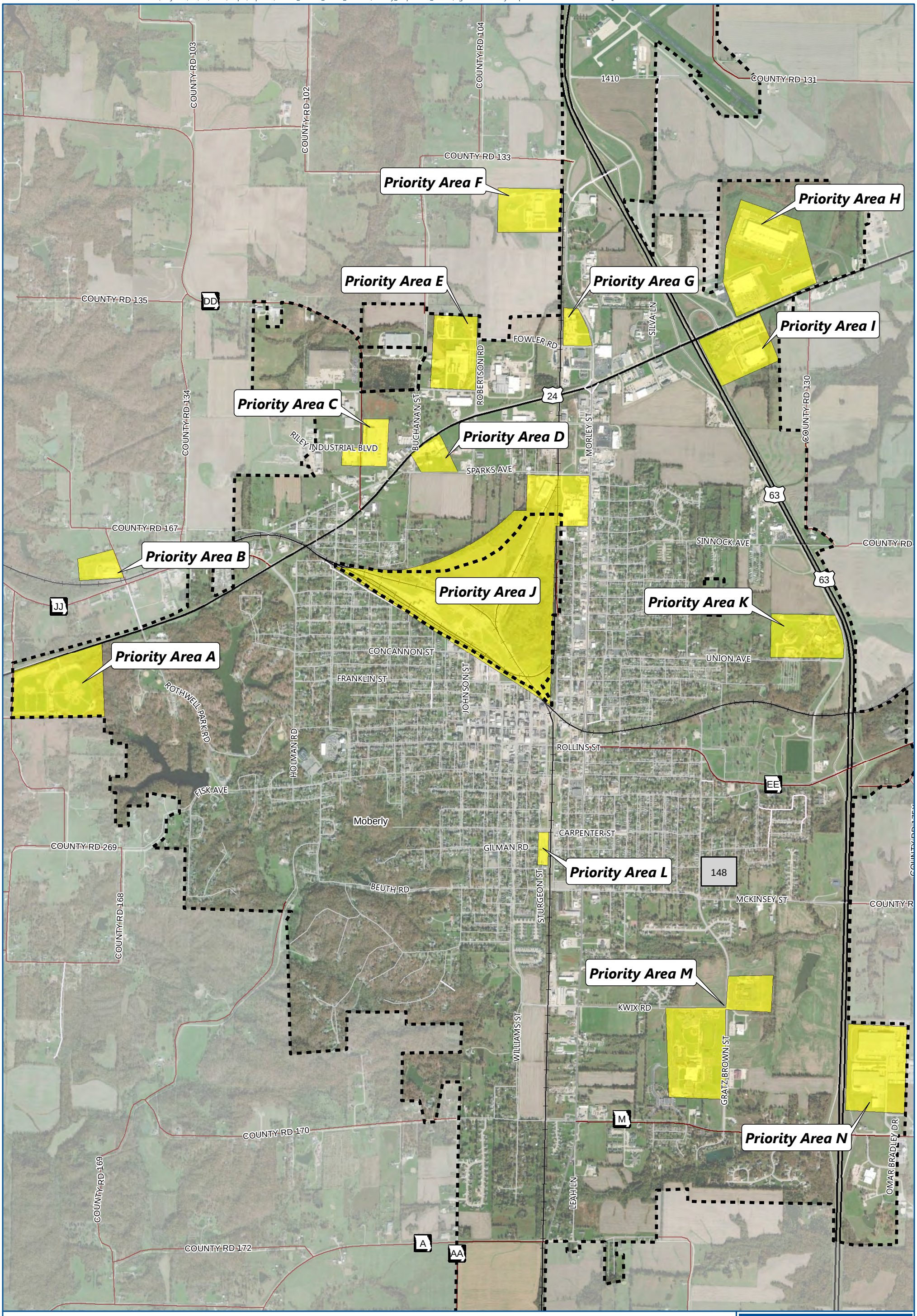
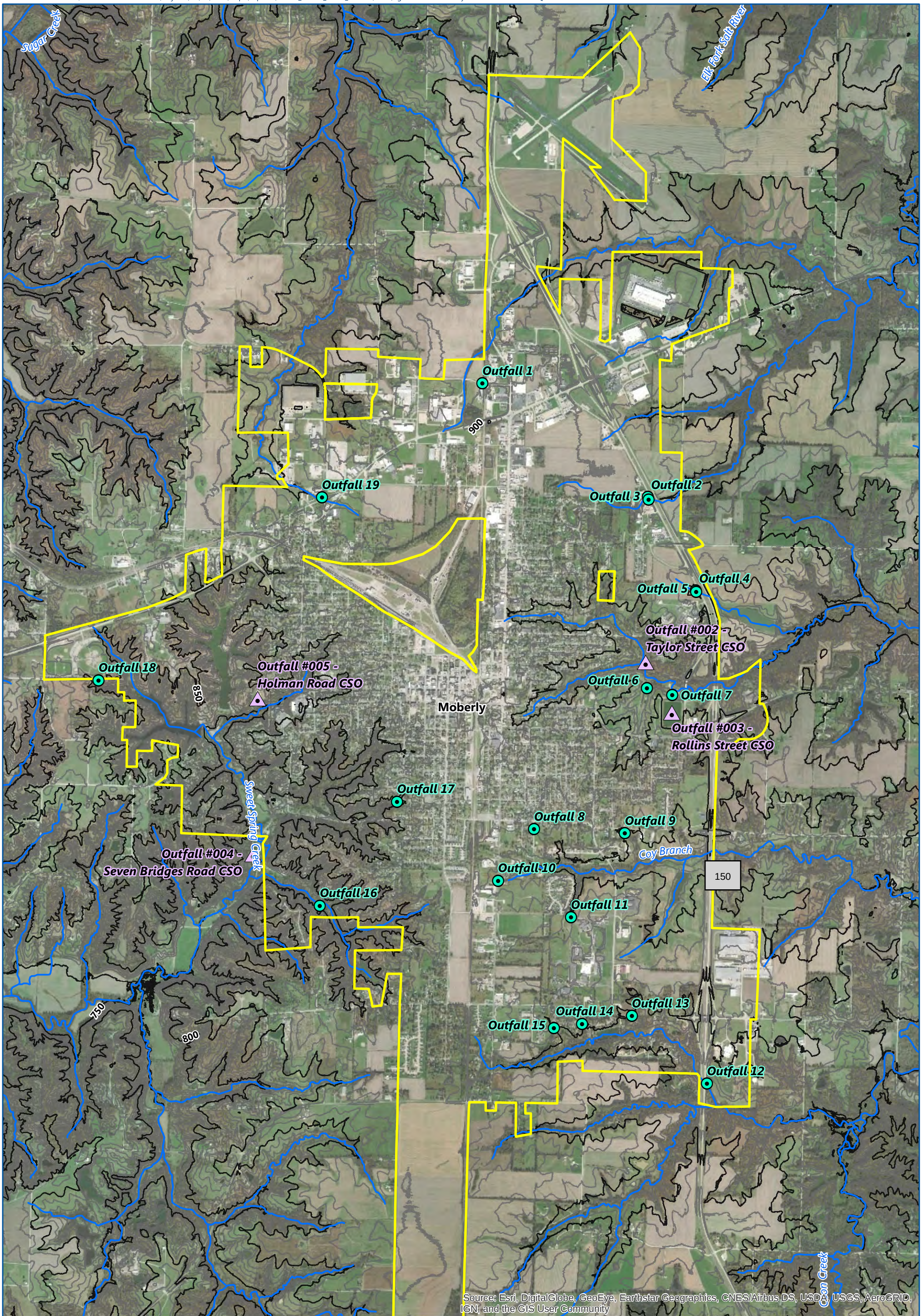


Appendix B

MS4 Outfall Map

Barr Footer: ArcGIS 10.6, 2018-07-15 12:36 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\2018\Figure02 MS4 Moberly Outfalls.mxd User: MRQ



Proposed Outfall Location

Combined Sewer Overflow Locations (Approximate)

National Hydrography Dataset (NHD) Flowline

Municipal Boundary

Surface Elevation Contours

50 foot

10 foot

N

0 3,250 6,500

Feet

BARR

MOBERLY MS4 OUTFALLS

City of Moberly

Moberly, MO

Appendix C

MS4 Outfall and Illicit Discharge Inspection Form

City of Moberly
MS4 Outfall and Illicit Discharge Inspection Form

GENERAL INFORMATION

Outfall Number: **Watershed/Priority Area:**

Date: _____ **Time:** _____ **Inspector:** _____

Weather: ☐ Clear ☐ Overcast ☐ Rain

Rain Totals: in 24 hours: _____ in 48 hours: _____

Sample #: _____

Photo #(s): _____

SITE INFORMATION

Flow Observed: ☐ Yes ☐ No **Channelized Flow:** ☐ Yes ☐ No

Erosion at Outfall: ☐ Yes ☐ No

VISUAL OBSERVATIONS

Biological: ☐ Fish ☐ Algae ☐ Eggs ☐ Bacteria ☐ Larvae ☐ Iron Bacteria
Other: _____

Clarity / Color: ☐ None ☐ Clear ☐ Opaque ☐ Gray ☐ Red ☐ Green ☐ Yellow ☐ Brown
Other: _____

Deposits / Stains: ☐ None ☐ Mineralization ☐ Petroleum ☐ Sediments
Other: _____

Floatable: ☐ None ☐ Litter ☐ Oil Sheen ☐ Sewage ☐ Suds
Other: _____

Odor: ☐ None ☐ Petroleum ☐ Sewage ☐ Rotten Eggs (Sulfur) ☐ Musty
Other: _____

Structural Condition: ☐ Normal ☐ Cracking ☐ Spalling ☐ Corrosion ☐ Clogged
Other: _____

Vegetation Condition: ☐ Normal ☐ Inhibited Growth ☐ Bare ☐ Excessive Growth
Other: _____

Comments: _____

_____

RECOMMENDED FOLLOW-UP

☐ Contact landowner _____

☐ Conduct tracing/sampling of discharge _____

☐ Follow up on reported concern _____

☐ Other actions needed _____

Additional Comments:

_____

_____

Appendix D

Emergency Spill Response Plan

Emergency Response Plan

for Spills and Illicit Discharges

Department of Public Utilities

City of Moberly, MO

Compiled by Geri Blakey

Emergency Response Plan for Spills and Illicit Discharges
Department of Public Utilities
City of Moberly, MO
Spill Response Plan

Introduction:

Hazardous materials incidents are a fact of life in communities around the world and must be recognized as such. Catastrophic emergencies created by hazardous materials incidents may pose a serious threat to the local WasteWater Treatment Facility, sewer systems and area waterways. Municipalities and local governments are often completely on their own during the first stage of almost any hazardous materials incident. The City of Moberly Public Utilities Department shall strive to be prepared for such incidents with an Emergency Response Plan designed to handle hazardous materials. The goal of this plan is to protect the community and the environment served by the City of Moberly's WasteWater Treatment Facility.

Catastrophic emergencies that may be encountered include:

- Railroad or trucking accidents involving toxic, flammable or explosive chemicals or strong, highly corrosive acids or bases,
- Accidents involving radioactive materials,
- Accidents involving unknown substances,
- Spills, accidental and/or deliberate discharges by industries,
- Spills, accidental and/or deliberate discharges by individuals,

In the event the Public Utilities Emergency Response Plan should overlap with the Randolph County Local Emergency Operations Plan, the Randolph County Local Emergency Operations Plan shall take precedence.

Purpose:

The purpose of this document is to outline the Department of Public Utilities' coordinated spill response plan and procedures. This document will be used as a reference by the Public Utilities, Police and Fire Department staff and all other entities that may be involved in fielding calls and/or responding to incidents. This document is intended to reflect the essential steps necessary to initiate, conduct and terminate an emergency response action.

Definitions:

"Hazardous Materials" generally refers to petroleum, petroleum products, radioactive materials, acutely toxic chemicals and other toxic chemicals**.**

"LEOP" refers to the Randolph County Local Emergency Operations Plan, revised 3/30/2004.

"RCRA" refers to the Resource Conservation and Recovery Act (of 1976). This act established a framework for the proper management and disposal of all wastes.

"Receiving Stream" is defined as any body of water that receives discharge from the City of Moberly sanitary, combined and/or separate sewer system and is permitted through the MoDNR

"Spill" is defined as any discharge, accidental or deliberate, that may enter the "Waters of the State" and has or may have the potential to harm humans, wildlife and/or the environment. This definition also includes any discharge, accidental or deliberate, that may cause harm to the Municipal Wastewater Treatment Facility and/or "pass through", untreated, into the environment.

"Waters of the State" means any and/or all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of

surface and subsurface water, natural and artificial, lying within or forming a part of the boundaries of the State of Missouri which are not entirely confined or retained completely upon the property of a single person.

"WWTF" is an acronym for the City of Moberly's Waste Water Treatment Facility. The facility is located approximately 2.5 miles east of Moberly, on State Rd EE. Turn north on County Rd 2350. Turn west immediately after crossing the RR tracks.

Plan Distribution:

The following will receive a copy of the Spill Response Plan:
City Manager,
Director of Public Utilities,
Chief Operator, WWTF,
Industrial Pretreatment Coordinator,
Distribution and Collection Superintendent,
Distribution and Collection Foreman,
Public Works Director,
Public Works
Fire Department, Chief
Fire Department LEOP Coordinator,
Police Department, Chief,
Police Department, Assistant Chief,

NOTE:

According to the National Response Team, Emergency Planning Guide this plan should be made available to the public for comment and/or revue. Web site? City Hall?

The spill response plan includes:

1. Contact appropriate individuals,

2. Control the area of concern,

3. Contain the spill,

4. Cleanup the area.

1. Contact

A. Spills may be reported by the following:

Local citizens,

City employees,

State/County employees,

Commercial/Industrial employees or officials,

Health Department,

Police Department,

Highway Patrol

B. Spills may be reported to the following departments:

911 emergency,

Fire Department,

Police Department

Public Utilities Department,

Street Department,

Randolph County Sheriff's Office,

Randolph County Health Department,

C. Assistance from other Departments

1. The Moberly Police Department: 660.263.0346

Command center,

Activation of notification processes,

Traffic and crowd control,

Evacuation procedures,

The command center will complete a message form (see Attachment A) for each message sent or received.

NOTES:

In the event evacuation procedures are required, the Randolph County LEOP will take effect.

In the event evacuation procedures require “safe housing” for the evacuees, the Randolph County LEOP will take effect.

