



## NPDES Phase II Stormwater Annual Report

### Municipal Separate Storm Sewer System (MS4) Permit MO-R040029

**2019 MS4 Permit Report**  
Reporting Period: Jan. 1, 2017 to Dec. 31, 2018





## NPDES Phase II Stormwater Annual Report

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Minimum Control Measure #1: Public Education and Outreach							
<b>Target Audiences:</b>		Residents, businesses, contractors, students and City officials and employees					
<b>Target Pollutants &amp; Sources:</b>		Improper use or disposal of lawn chemicals and yard, pet, business and construction waste. Trash from littering/dumping.					
<b>1. Status of Permit Compliance</b>							
<b>Summary</b>							
All milestones and measurable goals have been met or are on track to meet the measurables goals with the exception of our partnering goal for middle school students. Targeted audience mailings and social media press releases and articles appear to be the most effective means of engaging the public.							
<b>Status of Measurable Goals</b>							
Task/BMP	Measurable Goal	Interim Milestones	Implementation Goal Complete?			Accomplishments	
			Schedule	Yes	No		On-track
<b>Distribute educational materials</b>	Distribute 300 postcard or door hangers to targeted audiences	Identify targeted audiences	May 2017	X			Distributed 350 "What can YOU do to protect our Streams?" door hangers along stream corridors and 50 "Put waste in its place for clean water in Raymore" postcards to local businesses
Use social media to issue <b>press releases and articles</b>	100 reach/engagements		Ongoing				<ul style="list-style-type: none"> <li>• Average reach: 1,200 people</li> <li>• Engagement (post clicks, likes, shares, comments) consistently between 60-125</li> </ul>
Host an informational booth at a City <b>community event</b>	Host a stormwater booth at Festival in the Park and track 50 visits to the booth		September 2018	X			85 visits

## 2019 MS4 SWMP Report: Progress & Compliance

Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation	Goal Complete?			Accomplishments
			Schedule	Yes	No	On-track	
Stock City Hall informational kiosk <b>brochures</b> as needed	Distribute 500 brochures	Replenish quarterly or as needed	June 2014				Distributed 105 brochures
<b>Inlet stenciling</b>	Stencil a minimum of ten (10) inlet tops	Map inlets for priority order of stencil or placarding	August 2017	X			Installed 100 "Drains to Stream" medallions on curb inlet tops during reporting period.
Partner with a non-profit environmental <b>educational</b> organization	Impact 500 middle school students	Partner with Blue River Watershed Association the TRUE(Teaching Rivers in An Urban Environment) Blue program to 5th grade students in the Raymore Public School District.	September 2017		X		The Raymore school district was not able to incorporate this 4 day program into their curriculum schedule.
Install pet waste stations(and signage) along the City's trail system	Install six (6) pet waste stations	Acquire pet waste stations and map locations for installation	April 2019			X	Stations to be installed along Hawk Ridge Park trail (to be completed in Spring 2019).
Install four (4) Stream/Riparian Zone signs	Install four (4) Stream/Riparian Zone signs	Acquire "Don't mow Let it Grow!" signs	June 2017	X			All Stream/Riparian zones are signed.
Update and maintain the City's stormwater program website	Update and maintain the City's stormwater program website yearly	Review yearly	June 2015			X	The City's stormwater program website was maintained and updated yearly.
<b>Advertise</b> household hazardous waste (HHW) and prescription drug drop-off events	Advertise two events per year	Track amount of material collected	• HHW: Varies yearly. • Drug drop off: April and October annually	X			Two prescription drug drop-offs and one HHW events were advertised.



## 2019 MS4 SWMP Report: Progress & Compliance

### Minimum Control Measure #1: Public Education and Outreach

**Target Audiences:** Residents, businesses, contractors, students and City officials and employees.

**Target Pollutants & Sources:** Improper use or disposal of lawn chemicals and yard, pet, business and construction waste. Trash from littering/dumping.

#### 2. Summary of Public Education/ Outreach activities scheduled for the next reporting cycle:

BMPs from the previous reporting period are deemed effective and shall be continued. Partnership opportunities with other non-profit educational organizations are being explored to meet our goal of educating elementary and/or middle school students. The new park/event venue opening in the summer of 2019 will open up new Education/Outreach opportunities to reach broader groups as well as the Raymore summer camp program.