2. The Moberly Fire Department: 660.269.8705 ext. 2035

Coordination center,

Containment supplies, including:

Hazmat contacts,

List of chemicals used by individual industries,

Fire control

Search and Rescue,

SCBA equipment,

Radiological Monitoring Equipment, One (1) Self Support Kit,

Personnel emergency first aide/medical treatment,

General public first aide/medical treatment,

NOTE:

In the event City personnel or the general public require emergency first aide and or medical treatment the Randolph County LEOP will take effect.

3. Water Department, Distribution and Collection

Available resources

Personnel

Blower,

Vactor truck,

Traffic cones,

Traffic signage,

Barricades,

Portable pumps,

Gas meter,

Safety vests,

Vehicles,

Backhoe (2)

Mini excavator

Equipment operators,

4. Public Works/Street Department

Available resources

Personnel,

Vehicles,

Traffic cones,

Traffic signage,

Backhoe,

End loader,

Safety vests,

Sand,

Barricades,

Equipment operators,

5. Wastewater Department

Available Resources

Personnel,

Tractor,

Personal floatation devices,

Boat/oars,

Vehicles,

Equipment operator,

6. Parks Department

Available resources

Boat/Motor

Vehicles

Personnel

7. Radio Station

Public announcements

8. Industry Contacts

See attachment E

9. MoDNR Emergency Response Personnel

10. USEPA Emergency Response Personnel

In the event of a major spill and/or chemical hazards the Director of Public Utilities shall be notified first and be recognized as the "person in authority".

The "person in authority" will take notes of all events to the best of his/her ability. These notes shall contain:

Names of persons contacted and the time of contact.

Brief statement concerning the reason for the contact.

Decisions made concerning the spill and/or containment and/or clean up.

City Manager

Brian Crane

Office: 660.269.9907

Cell: 660.998.0137

Home address: 812 Fox Run Moberly, Mo

Director of Public Utilities

Mary West

Office: 1.660.269.7659

Work Cell: 660.651.7565

Home address: 514 E. Rollins

The Director of Public Utilities, or his/her designee, shall be responsible for any press releases to the local radio stations, newspaper and/or any other local media.

In the event the Director is unavailable The WWTF Chief Operator shall be notified.

WWTF Chief Operator

Ben Riles

WWTF: 1.660.269.9437

WWTF Cell: 1.660.998.0145

Personal Cell: 1.660.353.8041

Home address: 1682 CR 2756 Moberly

The following is a list of personnel that may need to be notified in the event of an emergency spill:

WWTF Operator

Doug Farrow

Work: 1.660.269.9437

Cell" 660.676.3684

Home address: 711 E. Terrilll Rd

Industrial Pretreatment Coordinator

Del Hulett

Office: 1.660.269.9437

Personal Cell: 1.660.833.9969

Home address: 1817 CR 2285 Moberly, Mo

Storm Water Management

Geri Blakey

Office: 660.263.7164

Cell: 660.353.9769

Home address: 606 E. Terrill Rd Moberly, Mo

Superintendent, Water Distribution and Collection

Tim Patrick

Work Cell: 660.998.0127

Home address: 2107 Highway M, Moberly

Foreman, Water Distribution and Collection

Chris Bohm

Work cell: 660.998.0128

Public Works/Street Department

Tim Grimsley

Office: 660.269.9451

Work cell: 660.651.6878

Home address: 2644 CR 2480 Higbee, MO

Roger Young

Office: 660.269.9450

Cell: 660.353.1628

Water Filtration Plant

Chief Operator: Matt Everts

Work phone: 660.269.9410

Cell: 660.353.8058

Home Address: 1059 PR 1224 Moberly, Mo

Fire Department

Fire Chief: George Albert

Office: 660.269.7635

Cell: 660.353.0790

Home address: 1000 Shelby Dr 6A Moberly, Mo

Police Department

Troy Link

Office: 660.269.7629

Cell: 660.651.5104

Home address: 730 Meadowbrook Cir Moberly, Mo

Watch Commander

Cell: 660.998.0125

Parks and Recreation Department

Troy Bock

Cell: 660.998.0139

Emergency Management Director

Jim Charrier

Phone: 660.353.0368

MoDNR Emergency Response Team

EPA Emergency Response Team

In the event the material is not an immediate threat to life and property

Notification will be limited to:

a. Director of Public Utilities,
b. Wastewater treatment facility, Chief Operator,
c. Industrial pretreatment inspector,
d. Collection system personnel,
e. Storm water management
f. Other concerned or involved agencies (MoDNR, EPA),

2. **Control**

The initial size-up and risk/benefit analysis of all tactical considerations shall be identified early in the incident. This will have a major impact on the recovery/clean up processes later.

First Responders.

The priorities for all who respond to hazardous materials incidents are first, protecting life, second, protecting the environment and third, protecting property and equipment.

The first responder on the scene will:

1. Evaluate the situation as quickly as possible with out putting him/herself in danger,

Questions of importance

A. Will traffic control be needed?
   Moberly Police Department
B. Will the area need to be barricaded?
   Street Department,
   D and C Crew,

C. Will the spill require evacuation in the immediate area of the spill, along the path the spill will travel? How large a buffer area is needed?
   Toxic fumes,
   Explosive possibility,
   Police Dept,

D. Can the spill be contained before it enters the stormwater drainage system or any waters of the state?

2. Contact the command center to activate the notification procedure, Initially, the first responder on the scene should only have to make one phone call. The command center will relay all information to the appropriate departments and personnel involved.

3. The following information shall be reported to the command center:
   Physical address of the spill,
   Contaminants present, if known and/or possible contaminants,
   Present dangers/hazards, if known and/or possible dangers/hazards, i.e. flammability, explosion potential, etc.,
   Personnel to be notified,
   Departments to be notified,
   Equipment and/or supplies needed,

3.Containment

Because protection of the environment is second only to protection of life, the tactical consideration used to handle a hazardous material emergency must be based on the overall effect those tactics will have on the environment.

When formulating tactical considerations aimed at minimizing impact to the environment, the emergency responders are simultaneously improving the recovery potential and minimizing the clean up that is required.

Procedure to follow in the event the spill is flammable, toxic and/or hazardous.

A. Flammable, Toxic and/or hazardous materials.

Questions of importance:

1. Is the source of the spill known?

a. If yes, request all MSDSs related to the material.

b. If no, request the aid of the Hazmat Crew via the Moberly Fire Department. (Response time will be at least 1 hour.)

2. What is the approximate volume of the spill?

3. What field test equipment is available for immediate use?

a. pH meter for acidic or base conditions,

b. gas detector for flammability,

(What field test equipment is available from the MFD?)

4. Can the spill be contained before it enters the sanitary sewer and /or stormwater system?
   a) Storm drains blocked,
   b) Sand bags,
   c) Pillows,
   d) Vactor truck,
   e) Containers,
   f) Sump hole,

In the event the spill has reached the sanitary sewer and/or stormwater system.

Questions of importance:

1. Can the system, in the area of the spill either minimize gas accumulation or enhance the opportunity for release of gases?
2. Is the system, in the area of the spill gravity flow or force main?
3. Are there any dead spots in the system, downstream of the spill that may cause flammables to accumulate?
4. What oxidants are present in the system that may support flammability or promote explosion?

a. Oxygen,
b. Hydrogen peroxide,
c. Chlorine gas,

Notes:

1. Compounds that present the biggest risk to the sewage system are flammable liquids with low solubility, are lighter than water and have low boiling points or high vapor pressures (volatile). Liquid hydrocarbons are confirmed to pose a significant danger of fire or explosion in a wastewater mixture.

Assess the situation:

1. If unknown, use the gas detector at nearby manholes to determine flammability.

a. In the event the material is known to be or is determined to be flammable, manhole covers can be removed at all locations where gas is detected in order to dissipate or dilute the gas. An attendant or a barrier should be left at the open manholes.

b. If a manhole upstream of the spill can be located where the gas is yet undetectable, a blower can be used to dissipate the gas. Make certain, ***before*** **the blower is started** that **NO gas is detectable** as the blower may spark and ignite any gas that is present. If a blower can be used, replace all manhole covers along the route. This will prevent the fresh air introduced into the sewer from escaping through the path of least resistance.

2. Whenever possible shut down the pumps at the closest lift station downstream of the spill in order to contain the material.

3. The vactor truck can be used to remove the material from the lift station wet well.

a. In the event the amount of material is greater than the vactor truck capacity containers to store the material should be available …….

4. In the event the spill is of a volume that cannot be contained by the lift station capacity, and/or in the event the material is of a nature that would cause harm to the WWTF and/or pass through the WWTF the material can be diverted to the Rollins Street CSO (Outfall #3) and/or the Seven Bridges Road CSO (Outfall #4) for the purpose of containment and cleanup.

Diversion procedures

Diversion to the Seven Bridges Road CSO (west lagoon) can be accomplished by shutting down the pumps at the lift station. The pump control panel is located inside the building. Normally, only one pump is running at any given time. Observe which of the three pumps is running, then turn the auto/off/on switch to the off position.

To divert the flow to the Rollins Street CSO (east lagoon) the gate will need to be closed. Inside the building, next to the north window, is the control panel. Turn the on/off switch to the off position, and then push the down button until the gate closes. In the event the key to the building is not available, the gate, which is located directly north of the old east plant building, can also be closed manually. Push the lever on the back of the motor to the hand position and crank the handle. This may take a large number of turns due to the gear ratio. The gate is visible from the top of the structure. The lagoon return valve, located along the east fence line must also be closed. It is a left hand valve.

Notes:

The decision to divert the flow to either of the lagoons will be dependent on:

a. The current water level in the lagoon/s,
b. If rain is eminent or already falling,
c. Amount of snow melt expected,
d. The estimated amount of flow that will be diverted.

5. In the event the estimated flow is too great to be diverted to the lagoons and must be allowed to flow to the WWTF and/or in the event the flow has already reached the WWTF the following modes of operation are available:

A. The WWTF can be operated in a mock storm mode.

Observe which of the two SBR basins has the lowest level. This SBR will be used to collect the pollutants and will be referred to as “the collection basin”..

Operational controls for “the collection basin”.

- Ensure the collection basin sludge pump control button is in the off position on the PLC control panel.
- Ensure the collection basin decant valves are closed and in the off position on the PLC control panel.
- If not already, open the influent valve to the collection basin and leave in the manual position

1. The remaining SBR will be referred to as “the idle basin”.

Operational controls for “the idle basin”.

- Close the influent valve to the idle basin and turn to the off position on the PLC control panel.
- Turn off any blowers that may be running in the idle basin.
- Close any blower valves that may be open in the idle basin.

Immediately begin making storage space available.

- Observe which of the two digesters has the lowest level.
- Start pumping sludge from that digester to the sludge holding basin.
- *Start the sludge pump in the idle basin and pump sludge to the digester that is emptying into the sludge holding basin. This will lower the level in the idle basin while the collection basin accepts the pollutants.
- Open the gate valve fully, at the post equalization basin, in order to release the maximum amount possible.
- Observe the settleability in the idle basin. As soon as possible open the decant valve to lower the level in the idle basin. Observe the discharge. Allow the idle basin to discharge as long as the effluent is of a good quality.

The Hazmat Team should have the field test equipment needed to monitor the influent. When it is determined that all the pollutants have been collected, **"the idle basin"** can begin filling. The idle basin will be used on a pass through basis.

- Open the influent valve on the idle basin.
- Continue pumping sludge from this basin to maintain as much capacity as possible.
- Close the influent valve to the collection basin.
- Close one of the decant valves in the idle basin. This will provide equalization between the incoming and out going flows. In the event it is raining, or has recently rained, both decant valves will need to be left open.
- Adjust the post equalization basin gate valve to a nearly closed position. This will allow for maximum settling and retention of any solids that are carried over to the post equalization basin. Monitor the post eq basin for capacity and adjust as necessary to prevent overflow.

In the event the spill is on the east side of town and will not at any time reach the Seven Bridges Road CSO (west lagoon), the pumps at the west lagoon can be turned off.

This can be done without regard to the level of the lagoon for the following reason:

a. This is a MoDNR permitted discharge point,
b. The discharge from this lagoon receives primary treatment.
c. The discharge from this lagoon is consistently under the MoDNR mandated limits.
d. The diversion of this flow will greatly increase the storage capacity of the WWTF.

Note: In the event partially treated and/or untreated sewage must be released to a City of Moberly MoDNR permitted receiving stream in order to contain a potentially more hazardous substance a press release will be provided to the local radio stations (Attachment C). This announcement will contain the following information:

Date of discharge,

Time discharge was initiated,

Duration of the discharge,

Approximate amount of discharge,

Receiving stream,

Location along the receiving stream where the discharge enters the stream,

What type of treatment the discharge has received,

Potential hazards related to the discharge.

In the event a toxic/hazardous spill reaches the storm drain system:

Questions of importance:

1. What waterway will receive the spill?

a. Where along the waterway will the spill enter?

2. What is the approximate volume of the spill?

3. Is the source of the spill known?

c. If yes, request all MSDSs related to the material.

d. If no, request the aid of the Hazmat Crew via the Moberly Fire Department. (Response time will be at least 1 hour.)

4. What field test equipment is available for immediate use?

c. pH meter for acidic or base conditions,

d. gas detector for flammability,

(What field test equipment is available from the MFD?)

5. What is the volume of flow already present in the stream?

a. Has there been a recent substantial rain?

b. Is it currently raining or is rain eminent?

c. Heavy snow melt in progress?

All local waterways that receive discharges from the stormwater drainage system shall be designated on the system map. The earliest point of entry of the system into these waterways shall also be designated, along with all accessible points on the waterways.

Earth moving equipment and/or operators for the purpose of building dams and/or other containment structures such as sump ponds, are available locally.

1. Street barn,

a. End loader
b. Dump trucks
c. Bull dozer
d. Equipment operators

2. Distribution and Collection,

a. backhoe (2)
b. dump truck
c. equipment operators

Note:

Additional operators available through other departments:

Wastewater:

Parks:

Water:

Fire Department,

a. Coordination center for additional equipment

Note: In the event that a chemical spill has reached any receiving stream permitted by the City of Moberly through MoDNR, a press release will be provided to the local radio stations. The announcement will contain the following: (Attachment D)
Date of spill,
Time of spill,
Receiving stream,
Location where it will enter the receiving stream.,
Approximate amount of spill,
Type of chemical involved,
Hazards involved to humans, wildlife and/or the environment,

5. Clean-up

Any and all expenses incurred for the clean up of the spill, and/or equipment used in the clean-up process will be paid for by the person/s, industry or entity that perpetrated the spill. (City of Moberly, Stormwater ordinance _____)

Note:

A legal trend occurring is cost recovery litigation. If litigation can demonstrate that tactics used by the emergency responders resulted in increased costs, the difference between the actual cost and the costs assessed against the spiller can be transferred to the emergency responder agency.
Emergency responders are no longer exempt and protected from legal action when it can be shown that the negative outcome resulting from their actions can be defined as contributory negligence.

Analytical Laboratory

Engineering Surveys and Services
1113 Faye St
Columbia, MO 65201
573.449.2646

Regulatory Authority

Stormwater-Illicit discharge ordinance

Follow-up activities

After the field situation is stabilized and the immediate danger is under control an Illicit Discharge Report Form (see attachment B) is to be completed by the person in charge of the response team.

Note:

The Resource Conservation and Recovery Act (RCRA) developed and enforced by EPA clearly states that, after an emergency ends and the recovery and clean up process begins, emergency responders are no longer exempt from compliance with the requirements of RCRA.

In the event the spill has reached the sewer system or entered the stormwater drainage system and the source of the spill is unknown.

a. Start working upstream of the last known location of the material in the system,
b. Collect grab samples at each location, and mark each with time and location
c. Record the pH,
d. Observe and record physical characteristics such as color, odor, amount of flow,
e. Use collection system maps to determine possible flow routes and sources,
f. If flow stops before it can be traced back to its source, identify which industries could be the source of the material.
g. The samples shall be taken to the laboratory for analysis.

Procedures for testing and updating the plan

Testing:

Testing of the Emergency Response Plan shall take place at a minimum of twice per year. This testing may involve tabletop exercises, chemical tracing activities in the sewer system, and/or mock emergency response drills. All persons involved in the practices shall submit a brief written report on their part in the exercise with emphasis on:

- What part of the plan worked well,
- What did not work and why,
- What improvements in the plan are needed,
- How these improvements will fit into the plan.

All reports shall be turned in to the Director of Public Utilities within five (5) working days of the exercise.

In the event the Emergency Response Plan must be activated all City of Moberly personnel involved in the emergency shall submit a brief written report with emphasis on:

- What part of the plan worked well,
- What did not work and why,
- What improvements in the plan are needed,
- How these improvements will fit into the plan.

All reports shall be turned in to the Director of Public Utilities within five (5) working days after the emergency is abated.

Updating:

- Twice yearly (June, December?) all personnel names, addresses, phone numbers, etc shall be reviewed and updated as necessary.
- Industry contact phone numbers and addresses shall be reviewed and updated as necessary.
- . Tier 11 reports shall be updated as necessary.

The task of updating the plan shall be completed by_____ and verified as completed by _____ .

Copies of the updates shall be delivered to all persons on the distribution list.

Attachment A

Message Form
Illicit Discharge/Spill Response Plan
Communications Center

Date: _____
Time: _____
To: _____
From: _____

Message:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Message received by: _____
Message relayed by: _____
Time relayed: _____

Notes:

Attachment B

Illicit Discharge Report Form

Date _____ Time _____
Incident location _____

Responsible party: Unknown: _____
Name: _____ Phone: _____
Address: _____
Business/Industry type: _____

Reported by: Unknown _____
Name: _____ Phone: _____
Address: _____

Reported to:
Name/Title: _____
Date: _____ Time: _____

Incident description:
_____
_____
_____
_____
_____

First responder on the scene: _____
Departments on the scene:
Police _____ Fire _____ D & C _____ Street _____
Other _____

Material description:
Flammable_____ Reactive _____ Toxic _____
Corrosive _____ Biological _____ Unknown _____
Other _____
Material identified by:
Hauler ___ Industry/Business ___ Container label ___ Hazmat ___ Laboratory ___

Corrective action taken: _____
_____
_____
_____
_____
_____

Attachment C

Press Release
Sewage Release

In order to contain a potentially toxic chemical spill the City of Moberly Waste Water Treatment Facility is forced to discharge waste water to _____ .
(Receiving stream)

The discharge will enter the stream in the vicinity of _____
_____
_____ .

The release will occur on _____, and begin at approximately _____ (AM, PM).
(Date) (Time)

The duration of the discharge will be approximately _____ with a total
(Length of time)

volume of _____ gallons.
(Amount)

The wastewater discharged has received _____
_____..
(Type of treatment discharge has received)

The potential hazards associated with this type of discharge are _____
_____
_____
_____
_____

The City of Moberly strongly advises area residents avoid contact with the waters in this stream until further notice.

_____
Signature/Title

Attachment D

Press Release
Chemical Spill

Due to a (an) _____
(Type of accident that has occurred)

the chemical _____ has the potential to enter _____ .
(Chemical name) (Name of stream)

The _____ may enter the
(Chemical name)

stream in the vicinity of _____
(Approximate location of entry)

The spill occurred on _____,
(Date)

and may enter _____ at approximately _____ (AM, PM).
(Name of creek) (Time)

The duration of the chemical release will be approximately _____ with a total
(Length of time)
volume of _____ gallons.
(Amount)

The chemical release has received _____
_____..
(Type of treatment, if any the chemical has received)

The potential hazards associated with this type of chemical are _____
_____
_____
_____
_____

The City of Moberly strongly advises area residents avoid contact with the waters in this stream until further notice.

_____
Signature/Title

Attachment E

Local Industry Contacts

- Central State Enterprises of Missouri 1251 CR1317
  - Alex Watson, Plant manager
  - Cell 660 372-8190
- Wilson trailer Sales 1600 Rt. DD
  - Chris Mathis, Safety Officer
  - 660 263-2070
- Lakeview Biodiesel 607 W. Fowler Rd.
  - Joe Youse, Plant Manager
  - Office 660 263-7273
  - Cell 660 651-9013
- Total Power Coat & Finish PO Box 746, 715 Sturgeon St.
  - Josh Taylor
  - 660 263-7444
- Orscheln Product LLC 1177 N. Morley St.
  - Tom Hall, EH&S Manager
  - 660 269-3564
  - Cell 660 651-2749
- Dura Automotive Systems 1855 Robertson Rd.
  - Mark Barron, Plant Engineer
  - 660 269-2325
- (New) MacRak Inc. 100 Sparks Ave
  - Shawn MacDonald, President
  - Office 815 723-7400
  - Cell 815 557-5643

Attachment E

MS4 Outfall Report and Map

Municipal Separate Storm Sewer System (MS4) Outfalls Review and Recommendations

Prepared for
City of Moberly, Missouri

July 2018

1001 Diamond Ridge, Suite 1100
Jefferson City, MO 65109
573.638.5000
www.barr.com

Municipal Separate Storm Sewer System (MS4) Outfalls Review and Recommendations
July 2018

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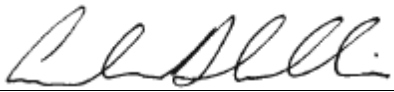
List of Photographs

Certifications

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Missouri.



July 7, 2018

Andrea D. Collier
PE #: 2007020252

1.0 Background

This report outlines activities conducted by Barr Engineering Co. (Barr) regarding the review of the City of Moberly's (City's) Municipal Separate Storm Sewer System (MS4) Program and Stormwater Management Plan (SWMP), and includes a report on the desktop review and field survey of the City's MS4 outfalls.

As part of a review of the City's MS4 Program, Barr conducted a review of the City's MS4 outfall locations. This review included an evaluation of MS4 outfall regulatory requirements, definitions, and Missouri Department of Natural Resources (MDNR) guidance; a desktop review of outfall maps; and a field survey of existing, revised, and proposed outfall locations.

This review was conducted to align the City's MS4 outfall map with the City's SWMP and, as part of the SWMP, as a requirement of the Illicit Discharge Detection and Elimination Program. The City's MS4 Missouri State Operating Permit (MSOP), MO-R040030, Section 4.2.3.1.1., regarding the implementation of the Illicit Discharge Detection and Elimination Program states that, at a minimum, the City shall provide:

> *"A storm sewer map showing the location of all constructed outfalls and the names and locations of all of the receiving waters of the state that receive discharges from those outfalls. The permittee shall describe the sources of information used for the map(s), and how the permittee plans to verify the outfall locations with field surveys. If already completed, the permittee shall describe how the map was developed and how the map will be regularly updated. The permittee shall make the information available to the Department upon request."*

The resulting new outfall map was produced in accordance with these requirements to be included as part of the City's SWMP.

An initial review of the City's current hardcopy of the MS4 outfall map revealed that all eight outfalls are located at the municipal boundary and in the bed of existing intermittent streams. In preparation for a more detailed review, Barr conducted an evaluation of regulatory requirements to ensure that the outfall locations that are selected meet the definitions, as provided in the rule, and that the revised outfall map as part of the City's MS4 SWMP meets the City's MS4 MSOP requirements, as stated above.

Municipal Separate Storm Sewer, as defined by 10 CSR 20-6.200 (1)(C)16., is:

> *"…a conveyance or system of conveyances including roads and highways with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, paved or unpaved channels, or storm drains designated and utilized for routing of stormwater which—*
>
> *A. Does not include any waters of the state as defined in this rule;*
> *B. Is contained within the municipal corporate limits or is owned and operated by the state, city, town, village, county, district, association, or other public body created by or pursuant to the laws of Missouri having jurisdiction over disposal of sewage, industrial waste, stormwater, or other liquid wastes;*

C. *Is not part or portion of a combined sewer system;*
D. *Is not part of a publicly owned treatment works as defined in 40 CFR 122.2."*

An MS4 outfall, as defined by 10 CSR 20-6.200(1)(C)18., states that it is:

> *"A point source as defined by 10 CSR 20-2.010 at the point where a municipal separate storm sewer discharges and does not include open conveyances connecting two municipal separate storm sewers, pipes, tunnels, or other conveyances which connect segments of waters of the state and are used to convey waters of the state."*

MDNR's MS4 coordinator provided the following additional explanation of these definitions as guidance. The MS4 outfall is where stormwater from the regulated MS4 discharges or has the potential to discharge to waters of the state. The potential for discharging stormwater to waters of the state is at locations where the storm sewer leaves the jurisdiction of the regulated MS4, but flows to waters of the state. The location where it leaves the jurisdiction is the outfall. If the MS4 discharges to a combined sewer, then it is not classified as a MS4 but as a combined sewer. An MS4 outfall cannot be part of or located in waters of the state, but instead should be a representative point within or at the boundary of the City's jurisdiction where the MS4 discharges to waters of the state. The definition of MS4 outfall excludes non-point source discharges or sheet flow. The location of a MS4 outfall is not typically located at the municipal boundary, unless the municipal boundary is the point at which the MS4 discharges or has the potential to discharge to waters of the state.

Because of the current regulatory definitions of MS4 and MS4 outfall and MDNR guidance, Barr recommends that all existing outfall locations be revised. The desktop review and field survey of the outfalls were conducted to determine where revisions to existing outfall locations could be made and to locate additional outfalls. The recommended revised and proposed new MS4 outfalls were identified in accordance with the above regulations, the MSOP and MDNR guidance, as described below.

2.0 Desktop Review of Outfalls

The City provided a hardcopy map that included approximate locations for the eight existing MS4 outfalls. This map was recreated in ArcGIS and included the eight existing outfalls, the four combined sewer overflow (CSO) outfalls, light detection and ranging (LiDAR) aerial photography, 10-foot topographic contours, national hydrography dataset (NHD) flowlines, surface water impoundments, and the municipal boundaries. Using the LiDAR data, the NHD, and topographic contours, each existing outfall was examined and, as determined to be necessary, revisions to these outfall locations and potential additional outfalls were marked on a map. All of these outfall locations were included on a revised map that was used to conduct the field survey of the outfalls. The results are described below.

3.0 Field Survey of Outfalls

After completion of the desktop review of the outfalls, on Friday, June 30, 2017, the Barr team conducted the field survey to confirm outfall locations and to identify if any outfalls needed to be relocated or removed. The City had received a combined 3.57 inches of precipitation the morning of the field survey and the day before (June 29 and 30), which was based on rainfall data from a National Oceanic and Atmospheric Administration (NOAA) station in Moberly, Missouri. The Barr team arrived to conduct the fieldwork just after 7:00 a.m. The weather was cloudy and intermittently raining; the rain ceased around 9:00 a.m. The recent rain event resulted in ideal conditions to conduct a field assessment of stormwater outfalls, because the outfalls were currently discharging and stormwater flow paths were easily observed. A secondary field survey event was performed by Aaron Grimm to reassess an appropriate location for Existing Outfall #3 on Tuesday, July 18, 2017. The field surveys were conducted using maps and a Trimble GPS unit to collect additional outfall location data and to collect locations of revised or new outfalls. As a result of the field survey and outfall review, a revised MS4 outfall map showing the existing and proposed outfalls was created and is included as Figure 1. Figure 2 shows only the proposed outfalls and the CSOs.

Existing outfalls are named "Existing Outfall #X" where X represents the number of the outfall. Existing outfalls were numbered in numerical order starting at the northernmost existing outfall and moving around the municipal boundary clockwise until Existing Outfall #8. Proposed (new and revised) outfalls are named "Outfall #X" in numerical order starting at the northernmost proposed outfall and moving around the municipal boundary clockwise, through Outfall #19. The locations of the existing and proposed outfalls can be seen in Figure 1, as well as tabulated in Table 2. The final map of proposed outfalls and CSOs is presented in Figure 2.

3.1 Existing Outfall #1

Existing Outfall #1 was identified in the field and a sign was present marking the location. This outfall fell on the edge of the City's municipal boundary just on the east side of U.S. Highway 63 (Hwy 63) and was in the bed of the existing intermittent stream (unnamed tributary to the Elk Fork Salt River). Existing Outfall #1 can be seen below in Photo 3.1.1.

Photo 3.1.1 Existing Outfall #1 Facing Northeast

The Barr team explored the area upstream and to the west of Hwy 63 and identified a potential replacement for Existing Outfall #1. The recommended revised outfall location can be seen on Figure 1.

The location of Existing Outfall #1 is within a water of the state as identified by a NHD flowline, which does not align with the regulatory definition or MDNR guidance for an MS4 outfall. It is recommended to remove Existing Outfall #1 and to replace it with Outfall #1 in order to provide a more representative stormwater outfall location from the City of Moberly before it enters into a water of the state.