#### 3. Proposed Changes to the Stormwater Management Plan, BMPs or measurable goals

Permit requirement 4.2.1.1.3 Update outreach to include social media. Add stream clean ups to measurable goals.

Permit requirement 4.2.1.1.4 and 4.2.1.1.5 Clarify target audiences to include residents and land developers

## 2019 MS4 SWMP Report: Progress & Compliance

Minimum Control Measure #2: Public Participation / Involvement							
Target Audiences:		Residents, businesses, contractors, students and City officials and employees					
Target Pollutants & Sources:		Improper use or disposal of lawn chemicals and yard, pet, business and construction waste. Trash from littering/dumping.					
<b>1. Status of Permit Compliance</b>							
<b>Summary</b>							
All milestones and measurable goals have been met or are on track to meet the measurable goals. The 24-hour Concern Hotline is in the process of being updated to simplify connectivity to the appropriate concern area or personnel. Questions gauging public perception, exposure to information and behaviors are included in the Citizen Survey. Volunteerism at stream clean up events and participation in HHW drop off events are increasing.							
Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation	Goal Complete?			Accomplishments
			Schedule	Yes	No	On-track	
Maintain a Stormwater Management page on the City's website	Track at least 50 visits to the website	Update the SMP and post the annual reports yearly	July 2014	X			Annual reports were posted yearly. 129 visits were tracked through the Erosion Control Certification Program.
Compile a list of HOAs, environmental groups, commercial and industrial businesses, and educational organizations	Compile a list of groups open to volunteer or educational opportunities	Partner with Community Development / Planning Departments	Update yearly	X			Created partnerships with the South Grand River Watershed Alliance and Stream Team for community clean-ups and educational opportunities.
<b>Promote and assist</b> in the implementation of a <b>community clean-up event</b>	Host one stream clean-up each year	Advertise clean-up events. Social media/signage/newspaper	March 2017/2018/2019	X			Hosted events March 24, 2017 and March 18, 2018. Next event March 23, 2019.
Continue Household Hazardous Waste (HHW) events	Partner or host one event each year	Advertize HHW events	2012	X			Raymore residents disposed of 52,669 lbs of HHW in 2017 and 24,549 lbs in 2018.

## 2019 MS4 SWMP Report: Progress & Compliance

Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation	Goal Complete?			Accomplishments
			Schedule	Yes	No	On-track	
Post the Stormwater Management Plan and annual reports on the City's website	Post the Stormwater Management Plan and annual reports on website	Update the SMP and post the annual reports yearly	July 2014	X			Stormwater Reports posted yearly from 2014-2017.
<b>Concern Hotline</b>	Respond and track 100%	Review tracking effectiveness	February 2019			X	100% response rate achieved. A link has been added to send concerns directly to the appropriate page and respondent.
<b>Stormwater Survey</b>	Include stormwater outreach and attitude questions in the biennial City's Citizen Survey	Compile responses from previous surveys (2015, 2017) to track effectiveness of our outreach program	March 2019			X	The next Citizen Survey is in March 2019.
<p><b>2. Summary of Public Participation / Involvement activities scheduled for the next reporting cycle:</b>                      BMPs from the previous reporting period are deemed effective and shall be continued. Community clean-up and HHW events are scheduled into 2020. Partnership with Raymore Parks and Recreation is on track for 2020 Earth Day events. A stormwater/water quality booth will be hosted at the Raymore Farmers Market summer 2019.</p>							
<p><b>3. Proposed changes to the Stormwater Management Plan, BMPs or measurable goals:</b>                      Permit requirement 4.2.2.1 Update means of providing public notice to review and renewal application of the SMP.                      Permit requirement 4.2.2.1.3 Update measurable goal and milestone to include the number of stakeholders targeted during a specific timeframe.</p>							