3.2 Existing Outfall #2

Existing Outfall #2 was identified using the map from the City of Moberly and field observations. A sign marking the outfall location was not found. Existing Outfall #2 was estimated to be located where a water of the state (unnamed tributary to the Elk Fork Salt River), as identified by an NHD flowline, crosses County Road B130/2305 to the east of Hwy 63. The upstream culvert of the road crossing at Existing Outfall #2 can be seen below in Photo 3.2.1.

Photo 3.2.1 Existing Outfall #2 Facing North

Existing Outfall #2 location is within a water of the state and not within a conveyance that is in the City's jurisdiction, which does not comply with MDNR rules and guidance for MS4 outfalls. New potential outfall locations were identified and surveyed in the field. Outfalls #2 and #3 identify where City stormwater drainage conveyances enter into the same water of the state (unnamed tributary to the Elk Fork Salt River) and are upstream of Existing Outfall #2. Outfall #2 is the City stormwater ditch entering the southern side of the unnamed tributary, and Outfall #3 is the stormwater ditch entering the northern side of the unnamed tributary.

It is recommended to remove Existing Outfall #2 and to replace it with Outfalls #2 and #3. Outfalls #2 and #3 can be seen in Photo 3.2.2 below. Outfall #2 is on the left side of the photo (south) just before the stormwater ditch joins the unnamed tributary to the Elk Fork Salt River. Outfall #3 is on the right side of the photo (north) just before the stormwater ditch joins the unnamed tributary to the Elk Fork Salt River. Photo 3.2.3 shows only Outfall #2 as it enters the unnamed tributary. In Photo 3.2.3, the City stormwater ditch enters the unnamed tributary from the left side of the photo.

Photo 3.2.2 **Outfalls #2 and #3 Showing Unnamed Tributary to the Elk Fork Salt River Facing West**

Photo 3.2.3 **Outfall #2 as it Enters the Unnamed Tributary Facing West/Southwest**

3.3 Existing Outfall #3

Existing Outfall #3 was identified while in the field. A sign marking the outfall location was present. The outfall is just east of Hwy 63 at the municipal boundary and is located within a water of the state (unnamed tributary to Coon Creek), which does not comply with MDNR rules and guidance for MS4 outfalls. Potential outfall replacements were identified in the field. Outfalls #4 and #5 are located just west of Hwy 63 and are in City stormwater ditches just before they discharge into the unnamed tributary. Outfall #4 is in the southern City stormwater ditch where it discharges into the unnamed tributary. Outfall #5 is in the northern City stormwater ditch where it discharges into the unnamed tributary. Existing Outfall #3 is shown in Photo 3.3.1 below. Photo 3.3.2 shows the area in which Outfalls #4 and #5 discharge into the unnamed tributary (Outfall #4 is on the left side and Outfall #5 is on the right). Photo 3.3.3 shows Outfall #4 where it discharges into the unnamed tributary, and Photo 3.3.4 is taken from the approximate location of Outfall #5 but is looking upstream of the City stormwater ditch.

Photo 3.3.1 Existing Outfall #3 Facing Southeast

Photo 3.3.2 Outfalls #4 and #5 Facing Southwest

Photo 3.3.3 Outfall #4 Facing South

Photo 3.3.4 Upstream City Stormwater Ditch from Outfall #5 Facing North

3.4 Existing Outfall #4

Existing Outfall #4 was determined to be very difficult and unsafe to access; therefore, it was not visited in the field. It is unknown whether a sign is posted marking the outfall location. From the desktop review of Existing Outfall #4 on the City's map, it was estimated that this outfall is located in the bed of an unnamed tributary and is likely outside the City's jurisdiction. Outfalls #6 and #7 were investigated as potential outfall replacements for Existing Outfall #4.

Outfalls #6 and #7 were determined to be potential replacements for Existing Outfall #4. Outfall #7 is located upstream of Existing Outfall #4 and appeared to discharge into an unnamed tributary to Coon Creek. The CSO Outfall #003 is nearby to Outfall #7 and appears to drain into the same stream. In the case that this entire basin drains to the CSO, there would be no MS4 outfall in this area. The definition of MS4 outfall excludes all CSOs. Although it was nearby CSO #003, Outfall #7 was examined and is believed to be a separate stormwater outfall. Outfall #6 is located upstream of Existing Outfall #4. Outfall #6 is located in a City stormwater drainage conveyance just as it enters into a heavily wooded area prior to draining into the same unnamed tributary mentioned above. Both Outfalls #6 and #7 are believed to be outfalls that capture stormwater within the City's municipal boundary and jurisdiction and are separate from CSO #003. It is recommended that Existing Outfall #4 be removed and replaced with the more representative and accessible location of Outfalls #6 and #7. Outfalls #6 and #7 are shown in Photos 3.4.1 and 3.4.2 below.

Photo 3.4.1 Outfall #6 Facing South/Southeast

Photo 3.4.2 Outfall #7 Facing East

3.5 Existing Outfall #5

Existing Outfall #5 was located in the field and a sign marking the location of the outfall was present. The outfall was located just east of Hwy 63 in Coy Branch, which is a water of the state as identified by an NHD flowline. Photo 3.5.1 below shows Existing Outfall #5.

Photo 3.5.1 Existing Outfall #5 Facing East/Southeast

Possible outfall replacements and/or additional outfalls were identified at Outfalls #8, #9, #10, and #11.

Outfall #8 is located on the downstream side of a City stormwater culvert that passes under Russhaven Drive (just south of the Russhaven Drive and East McKinsey Street intersection) as the stormwater ditch drains towards Coy Branch. Outfall #9 is located at the upstream end of the City stormwater culvert that passes under the Seventh-Day Adventist Church driveway off East Mckinsey Street as the stormwater ditch drains towards Coy Branch. Outfall #10 is located just upstream (to the west) of where Coy Branch begins and is just off the east side of South Morley Street (just north of Bob's Butcher Shop). Outfall #10 is on the downstream side of a culvert that passes underneath South Morley Street. Outfall #11 is located at a City stormwater drainage culvert just west of Moberly Middle School and just before it passes under Kwix Road as it drains to Coy Branch.

Existing Outfall #5 is located in Coy Branch, a water of the state; therefore, it is recommended to be removed and replaced with more representative Outfalls #8, #9, #10, and #11. Each outfall captures a different area of drainage within the drainage basin to Coy Branch. The suggested new outfalls can be seen in the Photos 3.5.2, 3.5.3, 3.5.4, and 3.5.5 below.

Photo 3.5.2 Outfall #8 Facing Southeast

Photo 3.5.3 Outfall #9 Facing Northwest

Photo 3.5.4 Outfall #10 Facing East (downstream)

Photo 3.5.5 Outfall #11 Facing South

3.6 Existing Outfall #6

The location of the sign for Existing Outfall #6 was not found while in the field. Existing Outfall #6 was estimated to be in the bed of an unnamed tributary to Coon Creek at the City's municipal boundary, just east of Hwy 63. Because Existing Outfall #6 is located in waters of the state, this outfall is recommended to be replaced. Potential replacement and additional outfalls were identified at Outfalls #12, #13, #14, and #15.

Outfall #12 is located in a stormwater ditch just on the east side of Hwy 63 as it drains towards an unnamed tributary of Coon Creek. Outfall #13 is in a stormwater conveyance just on the south side of East Urbandale Drive as it drains towards the same unnamed tributary. Outfall #14 is in a stormwater conveyance off the east side of the south end of Chrisman Lane in a residential area as it drains towards the same unnamed tributary. Outfall #15 is located in a stormwater conveyance off the east side of Thomas Street just before it turns into a private drive, also in a residential area, as it drains towards the same unnamed tributary.

It is recommended that Existing Outfall #6 be removed and replaced with Outfalls #12, #13, #14, or #15. Even though Existing Outfall #6 was not clearly identified in the field, the area where it was marked on the City outfall map was along a NHD flowline and would therefore not be a representative MS4 outfall in accordance with MDNR rules and guidance. Outfalls #12, #13, #14, and #15 are shown in Photos 3.6.1, 3.6.2, 3.6.3, and 3.6.4.

Photo 3.6.1 Outfall #12 Facing South

Photo 3.6.2 Outfall #13 East/Northeast

Photo 3.6.3 Outfall #14 Facing South/Southeast

Photo 3.6.4 Outfall #15 Facing Northwest

3.7 Existing Outfall #7

Existing Outfall #7 was located in the field (see Photos 3.7.1, 3.7.2, and 3.7.3) and had a sign marking the location. Existing Outfall #7 is located in the bed of an existing unnamed tributary (in waters of the state) and, as such, is not located in accordance with MDNR rules and guidance. The field team explored the lower area of this basin that was accessible from public roads. This existing outfall is located in a heavily wooded area with fewer public access areas and few roads and public stormwater conveyances. In addition, this area appears to drain to CSO #004, which discharges from a combined sewer impoundment. Replacement outfalls could not initially be identified, but after an additional survey of potential replacement outfalls, Outfalls #16, #17, and #18 were identified as replacement outfalls for Existing Outfall #7.

Photo 3.7.1 Existing Outfall #7 Facing East

Photo 3.7.2 Existing Outfall #7 Facing Southeast

Photo 3.7.3 Immediately Downstream of Existing Outfall #7 Facing West/Northwest

3.8 Existing Outfall #8

The exact location of Existing Outfall #8 was not identifiable in the field due to its close proximity to an industrial facility and private property. The estimated location for Existing Outfall #8 is in the bed of an unnamed tributary to Sugar Creek and is in an NHD flowline. The field team searched for the outfall sign behind the industrial facility and was unable to locate it due to heavy woody vegetation and lack of access points to the unnamed tributary. The estimated location of Existing Outfall #8 is shown in Photo 3.8.1 below.

A potential replacement location was identified at Outfall #19, which was in a stormwater conveyance that discharged just north of an unnamed tributary to Sugar Creek that is shown as a NHD flowline. Outfall #19 is at the discharge point of a small stormwater pipe off the west side of Missouri State Highway DD (Hwy DD) and just north of where the unnamed tributary to Sugar Creek crosses under the Hwy DD and Huntsville Road intersection through a box culvert.

It is recommended that Existing Outfall #8 be replaced with Outfall #19. Outfall #19 is shown in Photo 3.8.2 below. Photo 3.8.1 is taken from Outfall #19 and is looking downstream to where the stormwater ditch discharges into the unnamed tributary to Sugar Creek. Outfall #19 is at the discharge pool of the small pipe shown in the photo.

Photo 3.8.1 Estimated Existing Outfall #8 Facing Southeast

Photo 3.8.2 Outfall #19 Facing Southwest

4.0 Conclusions

Table 1 below outlines Barr's recommendations for outfalls to be removed, replaced, and added. Table 2 contains the nineteen (19) new or revised outfalls and their respective location data, as plotted in the Existing and Proposed Outfalls Map (Figure 1) and the Moberly MS4 Outfalls Map (Figure 2). The coordinate system used is NAD83 State Plane Missouri Central (in feet).

Table 1 Barr's Recommendations for Outfalls to be Removed, Replaced, and Added

Outfalls to be Removed	Replacement Outfalls/New Outfalls
Existing Outfall #1	Outfall #1
Existing Outfall #2	Outfalls #2, #3
Existing Outfall #3	Outfalls #4, #5
Existing Outfall #4	Outfalls #6, #7
Existing Outfall #5	Outfalls #8, #9, #10, #11
Existing Outfall #6	Outfalls #12, #13, #14, #15
Existing Outfall #7	Outfalls #16, #17, #18
Existing Outfall #8	Outfall #19

Table 2 New and Recommended Outfalls and Location Data

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
Outfall #4	39.4275576337	-92.4138551980	1308719.27434	1664749.95433
Outfall #5	39.4274803181	-92.4138157183	1308691.12463	1664761.13304
Outfall #6	39.4198616297	-92.4188547619	1305914.88300	1663340.25000
Outfall #7	39.4193398413	-92.4162672727	1305725.50200	1664071.39400
Outfall #8	39.4087674705	-92.4303522776	1301871.39800	1660095.31300
Outfall #9	39.4084300844	-92.4211034938	1301750.66400	1662708.62200
Outfall #10	39.4047116099	-92.4340243932	1300393.37500	1659058.85300
Outfall #11	39.4018162559	-92.4265951112	1299340.43700	1661158.94200
Outfall #12	39.3887017097	-92.4127273553	1294567.29400	1665082.22100
Outfall #13	39.3940471351	-92.4203849338	1296512.22400	1662916.27000
Outfall #14	39.3934263806	-92.4254498918	1296284.90800	1661485.07500
Outfall #15	39.3930886900	-92.4283153100	1296161.25800	1660675.38400
Outfall #16	39.4027355400	-92.4521996200	1299670.40500	1653923.60900
Outfall #17	39.4109356000	-92.4443177100	1302658.34500	1656148.95600
Outfall #18	39.4205053800	-92.4747562900	1306140.04300	1647547.96500
Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

The coordinate system used is NAD83 State Plane Missouri Central (in feet).

Figures

Barr Footer: ArcGIS 10.6, 2018-07-14 21:16 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\2018\Figure01 Existing and Proposed Outfalls.mxd User: MRQ

Sugar Creek
Elk Fork Salt River
Existing Outfall 1
Outfall 1
900
Outfall 19
Existing Outfall 8
Outfall 3
Outfall 2
Existing Outfall 2
Outfall 4
Outfall 5
Existing Outfall 3
Outfall #002 - Taylor Street CSO
Existing Outfall 4
Outfall 18
850
Outfall #005 - Holman Road CSO
Outfall 6
Outfall 7
Moberly
Outfall #003 - Rollins Street CSO
Sweet Spring Creek
Outfall 17
Outfall 8
Outfall 9
Existing Outfall 7
Outfall #004 - Seven Bridges Road CSO
Coy Branch
Existing Outfall 5
212
Outfall 10
Outfall 16
Outfall 11
750
800
Outfall 15
Outfall 14
Outfall 13
Outfall 12
Existing Outfall 6
Coon Creek

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BARR

- Existing Outfall Location
- Proposed Outfall Location
- Combined Sewer Overflow Locations (Approximate)
- National Hydrography Dataset (NHD) Flowline
- Municipal Boundary

Surface Elevation Contours
- 50 foot
- 10 foot

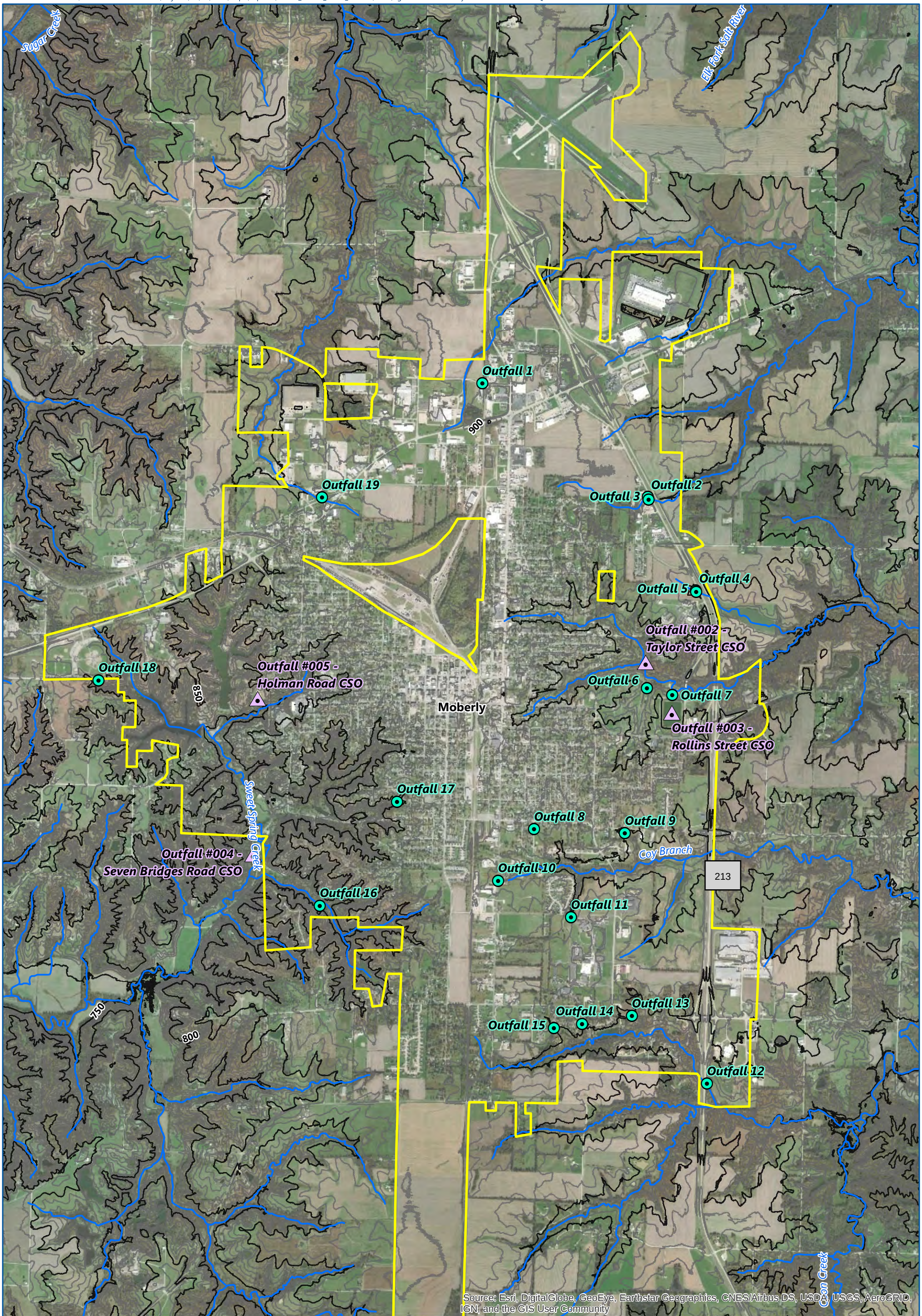
N

0 3,250
Feet

EXISTING AND PROPOSED OUTFALLS
City of Moberly
Moberly, MO

FIGURE 1

Barr Footer: ArcGIS 10.6, 2018-07-15 12:36 File: I:\Projects\25\79\1011\Maps\Reports\NPDES_Source_Water_Protect\2018\Figure02 MS4 Moberly Outfalls.mxd User: MRQ



Proposed Outfall Location

Combined Sewer Overflow Locations (Approximate)

National Hydrography Dataset (NHD) Flowline

Municipal Boundary

Surface Elevation Contours

50 foot

10 foot

N

0 3,250

Feet

BARR

MOBERLY MS4 OUTFALLS
City of Moberly
Moberly, MO

FIGURE 2

Attachment F

Missouri DNR MS4 Reporting Form MO 780-1846

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) STORMWATER MANAGEMENT PLAN REPORT

FOR OFFICE USE ON
PROJECT ID NUMBER
DATE RECEIVED

Part A – MS4 PERMIT HOLDER INFORMATION

1. MS4 NAME	2. NPDES PERMIT NUMBER	3. MS4 UNIQUE ID NO.	
4. ADDRESS	5. CITY	6. STATE	7. ZIP CODE
8. TELEPHONE NUMBER WITH AREA CODE	9. EMAIL		
10. NAME OF MS4 CONTACT PERSON			

11. Have any areas of the MS4 been added or removed from the MS4 jurisdiction due to annexation or other legal means since the most recent permit application (renewal, new, modification), or most recent MS4 stormwater management plan report?

☐ Yes ☐ No

If yes, please include a map along with a brief description as an attachment.

Part B – REPORTING PERIOD

1. Is your MS4 subject to a TMDL?

☐ Yes ☐ No

If yes, you are required to submit the MS4 report annually. Reports are due Feb. 28 each year. For the first reporting period, the beginning date will be June 13, 2016, and the ending date will be Dec. 31, 2016. All other annual reports shall cover the reporting period of Jan. 1 to Dec. 31 each year.

2. Is your MS4 new permitted (i.e., is this your first MS4 permit)?

☐ Yes ☐ No

If yes, you are required to submit the MS4 stormwater management plan report annually. Reports are due Feb. 28 each year. For the first reporting period, the beginning date will be the date of issuance of the permit and the ending date will be Dec. 31, 2016. All other annual reports shall cover the reporting period of Jan. 1 to Dec. 31 each year.

3. Is your MS4 a previously permitted MS4 and not subject to a TMDL?

☐ Yes ☐ No

If yes, you are required to submit the MS4 stormwater management plan report biennially (i.e., once every two years). Reports are due Feb. 28 every odd year. The first report will be due February 2017, and will cover the reporting period from June 13, 2016, to Dec. 31, 2016. All other reports shall cover the reporting period of Jan. 1 of the first year to Dec. 31 of the second year.

4. If you are part of a co-permitted MS4 permit, submit combined MS4 stormwater management plan reports, and one or more of the co-permitted MS4s have annual reporting based on the above criteria, then submit your MS4 stormwater management plan report annually by Feb. 28 of each year.

IF you are part of a co-permitted MS4 permit and do not submit combined MS4 stormwater management plan report, then each MS4 co-permittee will submit their MS4 stormwater management plan report based on the above criteria.

5. Reporting Period:

BEGINNING: ENDING:

Part C – STORMWATER MANAGEMENT PLAN REPORT PROGRESS AND COMPLIANCE

As an attachment, please provide information for each of the items below. Provide informative data, success stories, and experiences that support the successful implementation of your stormwater management plan report.

1. Describe the status of compliance with permit conditions for the permitted MS4.
2. Provide information regarding the progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable to the MS4.
3. If another governmental entity implements any best management practice or minimum control measure, please provide the following:
    a. Name of the government entity;
    b. Name of the primary contact for the government entity;
    c. Contact information (i.e., address, city, ZIP code, state, and phone number); and
    d. Specific best management practices or minimum control measures being implemented by the government entity.

It is the responsibility of the permittee to provide all information under this report regardless if best management practices or minimum control measures are being implemented by another governmental entity. If a complete minimum control measure is being implemented by an alternative governmental entity, then only indicate the best management practice under the minimum control measure.

4. Provide a summary of any stormwater activities and known construction activities that will be covered under the authority of the MS4 permit that are scheduled to begin during the next reporting period.
5. Provide a description of any changes to the stormwater management plan report, best management practices, measurable goals, and the iterative process that have occurred during the covered reporting period.
6. Provide a list of best management practices that were evaluated during the covered reporting period, and provide information on how the best management practice was determined effective.
    a. If any of the best management practices were determined to be ineffective, provide a summary on how the ineffective best management practice was resolved.
7. If any water samples were collected and analyzed during the covered reporting period by the permitted MS4 or on behalf of the permitted MS4, please complete Part D – Water Sample(s) Analysis.

Part D – WATER SAMPLE(S) ANALYSIS

PARAMETER OR INDICATOR	FREQUENCY	RESULT	DRY WEATHER SAMPLE?	WET WEATHER SAMPLE?
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No

1. Are any of the parameters being sampled due to the MS4 being subject to an established or approved Total Maximum Daily Load?
☐ Yes ☐ No
If yes, please indicate the parameter/pollutant.

2. Does the data support water quality attainment or support trend data toward water quality attainment?
☐ Yes ☐ No
If yes, please describe.

Part E – TOTAL MAXIMUM DAILY LOAD (TMDL) ASSUMPTIONS AND REQUIREMENTS ATTAINMENT PLAN

1. Is your MS4 subject to an established or approved TMDL? If no, please indicate "No" below and do not complete any other portion of the TMDL Assumptions and Requirements Attainment Plan portion of this report.

☐ Yes ☐ No

2. Has your TMDL Assumptions and Requirements Attainment Plan been completed and submitted? If no, please provide a summary as an attachment on the progress toward submitting and implementing the TMDL Assumptions and Requirements Attainment Plan.

☐ Yes ☐ No

3. Has your TMDL Assumptions and Requirements Attainment Plan received approval from the department? If yes, please provided a summary of the status of the plan and include implementation status of identified best management practices and measurable goals along with any changes to best management practices or measurable goals (if applicable)..

☐ Yes ☐ No

4. Does the TMDL Assumptions and Requirements Attainment Plan incorporate Integrated Planning? If yes, please provide a summary of the status of the Integrated Plan.

☐ Yes ☐ No

PART F – SUBMIT REPORT TO:

Missouri Department of Natural Resources
Water Protection Program
MS4 Program Coordinator
P.O. Box 176
Jefferson City, MO 65102-0176

PART G - CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OR PERMITTEE (LEGALLY RESPONSIBLE PERSON)	DATE SIGNED
NAME (PRINTED OR TYPED)	TITLE

MO 780-1846 (10-16)

Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP)

City of Moberly, Missouri

Prepared by
City of Moberly, Missouri
2021

City of Moberly!

DRAFT

Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP)

City of Moberly, Missouri

Prepared for
City of Moberly, Missouri
2021

DRAFT

DRAFT

Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP)

January 2021

Contents

DRAFT

DRAFT

List of Tables

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List of Attachments

Attachment A	State of Missouri, Department of Natural Resources Operating Permit, MO-R040030
Attachment B	City of Moberly Stormwater Public Outreach Materials
Attachment C	Chapter 34 of the City of Moberly's Code of Ordinances
Attachment D	City of Moberly's Illicit Discharge Detection and Elimination Plan
Attachment E	MS4 Outfall Report and Map
Attachment F	Missouri DNR MS4 Reporting Form MO 780-1846
Attachment G	Sugar Creek Lake Source Water Pollution Protection Plan

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Acronyms

Acronym	Description
BMP	Best Management Practice
CSO	Combined Sewer Overflow
MDNR	Department of Natural Resources
EPA	U.S. Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SWMP	Stormwater Management Plan
MSOP	Missouri State Operating Permit
WWTP	Wastewater Treatment Plant
MGP	Master General Permit
TMDL	Total Maximum Daily Load

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1.0 Introduction

1.1 Location

The City of Moberly (City), which covers approximately 12 square miles, is located in Randolph County in north central Missouri. As of the 2010 census, Moberly had a population of 13,974. While the majority of land use in Moberly is commercial and residential, significant manufacturing industries are also present within the city limits.

The City is a Municipal Separate Storm Sewer System (MS4) community with a Phase II MS4 National Pollutant Discharge Elimination System (NPDES) General Permit (MO-R040030) issued by the Missouri Department of Natural Resources (MDNR). The City developed its previous Stormwater Management Plan (SWMP) in 2013 as a measure to implement this program and comply with their permit. The SWMP describes the City's approach to implementing best management practices (BMPs) for each of the six minimum control measures (MCMs), as outlined in the City's MS4 Missouri State Operating Permit (MSOP), and described in Section 1.2.

The persons responsible for the stormwater management program are, as of January 1, 2021, Mary West-Calcagno, and Rachel Hultz. Mary West-Calcagno is the Utility Director and can be contacted at 660-269-7659 or mwc@cityofmoberly.com. Rachel Hultz is the Water Quality Coordinator and can be contacted at 660-353-9745 or rachelh@cityofmoberly.com.

Moberly owns and operates a water treatment plant and distribution system as well as a wastewater treatment plant (WWTP) and collection system. Moberly has a separate NPDES permit (No. MO-0117960) for the WWTP and combined sewer overflow (CSO) discharges. Treated effluent discharges from the WWTP to the Tributary to Coon Creek from Outfall 001 (refer to Table 1-1). Moberly utilizes combined sewers, in which stormwater runoff is collected in portions of Moberly's sewage collection system and is treated at the WWTP or directly discharged at CSO. Moberly operates two CSO storage lagoons, permitted as CSO discharge points, that provide storage and primary treatment for the combined sewage and stormwater during rain events. The permitted CSO outfalls from the lagoons only discharge when the system storage capacity is exceeded. Water from four CSOs (#002-005) in Moberly is pumped back to the collection system from storage and treated at the WWTP. During high flows, these outfalls may discharge to the surface waters listed in Table 1-1.

The City evaluates the Stormwater Management Program and all BMPs in the SWMP annually for effectiveness and to identify areas for improvement, according to the criteria outlined for each BMP. The information collected and modifications enacted are included in the City's annual report.

Streams shall be defined as naturally occurring waterways which maintain permanent flow, or which may cease flow in dry periods but sustain aquatic life.

Four major streams and their tributaries receive stormwater from Moberly: Coon Creek, Sweet Springs Creek, Sugar Creek, and the Elk Fork of the Salt River. In addition, the city maintains two lakes: Rothwell Lake and Waterworks Lake, both of which receive stormwater from the southwestern part of the city and overflow to Sweet Springs Creek. Coon Creek and its tributaries receive stormwater from the southeastern part of the City, the Elk Fork of the Salt River and its tributaries receive stormwater from the northeastern part of the City, Sugar Creek and its tributaries receive stormwater from the

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northwestern part of the City, and Sweet Springs Creek and its tributaries receive stormwater from the southwestern part of the City. As of January 2021, Sugar Creek is marked as impaired on the EPA 303(d) list for dissolved oxygen, sulfates, and chlorides; and Rothwell Lake is marked impaired for chlorophyll. Table 1-1 and Table 1-1 include the priority outfall locations for NPDES permitted discharges from Moberly. The outfall locations are also recorded in the GIS software for the city.

Table 1-1 MO-0117960 WWTP Outfall Locations and Receiving Waters

Outfall	Source of Discharge	UTM	Receiving Water
001	Municipal Wastewater	X=553968, Y=4364335	Tributary to Coon Creek
002	Combined Sewer Overflow	X=549992, Y=4363712	Tributary to Coon Creek
003	Combined Sewer Overflow	X=550339, Y=4363535	Tributary to Coon Creek
004	Combined Sewer Overflow	X=546585, Y=4361957	Sweet Spring Creek
005	Combined Sewer Overflow	X=546585, Y=4361957	Sweet Spring Creek

Table 1-1 MO-R040030 Representative Outfall Locations

Outfall	Latitude	Longitude	Northing	Easting
Outfall #1	39.4438919100	-92.4356272600	1314663.51800	1658595.76200
Outfall #2	39.4349428027	-92.4187611349	1311407.86000	1663361.75400
Outfall #3	39.4347522118	-92.4186753925	1311338.46400	1663386.03300
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Outfall #19	39.4349030643	-92.4519731598	1311386.66500	1653981.36400

The coordinate system used is NAD83 State Plane Missouri Central (in feet).

1.2 Regulatory Background

As a city with a population between 10,000 and 100,000, Moberly is categorized as a small MS4, or Phase II, owner/operator by the U.S. Environmental Protection Agency (EPA). The MDNR General Permit for Small MS4s, Permit MO-R040030, (MS4 Permit; Attachment A) authorizes Moberly to discharge stormwater. Section 2.1 of the MS4 Permit requires permittees to submit a written SWMP that includes the six MCMs established by the EPA, evaluation and reporting efforts, and recordkeeping. The six MCMs include:

1. Public Education and Outreach of Stormwater Impacts (Section 4.1 of the MS4 Permit);
2. Public Involvement and Participation (Section 4.2 of the MS4 Permit);
3. Illicit Discharge Detection and Elimination (Section 4.3 of the MS4 Permit);
4. Construction Site Stormwater Runoff Control (Section 4.4 of the MS4 Permit);
5. Post-Construction Stormwater Management in New Development and Redevelopment (Section 4.5 of the MS4 Permit); and
6. Pollution Prevention/Good Housekeeping for Municipal Operations (Section 4.6 of the MS4 Permit).

1.3 Plan Objectives

The objective of this SWMP is to:

- Provide BMPs for each of the six MCMs;
- Provide measurable goals to evaluate BMPs;
- Provide the iterative evaluative process used to evaluate BMPs; and
- Ensure the City is in compliance with the proper monitoring, recordkeeping, and reporting requirements set forth by the MS4 permit.

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2.0 MCM1: Public Education and Outreach

2.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.1. The purpose of MCM1 is to establish a public education program to distribute educational material to the community or conduct equivalent outreach activities to:

- Educate the public on the impact of stormwater on water bodies; and
- Provide steps the public can take to reduce pollutants in stormwater runoff.

The City's public education and outreach program includes the target audiences that have been identified (including commercial and industrial entities, see Table 2-1 and Table 2-2.

Table 2-1: MCM 1 Target Pollutants and Audiences

Target Pollutant	Potential Sources/ Target Audience(s)
Residential Pollutants: • Household hazardous waste • Litter/solid waste • Pesticides and herbicides • Pet wastes • Used oil • Fertilizer/nutrients	• Homeowners • Residents • Students; grades K-12 • Local college students • City Council
Industrial and Commercial Pollutants: • Used oil • Sediment • Litter/solid waste • Hazardous materials • Process chemicals and materials	• Business owners • Industrial site managers • Developers • Engineers • Management of large paved areas
Construction Pollutants • Sediments • Litter/solid waste • Cement rinse water • Paint • Other Hazardous Waste	• Developers • Homeowners • Contractors • Engineers

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Table 2-2 MCM 1 Target Audiences and Outreach Mechanisms

Target Pollutant	Potential Sources/ Target Audience(s)
Residential Pollutants: • Household hazardous waste • Litter/solid waste • Pesticides and herbicides • Pet wastes • Used oil • Fertilizer/nutrients	• Homeowners • Residents • Students; grades K-12 • Local college students • City Council
Industrial and Commercial Pollutants: • Used oil • Sediment • Litter/solid waste • Hazardous materials • Process chemicals and materials	• Business owners • Industrial site managers • Developers • Engineers • Management of large paved areas
Construction Pollutants • Sediments • Litter/solid waste • Cement rinse water • Paint • Other Hazardous Waste	• Developers • Homeowners • Contractors • Engineers

The City plans to inform individuals and groups on opportunities for SWMP involvement, continue to develop their outreach strategy to reach target audiences, and identify any new pollutant source(s) that can addressed by the program. Current lists of target pollutants, audiences, and mechanisms for outreach, are listed in Section 2.2.

The City has employed the strategy of developing printable educational materials that are available to the public. Currently, the City has a number of stormwater printed brochures that are available and distributed as needed (Attachment B). The brochures include the following:

- Best Management Practices for Excavation-Foundation Work
- Best Management Practices for General Construction
- Composting
- Green Lawn Care
- Non-Toxic Pesticides
- Pesticide Safety Tips
- Rain Barrels
- Rain Gardens
- Storm Drain Stenciling
- Summer Watershed Tip
- Pick Up After Your Pet

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The City has developed an update to the Source Water Protection Plan for Sugar Creek Lake. This updated plan for the City's drinking water supply will involve a significant amount of stakeholder involvement and public participation. The input received from stakeholders was used to determine priorities for the plan and to develop some of the plan content. Education of the public regarding stormwater runoff in the Sugar Creek Lake watershed and developing specific goals to work to improve water quality in the lake, are at the center of this plan. The updated plan is included as Attachment G.

The Director of Public Utilities and Water Quality Coordinator serve as the responsible persons for MCM1.

2.2 Target Pollutants and Audiences

The following is a list of target audiences, along with the reasons for targeting them (section 4.1.A), the pollutants associated with each group (section 4.1.B), and the purpose of each BMP (section 4.1.C).

- Homeowners

Homeowners are taxpaying citizens of Moberly and stand to gain and lose the most from the way stormwater is managed in the town. Homeowners can contribute to litter, pet waste, nutrient pollution, sediment, and household hazardous waste pollution from the way they maintain their property. On the other hand, homeowners can also be valuable allies in stormwater management due to their increased investment in the community. Homeowners often make repairs or renovations to their homes and grounds, which can carry a risk of increasing pollution or erosion; but some renovations, such as installing rain barrels or ponds, can improve city stormwater management. Additionally, people who are in the process of building homes are a possible source of outreach about green home design. Stormwater news articles and brochures placed in public places are effective methods of educating homeowners about what they can do to help stormwater issues. City partnership with local environmental groups can also be a great way of getting residents invested and educated in local stormwater issues.

- Resident non-homeowners

Residents of Moberly are also taxpaying citizens. They stand to benefit from good stormwater management; and suffer from pollution, flooding, and erosion in the city where they live. Because non-homeowning residents have an easier time moving, good stormwater management can attract residents, while poor management can drive them away. Residents of Moberly can contribute to nonpoint pollution through litter, pet waste, disposal of household hazardous waste, or nutrient pollution. They can also reduce pollution by enforcing community norms against such practices, by planting native plants, and by helping clean up their neighborhoods. In addition, residents who plan to build or remodel a house can implement green infrastructure practices that they learned about before they bought their future homes. Partnership with local environmental organizations serve as educational and volunteer opportunities about native plants and stormwater issues. Stormwater news articles and brochures placed in public places are also effective methods of educating residents about what they can do to help stormwater issues.

- Students; grades K-12

K-12 students are an especially important area of outreach because they will grow up to be the Moberly residents of the future. Teaching children the importance of stormwater management will increase the chance that they retain a sense of that importance in adulthood. In addition, children are less likely to litter or leave pet waste on the ground if they are taught such behavior is undesirable; and children may be able to influence the adults in their lives to reduce pollution as well. Direct presentations can help students understand what they can do to help in an age-appropriate way. Getting older students involved in stenciling storm drains and cleaning up trash teaches them about the local watershed, and helps the students become more invested in helping the local community.

- Local college students

Local college students are an important area of outreach because they may go on to live, work, or own businesses in town. Getting students involved in caring for the town increases the chances that they will support good stormwater management practices in their future careers. College students also contribute to pollution through litter, yard chemicals, pet waste, and hazardous waste; and successful student outreach has the potential to greatly reduce the pollution near the school and in neighborhoods where students live. Partnerships with local environmental organizations provide educational and volunteer opportunities about native plants and stormwater issues. Direct presentations can help students understand what they can do to help. Getting local students involved in stenciling the storm drains and cleaning up trash teaches them about the local watershed, and helps the students become more invested in helping the local community. Stormwater news articles and brochures placed in public places and around campus are also effective methods of educating local students about what they can do to help stormwater issues.

- City Council

Outreach to city council may help the city government understand the importance of enforcing and enacting appropriate stormwater regulations. In addition to being residents: city council members have influence in the community and may be able to help improve public perception of stormwater issues in the community. A successful stormwater management plan relies on the cooperation of city council members. The council may be able to improve the public image of stormwater issues through the policies they implement. In addition to practices such as brochures, partnerships with local organizations, and storm drain stenciling; targeted presentations, and reports to the city council can help them understand stormwater issues on a deeper level.

- Developers

Developers have the risk of contributing to sediment, litter, and nutrient pollution while building; and of contributing to excess stormwater runoff from poorly designed sites. Developers can also be valuable allies in stormwater management due to their abilities to implement green infrastructure into their buildings and post-construction stormwater management plans. It's important that developers be on board for a successful implementation of the Stormwater Pollution Prevention Plan since they are paying for, and making many of the decisions on, the site. Ensuring that the developers have access to up-to-date copies of the Land Disturbance Manual and Post-Construction Stormwater Manual will help the developers understand the city ordinances and implement appropriate BMPs, and construction-specific brochures will serve as reminders and explanations of city stormwater

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policies. The breakfast education meetings will also help developers understand the benefits of stormwater management and green infrastructure.

- Contractors

Contractors are often the people putting a developer's plans into practice. They are the people who can ensure successful implementation of green architecture practices, and who are the greatest pollution risks on a construction site. Contractors can contribute to pollution through the way they handle cement truck washout, sediment and erosion controls, fueling and maintenance of equipment, and litter on their sites. Ensuring that the developers have access to up-to-date copies of the Land Disturbance Manual and Post-Construction Stormwater Manual will help the contractors understand the city ordinances and implement appropriate BMPs, and construction-specific brochures will serve as reminders and explanations of city stormwater policies. The breakfast education meetings will also help contractors understand the benefits of stormwater management and green infrastructure.

- Engineers

Engineers design many construction sites and are required to sign off on Stormwater Pollution Prevention Plans for sites with a Land Disturbance Permit. Therefore, it is important that engineers have easy access to up-to-date information on city stormwater regulations and BMPs. The way an engineer designs a site can determine the site's long-term effect on stormwater, and the BMPs included in site plans facilitate contractors' pollution prevention BMPs. Ensuring that the engineers have access to up-to-date copies of the Land Disturbance Manual and Post-Construction Stormwater Manual will help the engineers understand the city ordinances and implement appropriate BMPs, and construction-specific brochures will serve as reminders and explanations of city stormwater policies. The breakfast education meetings will also help engineers understand the benefits of stormwater management and green infrastructure.

- Commercial business owners

Commercial business owners contribute to increased surface flow of stormwater, a serious stormwater concern. In addition, large paved areas and roofs can contribute to sediment, oil and litter getting into streams if they are improperly cleaned. The Post-Construction Stormwater Manual will help business owners understand the importance of maintaining and establishing appropriate BMPs to reduce the impact of paved areas on local watersheds. The breakfast education meetings will also help business owners understand the benefits of stormwater management and green infrastructure.

- Industrial site managers

Industrial sites have the potential to contribute to stormwater pollution through improperly stored chemicals, raw material stored outside, litter, and erosion on the site. In addition, industrial facilities may have large areas of impermeable surface, and require some form of permanent post-construction erosion controls. The Post-Construction Stormwater Manual will help these managers understand the importance of maintaining and establishing appropriate BMPs to reduce the impact of paved areas on local watersheds. The breakfast education meetings will also help managers understand the benefits of stormwater management and green infrastructure.

Table 2-1 provides a list of target pollutants and their associated target audiences for MCM1. Table 2-2 provides the target mechanisms for each audience.

Table 2-1: MCM 1 Target Pollutants and Audiences

Target Pollutant	Potential Sources/ Target Audience(s)
Residential Pollutants: • Household hazardous waste • Litter/solid waste • Pesticides and herbicides • Pet wastes • Used oil • Fertilizer/nutrients	• Homeowners • Residents • Students; grades K-12 • Local college students • City Council
Industrial and Commercial Pollutants: • Used oil • Sediment • Litter/solid waste • Hazardous materials • Process chemicals and materials	• Business owners • Industrial site managers • Developers • Engineers • Management of large paved areas
Construction Pollutants • Sediments • Litter/solid waste • Cement rinse water • Paint • Other Hazardous Waste	• Developers • Homeowners • Contractors • Engineers

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Table 2-2 MCM 1 Target Audiences and Outreach Mechanisms

Target Pollutant	Potential Sources/ Target Audience(s)
Residential Pollutants: • Household hazardous waste • Litter/solid waste • Pesticides and herbicides • Pet wastes • Used oil • Fertilizer/nutrients	• Homeowners • Residents • Students; grades K-12 • Local college students • City Council
Industrial and Commercial Pollutants: • Used oil • Sediment • Litter/solid waste • Hazardous materials • Process chemicals and materials	• Business owners • Industrial site managers • Developers • Engineers • Management of large paved areas
Construction Pollutants • Sediments • Litter/solid waste • Cement rinse water • Paint • Other Hazardous Waste	• Developers • Homeowners • Contractors • Engineers

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2.3 Best Management Practices (BMPs)

The MS4 Permit requires permittees to develop or design BMPs to address each MCM and include in the SWMP (Section 4.1.1 of the MS4 Permit). Moberly has many ongoing public education BMPs to address MCM1, including:

- Informational articles are developed and published in the local newspaper or on the city website on stormwater topics to provide information to the public. The City tracks articles and article responses through the City's website or phone calls.
- The City and Magic City Master Gardeners sponsor the Master Gardeners' Annual Plant Sale in May of each year. Educational information on topics such as composting, rain gardens, and rain barrels, is shared at this event. This event is open to the public. Typical attendance is 200 or more participants.

- The City also partners with other local environmental organizations such as the Messbusters of Moberly to ensure they have the resources they need to educate people about stormwater issues
- The City has a Household Hazardous Waste program in place. Methods of outreach and education for this program include the City's website, brochures, and social media.
- The City works with local college and high school students to stencil storm drains and clean up trash around town
- The City has developed printable educational materials that are available to the public. Currently, the City has the following stormwater printed brochures (Attachment B) that are available and distributed as needed. The brochures include the following topics:
    - Best Management Practices for Excavation-Foundation Work
    - Best Management Practices for General Construction
    - Composting
    - Green Lawn Care
    - Pesticide Safety Tips
    - Rain Barrels
    - Storm Drain Stenciling
    - Pick up After Your Pet

The following BMPs will be designed, developed, or further developed, between 2021 and 2026 regarding MCM1:

- The City will update the printable brochures and keep the information in them relevant and up-to-date.
- The City will provide presentations to students, local organizations, and city council to educate about stormwater issues
- The City will hold regular Breakfast Education Meetings to inform and receive feedback from developers, contractors, business owners, and industrial site managers who work in Moberly

2.4 Measurable Goals

Moberly has established measurable goals for each BMP, as required by Section 4.1.1 of the MS4 Permit. The intent of a measurable goal is to provide quantifiable milestones to document progress toward the MCMs through the established BMPs. Table 2-1 provides Moberly's measurable goals for the BMPs designated for MCM1.

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Table 2-2 MCM1 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency	Assessment Method
Printed Brochures	Distribute at least 100 brochures per year in at least 3 locations.	Ongoing	Annually	Track brochures distributed, dates, and locations. Use surveys to track public understanding of stormwater issues
Update Brochures	Update or create two brochures per year	Dec, 2026	Annually	Track brochures updated
Breakfast Education Meetings to Business/Industry	Host one per year or five total	Ongoing	Annually	Track number hosted and attendance. Use surveys and feedback sessions to track understanding of stormwater issues
In-person presentations to target audiences	Host one per year or five total	Ongoing	Annually	Track number completed and attendance. Use surveys and feedback sessions to track understanding of stormwater issues
Storm drain stenciling	Host at least one stenciling event per year, coving at least one street.	Ongoing	Annually	Track number completed and location. Use surveys to track public understanding of stormwater issues
Partnerships with local environmental organizations	Partner with at least two local organizations, and supply them with donations and/or volunteer labor	Ongoing	Annually	Track organizations partnered with, donations made, and man-hours volunteer labor by city staff. Get feedback from organizations about how the city can help them achieve their goals.
Trash cleanups	Host at least two trash cleanups per year.	Ongoing	Annually	Track amount of trash cleaned up to track effectiveness of cleanups, as well as the dates events were hosted and the attendance.
Publish articles	Publish at least four articles per year on stormwater topics through newspaper or website	Ongoing	Quarterly	Track articles published, topics, and responses. Use surveys to track public understanding of stormwater issues
Social Media Posts	Publish three times per month on city-owned social media pages about stormwater issues.	Ongoing	Monthly	Track engagement on posts. Use surveys to track public understanding of stormwater issues.

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3.0 MCM2: Public Involvement and Participation

3.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.2. The purpose of MCM2 is to establish a public involvement/participation program to provide opportunities for public involvement in:

- The development and oversight of the permittee's SWMP; and
- The permittee's renewal application.

The City's public involvement/participation program includes, at a minimum:

- Per 4.2.A, a 30-day public notice period to allow the public to review the SWMP and renewal application prior to submission of the SWMP and renewal application to the MDNR. All comments were recorded in a spreadsheet.
- Per 4.2.B, a 30-day notice of public hearing, regarding the SWMP and renewal application.
- Per 4.2.C, publicly available online forms on the city website for public inquiries, concerns, or requests for information about stormwater and stormwater related topics
- Per 4.2.D, the city contacts citizens; including developers, business owners and managers, and city residents; to recruit for the stormwater committee

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM2.

3.2 Best Management Practices (BMPs)

The City will hold a public meeting prior to the next permit renewal to allow the public to provide input to the content of the updated SWMP, prior to finalizing this plan. The meeting will be announced 30 days ahead of time via newspaper, radio, the city website, and social media. The city will also develop a stormwater committee of stakeholders (members of the public and City staff) that comments on the next permit renewal. Invitees to the committee include the following groups:

- City Council
- Moberly Area Economic Development
- Chamber of Commerce
- Main Street Moberly
- Moberly Area Public Schools
- Industries
- Commercial Businesses
- Developers
- Engineering Companies
- General Public

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Committee invitations and attendance will be tracked in a spreadsheet.

3.3 Public Inquiries

In accordance with MS4 Permit Section 4.2.C, the City has established a form on the city website where people can leave stormwater concerns or questions. This form will be advertised throughout the public notice period.

3.4 Measurable Goals

Table 3-1 provides Moberly's measurable goals for the BMPs designated for MCM2.

Table 3-3 MCM2 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency	Assessment Method
Hold public meeting for SWMP updates and permit renewal	Host once per permit renewal and once per update of the SWMP	December 2026	Once per permit cycle	Track meetings hosted and attendance. Use feedback sessions to track public understanding and acceptance of regulation
Develop a stormwater committee of stakeholders	Hold one meeting per permit cycle	December 2026	Annually	Track meetings hosted, invitations, and attendance. Use feedback sessions to track public understanding and acceptance of regulation
Source water protection planning	Host meetings once per update of protection plan.	Ongoing	Per permit cycle	Track meetings held and attendance. Use feedback sessions to track public understanding and acceptance of regulation
Advertise stormwater forms available on city website	Receive more than 50% of resident complaints and concerns through forms.	December 2026	Annually	Track number of forms submitted, and concerns submitted other ways (such as phone calls) to track public awareness

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4.0 MCM3: Illicit Discharge Detection and Elimination

4.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.3. The purpose of MCM3 is to establish procedures to prevent illicit discharges from city outfalls to receiving water bodies and provide enforcement in accordance with Chapter 34, Article II of Moberly's Code of Ordinances (Attachment C), and an Illicit Discharge Detection and Elimination (IDDE) plan (Attachment D). The IDDE MCM includes plans and procedures for:

- Detecting and addressing non-stormwater discharges of the City's stormwater system;
- Screening dry weather flows using field tests designed for determining discharge sources;
- Screening priority inspection areas;
- Tracing sources and eliminating illicit discharges;
- Implementing enforcement;
- Addressing non-stormwater discharges or flows that are a significant contributor of pollutants to the MS4; and
- Informing public employees, businesses, and the general public of the hazards associated with illegal discharges

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM3.

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4.2 Best Management Practices (BMPs)

Chapter 34, Article II of Moberly's Code of Ordinances (Attachment C) and *Illicit Discharge Detection and Elimination Plan* (Attachment D) provide procedures and plans for IDDE. In addition, Moberly has ongoing BMPs to address MCM3, including the following:

- Per section 4.3.A, the City has created a map of the representative storm MS4 outfalls (Attachment E).
- Per sections 4.3.B and 4.3.G, the City has established an inspection and enforcement plan for illicit discharges in the IDDE plan.
- Per 4.3.C the City has an Emergency Response Plan for accidental spills in Appendix C of the IDDEP.
- Per 4.3.C the City has established procedures for identifying and tracing an illicit discharge in the IDDE plan.
- Per 4.3.D, the City provides department heads and supervisors with a copy of the SWMP.
- Per 4.3.D, businesses and the general public are provided with pamphlets and targeted educational opportunities.

- Per 4.3.D, the City's Household Hazardous Waste program provides a free service to residents to dispose of household hazardous waste, and thus discourages illicit dumping of these products.
- Per sections 4.3.E and 4.3.F, The city conducts quarterly dry weather field screenings of representative outfalls and priority areas. The form used for these screenings is included in Appendix C of the IDDE plan, and the criteria for determining priority areas is in section 4.4 of this document.

The following BMPs will be designed, or further developed between 2021 and 2026 regarding MCM3

- Per section 4.3.A, the City is developing a full map of the storm sewer system including all outfalls and permanent BMPs using the GIS system, which will be updated as the need arises due to development.
- The City has created, and will continue to publicize and develop a public form on the city website for stormwater and illicit discharge concerns

4.4 Priority Area Criteria

Per 4.3.F, priority areas are any area with evidence of ongoing illicit discharges or dumping, any area with recent unique complaints, any area with onsite sewage treatment, and industrial areas which are part of the pretreatment program. Each priority area will be screened at least once per quarter while qualifying, and for at least two quarters after ceasing to qualify as a priority area. The procedure will be the same as that used for the representative outfalls. If evidence of illicit discharge is observed, a water sample will be collected and analyzed for e. coli, nitrates, nitrites, total suspended solids, pH, biological oxygen depletion, and chemical oxygen depletion. If the cause of the illicit discharge is known, the sample may be sent for out-of-house testing to detect concentrations of known contaminants.

4.5 Measurable Goals

Table 4-1 provides Moberly's measurable goals for the BMPs designated for MCM3.

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Table 4-1 MCM3 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency	Assessment Method
Inspect representative outfalls	Inspect all representative outfalls quarterly	Ongoing	Quarterly	Track inspection forms, follow up on issues
Priority areas inspected	Inspect all priority areas quarterly	Ongoing	Quarterly	Track inspection forms, update priority areas quarterly
Industry contacts made for IDDE Plan	Update IDDE Plan within one year of contact information changing	Ongoing	Annually	Track contacts, keep IDDE Plan up to date, check contact information when issuing invitations to breakfast education meetings
Concerns, spills, and complaints investigated	Respond to all complaints within 5 business days	Ongoing	Annually	Track complaints and follow up, add areas with repeated complaints to priority area list
Contacts with on-site sewer owners	Track number of system corrections addressed	Ongoing	Annually	Track sewer owners and follow up actions
Household hazardous waste program	Divert at least 1200 lbs. of household hazardous waste annually.	Ongoing	Monthly	Track waste received and recycled
Printed Brochures	Distribute at least 100 brochures per year in at least 3 locations.	Ongoing	Annually	Track brochures distributed, dates, and locations. Use surveys to track public understanding of stormwater issues
In-person presentations to target audiences	Host one per year or 5 total	Ongoing	Annually	Track number completed and attendance. Use surveys and feedback sessions to track understanding of stormwater issues
Advertise stormwater forms available on city website	Respond to more than 50% of resident complaints and concerns through forms.	December 2026	Annually	Track number of forms submitted, and concerns submitted other ways (such as phone calls) to track public awareness
Update Storm Sewer map in GiS	Update at least 20% of known assets on storm sewer map per year, fully update during this permit cycle	December 2026	Annually	Track areas updated per year

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5.0 MCM4: Construction Stormwater Runoff Control

5.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.5. The purpose of MCM4 is to develop, implement, and enforce a stormwater runoff program for construction activities that result in land disturbance greater than or equal to one acre in size or part of a common plan of development or sale that would disturb land greater than or equal to one acre. Moberly has developed and implemented the *Land Disturbance Manual* in accordance with Chapter 34, Article III of Moberly's Code of Ordinances. The *Land Disturbance Manual* and City Ordinance include the following requirements of the MS4 Permit for this SWMP:

- Per 4.4.A and 4.4.G, sanctions designed to ensure compliance to the extent possible under state and local law;
- Per 4.4.B, requirements for the construction site operators to control construction site waste that may cause adverse impacts to water quality;
- Per 4.4.D, procedures for the permittee to receive and consider information submitted by the public, including coordination with the permittee's public education and involvement programs; and
- Per 4.4.C, 4.4.E, and 4.4.F, procedures for the permittee to inspect sites and enforce control measures, including prioritization of site inspection.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM4.

5.2 Target Pollutants and Audiences

Table 5-1 provides a list of target pollutants and their associated target audiences for MCM4.

Table 5-1 MCM4 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sediment, including vehicle track-out • Litter • Construction materials/chemicals • Concrete truck washout • Vehicle and equipment fluids	Construction sites • Sediment stockpiles • Construction materials • Waste materials • Vehicle maintenance/fueling	• Developers • Engineers • Contractors • Landowners/Homeowners • Industries • Commercial business owners

5.3 Best Management Practices (BMPs)

Chapter 34, Article III of Moberly's Code of Ordinances and *Land Disturbance Manual* provide procedures and plans for target audiences to comply with construction stormwater runoff. In addition, Moberly has ongoing BMPs to address MCM4, including the following:

- Active construction sites are inspected routinely for track out, appropriate BMP installation, waste management, stormwater inlet protection, and general management of the site, per the City's *Land Disturbance Manual*. The City's goal is to conduct inspections of active sites on a monthly basis, and

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typically after rain events greater than 2.0 inches. Inspection forms are included in the City's *Land Disturbance Manual*. Site shall be prioritized by the same standards as priority areas in section 4.4 of this document.

- The City will continue to require that every building permit issued by the City be forwarded to the Stormwater Department for review and signature, prior to issuance. This will ensure that all projects required to obtain a land disturbance permit are identified, and enter the permitting process, as provided in the *Land Disturbance Manual*.
- All sites that have been issued building permits will be monitored by City stormwater staff approximately every two months. This will help to ensure that unexpected activities at building permit sites that need a land disturbance permit are identified.
- Streams near construction sites are monitored for sediment, color, oil, litter, or other issues by City staff, routinely. This is usually done during construction site inspections using the procedure for dry weather field screenings described in appendix C.
- The City provides construction stormwater BMP brochures to homeowners, developers and project owners, and tracks the number and type of brochures distributed.
- The City tracks and responds to information and/or concerns submitted by the public regarding construction site activity within three business days. Information regarding these reports and responses are recorded in a spreadsheet.

The following BMPs will be designed or developed between 2021 and 2026 regarding MCM4:

- The City's stormwater staff will work with planning and zoning staff to coordinate on building and construction requirements, and work to develop a Frequently Asked Questions (FAQ) handout/brochure that could be provided to the public. This coordination and FAQ document will help the City to better assist and inform the public of the needs and requirements of the land disturbance program.
- The City has created, and will continue to publicize and develop fillable forms for stormwater complaints and questions on the city website

5.4 Measurable Goals

Table 5-2 provides the Moberly's measurable goals for the BMPs designated for MCM4.

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Table 5-2 MCM4 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency	Assessment Method
Issue permits for land disturbance sites	Issue permits for all active construction sites that require a permit	Ongoing	Annually	Track permit issuance
Active construction site inspections	Inspect once per month per permitted site	Ongoing	Monthly	Track inspections completed.
Printed Brochures	Distribute at least 100 brochures per year in at least 3 locations.	Ongoing	Annually	Track brochures distributed, dates, and locations. Use surveys to track public understanding of stormwater issues
Provide the Land Disturbance Manual to owner/developers/engineers	Provide this information up front on all projects	Ongoing	Annually	Track the number of projects and copies issued.
Concerns, spills, and complaints investigated	Respond to all complaints within 5 business days	Ongoing	Annually	Track complaints and follow up, add areas with repeated complaints to priority area list
Route all building permits through the Stormwater Department for signature	Sign off on all building permits	Ongoing	Annually	Track number of building permits issued.
Inspect all building permit sites	Inspect each site once every two months	Ongoing	Bimonthly	Track inspections
Develop a FAQ document with planning and zoning staff	Completion of the new document	October 2026	Once during the permit cycle	Get feedback from code enforcement and public about effectiveness
In-person presentations to target audiences	Host one per year or 5 total	Ongoing	Annually	Track number completed and attendance. Use surveys and feedback sessions to track understanding of stormwater issues

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6.0 MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

6.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.5. The purpose of MCM5 is to develop, implement, and enforce a post-construction stormwater program for construction activities that result in land disturbance greater than or equal to one acre in size or part of a common plan of development or sale that would disturb land greater than or equal to one acre. Moberly has established the *Post-Construction Stormwater Manual* in accordance with Chapter 34, Article IV of Moberly's Code of Ordinances. The *Post-Construction Stormwater Manual* and Ordinance meet the following requirements of the MS4 Permit for this SWMP:

- Per 4.5.A and 4.5.B, strategies to minimize water quality impacts, which include a combination of appropriate structural and non-structural BMPs.
- Per 4.5.C, a plan to ensure adequate long-term operation and maintenance of new Post-Construction BMPs
- Per 4.5.D and 4.5.E: an inspection plan with implementation schedules for post-construction BMPs.

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM5.

6.2 Target Pollutants and Audiences

Table 6-1 provides a list of target pollutants and their associated target audiences for MCM5. Table 6-2 provides the target outreach mechanisms for each audience.

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Table 6-1 MCM5 Target Pollutants and Audiences

Target Pollutant	Potential Sources	Target Audience(s)
• Sediment • Runoff volumes • Litter • Waste materials • Commercial/industrial products	Post-construction stormwater BMPs, including permanent structural controls	• Developers • Engineers • Contractors • Landowners • Industries • Commercial business owners • Homeowners Associations

Table 6-2 MCM5 Target Audiences and Outreach Mechanisms

Target Audience	Target Outreach Mechanism
• Land owners • Homeowners' Associations	• Household Hazardous Waste Program • Printed brochures
• Commercial business owners	• Breakfast Education Meeting • Printed brochures
• Industrial business owners • Industrial site managers	• Breakfast Education Meeting • Printed brochures • City Post-Construction Manual
• Developers • Project owners • Engineers • Realtors • Chamber of Commerce • Moberly Area Economic Development	• In-person project meetings • Breakfast Education Meeting • Printed brochures • City Post-Construction Manual

6.3 Best Management Practices (BMPs)

Chapter 34, Article IV of Moberly's Code of Ordinances and *Post-Construction Stormwater Manual* provide procedures and plans for target audiences to comply with post-construction stormwater runoff. In addition, Moberly has many ongoing BMPs to address MCM5, including the following:

- The City reviews and issues operating permits for post-construction BMPs, per the *Post-Construction Stormwater Manual.* Operating permits are issued for one year, and City inspections are initiated upon renewal of the permit.
- The *Post-Construction Stormwater Manual* was revised and updated in 2018. The City will continue to inform stakeholders, provide access to copies of the manual, and follow the procedures in the updated manual to implement the program.

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- The City conducts a pre-construction site assessment for post-construction BMPs and requires protection of sensitive areas.
- The City conducts inspections of permitted post-construction BMPs annually, at a minimum. Owners are given time allotments to correct deficiencies, per the *Post-Construction Stormwater Manual* and City Ordinance.
- Streams near post-construction BMPs are monitored by City staff, during inspections or in response to complaints, for downstream impacts such as erosion, sediment, oil, or litter.
- Post-Construction BMP sites are inspected to ensure sensitive areas are not impacted. Inspection forms are included in the City's *Post-Construction Stormwater Manual.*
- The City tracks and responds to information and/or concerns submitted by the public regarding water quantity/quality issues. Information regarding these reports and responses are recorded in a spreadsheet.
- A demonstration project including rain gardens is present at City Hall.

The following BMPs will be designed or developed between 2021 and 2026 regarding MCM5:

- The City is developing a full map of the storm sewer system including all outfalls and post-construction BMPs using the GIS system, which will be updated as the need arises due to development.
- Inspect post-construction BMP sites with operating permits at least two months prior to the expiration of the permit and describe any deficiencies in a letter to the owner along with a reminder to apply for permit renewal.
- Inspect and issue permits for all existing post-construction BMPs that do not already have an operating permit.
- Conduct outreach and education on post-construction BMPs for developers, realtors, chamber of commerce, economic development, engineering firms, and City staff.

6.4 Measurable Goals

Table 6-3 provides the Moberly's measurable goals for the BMPs designated for MCM5.

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Table 6-3 MCM5 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency	Assessment Method
Post-construction BMP inspections	Inspect once per year per permitted site/permit renewal,	Ongoing	Annually	Track inspections completed and number of permitted sites
Issue operating permits for post-construction BMPs	Have operating permits for all post-construction BMPs within three years	December 2023	Annually	Track permit issuance and number of qualifying sites
Monitoring streams near post-construction BMPs	Per permit cycle or in response to complaints and in response to BMP failure with potential downstream impacts	Ongoing	Annually	Track inspections completed and number of permitted sites
Printed Brochures	Distribute at least 100 brochures per year in at least 3 locations.	Ongoing	Annually	Track brochures distributed, dates, and locations. Use surveys to track public understanding of stormwater issues
Provide the Post-Construction Stormwater Manual to owner/developers/engineers	Provide this information up front on all projects; track the number of projects	Ongoing	Annually	Track the number of projects and copies issued.
Concerns, spills, and complaints investigated	Respond to all complaints within 5 business days	Ongoing	Annually	Track complaints and follow up, add areas with repeated complaints to priority area list
Maintain demonstration rain garden at City Hall	Remove trash, weeds, and parasites form the rain gardens, and replace plants as needed	Ongoing	Monthly	Monitor health and cleanliness of rain garden weekly, track complaints
In-person presentations to target audiences	Host one per year or five total	Ongoing	Annually	Track number completed and attendance. Use surveys and feedback sessions to track understanding of stormwater issues
Update Storm Sewer map in GiS	Update at least 20% of known assets on storm sewer map per year, fully update during this permit cycle	December 2026	Annually	Track areas updated per year

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7.0 MCM6: Pollution Prevention/Good Housekeeping

7.1 Purpose and Scope

This section of the SWMP was developed in accordance with MS4 Permit Section 4.6. The purpose of MCM6 is to develop and implement an operation and maintenance program that includes a training component and has the goal of preventing or reducing pollutant runoff from municipal operations. The program includes the following requirements of the MS4 Permit for this SWMP:

- Per 4.6.A, a government employee training program to prevent and reduce stormwater pollution;
- Per 4.6.B and 4.6.C, a list of all municipal operations impacted by the operations and maintenance program, including a list of industrial facilities subject to NPDES permits that are owned or operated by the City;
- Per 4.6.D, 4.6.E, 4.6.F, 4.6.G, and 4.6.H: maintenance BMPs, schedules, and long-term inspection procedures and controls for reducing or eliminating the discharge of pollutants from City owned/operated outdoor areas;
- Per 4.6.I, procedures to ensure all flood management projects are assessed for impacts of water quality, incorporating water quality protection devices or practices

The Director of Public Utilities and Water Quality Coordinator will serve as the responsible persons for MCM6.

7.2 Target Pollutants and Audiences

Table 7-1 provides the City of Moberly's target audiences and outreach mechanisms

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Table 7-1 MCM6 Target Audiences and Outreach Mechanisms

Target Pollutant	Potential Sources	Target Audiences
• Sanitary or combined sewer overflows • Sediment • Litter • Hazardous waste • Automotive/equipment fluids • Fuel • Street salts and sand • Chlorine	• City Parks Department • Aquatic Center • Wastewater Treatment Facility (has an NPDES Permit) • Heritage Hills Golf Course (has an NPDES Permit) • Airport (has an NPDES Permit) • Drinking Water Treatment Facility • Street Barn • Distribution and Collection Department • Animal Shelter • Household Hazardous Waste Facility • Police Department • Fire Department • Clean Fill Site	• City employees • City council members • City officials • Contractors • Consultants

7.3 Best Management Practices (BMPs)

Moberly has ongoing BMPs to address MCM6, including:

- Site inspections are conducted at the department headquarters annually.
- City staff receive training annually via training videos.
- The City organizes "Pride in Moberly" city-wide clean up days annually.
- Open channel storm water drainage conveyances have been refurbished using rock, matting, seeding, and mulch to reduce erosion and settlement. The City has a goal of refurbishing additional conveyances.
- Street sweeping activities are conducted weekly.
- Storm drain inspections, cleaning, and repair are conducted as needed.
- Sewer jetting and root saw programs are in place to reduce backups and overflows.
- The City will provide copies of the updated SWMP to all City Departments.
- The City will conduct a meeting with managers and foremen from all departments to inform them and get feedback about the content and requirements of the SWMP. This will help to increase awareness of City staff to any changes to the SWMP regarding City operations and ensure the SWMP is effectively preventing illicit discharges.

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7.4 City Staff Training

All City Staff who work with material handling, park and open space maintenance, fleet and building maintenance, storm water system maintenance, at MS4 vehicle or equipment maintenance areas, at storage yards, and at material storage facilities shall receive annual stormwater training consisting of watching the DVD Municipal Employee Training Series: Preventing Stormwater Pollution: What We Can Do. A sign-in sheet will be used to track the attendance at the training sessions, and which departments have been trained.

7.5 Flood Management Plans

All city flood management projects shall be built and maintained in accordance with the Post-Construction Stormwater manual and maintained according to the standards described in Section 6 of this document. All permanent BMPs will be included in the GiS Storm Sewer map and inspected annually and in response to citizen concerns and known or suspected illicit discharges.

7.6 Measurable Goals

Table 7-2 provides Moberly's measurable goals for the BMPs designated for MCM6.

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Table 7-2 MCM6 Measurable Goals

BMP	Measurable Goal	Completion Milestone Date	Measurement Frequency	Assessment Method
Site inspections at each department headquarters	Inspect each site annually	Ongoing	Annually	Track location and reports of inspection;
City staff training	Conduct training annually for each department	Ongoing	Annually	Record names of staff who complete the training, dates of training, and departments trained
Host City-wide clean up days	Host at least two trash cleanups per year.	Ongoing	Annually	Track amount of trash cleaned up to track effectiveness of cleanups, as well as the dates events were hosted and the attendance.
Refurbish open-channel stormwater drainage ditches	Goal is to complete three during the permit cycle	October 2026	Annually	Track refurbishments completed, and quarterly stream and outfall inspections as outlined in MCM 3
Street sweeping	Sweep weekly	Ongoing	Weekly	Track hours operated, gallons of water used, and tons of material collected/disposed. Quarterly stream and outfall inspections as outlined in MCM 3
Sewer Root Saw Work	Saw at least 11,249 feet per year	Ongoing	Annually	Track work completed and location. Quarterly stream and outfall inspections as outlined in MCM 3
Sewer jetting	10 miles per year	Ongoing	Annually	Track work completed and location. Quarterly stream and outfall inspections as outlined in MCM 3
Provide copies of updated SWMP to City staff, and conduct meeting with City staff to review the contents of the plan	Hold at least one meeting per SWMP update	December 2026	Once per permit cycle	Record meeting attendance and feedback
Create SOPs for city facilities to prevent pollution from floatables or other pollutants, per 4.6.D, 4.6.E, 4.6.F, 4.6.G, and 4.6.H	Finish all SOPs by June 30, 2022	June, 2022	Annually	Use facilities inspections and representative outfall inspections to monitor the health of streams in the watershed of municipal facilities. Use staff meetings and training sessions to ensure city personnel understand SOPs, and that SOPs are functioning correctly.
Flood control post-construction BMP inspections	Inspect once per year per permitted site/permit renewal,	Ongoing	Annually	Track inspections completed and number of permitted sites

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8.0 Recordkeeping and Reporting

8.1 Recordkeeping

This section of the SWMP was developed in accordance with MS4 Permit Section 5.2. The City will retain the most recent version of this SWMP to be made available upon request. In addition, Moberly will maintain the following records for a minimum of three years from the date of application for coverage under the MS4 Permit:

- Activities requiring recordkeeping by this SWMP;
- The most recent version of this SWMP;
- A copy of the NPDES permit, ordinances, policies, and formal procedures for all six MCMs; and
- Records of the data used to complete the application for the MS4 Permit.

8.2 Reporting

This section of the SWMP was developed in accordance with MS4 Permit Section 5.3. The City will submit a SWMP report to MDNR annually by February 28th. Reports will be submitted through the MDNR's Form MO 780-1846 (Attachment F), unless an alternative reporting format is approved. If the MS4 becomes subject to a Total Maximum Daily Load (TMDL), this SWMP will be updated accordingly. Reports will contain the following required information from January 1 to December 31 of the previous year:

- Information regarding progress toward achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable (MEP);
- The status of the MS4's compliance with permit conditions;
- Assessment(s) of the appropriateness of identified BMPs and corresponding measurable goals for each MCM;
- A summary of results of information collected and analyzed during the reporting period, including monitoring data or quantifiable values per the MS4's measurable goals;
- A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule);
- Any proposed changes to the permittee's SWMP, including changes to any identified BMPs or measurable goals that apply to the SWMP; and

  If applicable, note that the permittee is relying on another government entity to satisfy some of the permittee's permit obligations. The permittee will supply the name of the entity, the name of the entity's primary contact person, and other relevant contact information.

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