## 2019 MS4 SWMP Report: Progress & Compliance

Minimum Control Measure #3 Illicit Discharge Detection and Elimination							
Target Audiences:		Residents, Businesses, Contractors, Property Owners, and City Employees					
Target Pollutants & Sources:		Improper use or disposal of lawn chemicals, yard, pet, business and construction waste. Trash from littering/dumping.					
<b>1. Status of Permit Compliance</b>							
<b>Summary</b>							
All milestones and measurable goals have been met or are on track to meet the measurable goals. IDDE training of field staff is effective in detecting and reporting illicit discharges. In addition, the City mapped an additional 395 outfalls through reconnaissance under the outfall identification guidance.							
Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal Complete?			Accomplishments
				Yes	No	On-track	
<b>IDDE Inspection and Enforcement</b>	<ul style="list-style-type: none"> <li>• Inspect all representative outfalls on a semi-annual basis.</li> <li>• Inspect twenty-five (25) percent of Priority Area Businesses (Businesses where there is a higher likelihood of potential illicit discharge) yearly.</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct dry weather screening on representative outfalls.</li> <li>• Map interior outfalls.</li> <li>• Update Priority area business (as necessary)</li> <li>• Document locations of illicit discharge and actions taken</li> </ul>	May 2014	X			All representative outfalls and priority area businesses inspected. No illicit discharges discovered. Interior outfalls mapped.
<b>Training and Outreach</b>	Provide annual IDDE training to city employees whose duties place them frequently in the field	Provide spill kits at the Public Works Shop and in designated vehicles	February 2017 August 2018	X			Two trainings held with 42 participants
<b>IDDE Control Ordinance</b>	Maintain and review the SOPs and associated ordinance(s) for reporting, tracing, removing, and enforcing illicit discharges	Update ordinance and SOPs to reflect new permit conditions as needed	March 2019			X	SOPs updated to include new outfall data

## 2019 MS4 SWMP Report: Progress & Compliance

Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal Complete?			Accomplishments
				Yes	No	On-track	
HHW and Prescription drug drop-off events	Advertise and assist household hazardous waste (HHW) and prescription drug drop-off events	Advertise events on social media and signage for drug drop-off location in City Hall	September 2017(Host) May 2018	X			Raymore residents disposed of 52,669 lbs of HHW in 2017 and 24,549 lbs in 2018
Sanitary sewer (I&I) investigation	Use digital TV to inspect 1000 feet of sanitary line per year	Add impaired pipe or line to the annual I&I repair project	June 2014	X			Inspected 3033 feet of line in this reporting period
<b>Storm System Mapping</b>	Continue to update the GIS map adding all stormwater(interior) outfalls to the Representative Outfalls	Assist GIS Coordinator in setting parameters of outfalls. Review locations of Representative outfalls.	February 2019	X			Mapped 395 additional outfalls.
<p><b>2. Summary of Illicit Discharge Detection and Elimination activities scheduled for the next reporting cycle:</b></p> <p>Dry weather outfall and priority area screening, employee training and HHW events will continue into the next reporting period. Representative outfalls will be revised based on additional 395 outfalls mapped.</p>							
<p><b>3. Proposed changes to the Stormwater Management Plan, BMPs, or measurable goals:</b></p> <p>Permit requirement 4.2.3.1.1 Update the SMP to include 395 additional outfalls mapped. Add map and Outfall Location Numbers</p> <p>Permit requirement 4.2.3.1.4 Update the SMP to include reference section to IDDE SOPs</p>							

## 2019 MS4 SWMP Report: Progress & Compliance

Minimum Control Measure #4 Construction Site Runoff Control							
<b>Target Audiences:</b>		Builders , Contractors , Developers , Residents, and Cty Inspectors					
<b>Target Pollutants &amp; Sources:</b>		Sediment and sediment tracking, litter, concrete truck washout, hazardous material from construction sites					
<b>1. Status of Permit Compliance</b>							
<b>Summary</b>							
All milestones and measurable goals have been met or are on track to meet the measurable goals. The City continues to review and inspect 100% construction plans and require erosion control certification for builders. Sediment and erosion control plans are integrated into all site plans (regardless of size) and SWPPPs are required for site plan reviews greater than one acre and commercial construction.							
<b>Status of Measurable Goals</b>							
Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal Complete?			Accomplishments
				Yes	No	On-track	
Erosion control <b>Certification and Training</b> for all single and multi-family home builders	Educate builders on erosion control requirements and penalties	Post link on City website to online training	May 2015	X			129 Builder certifications have been issued
Pre-Construction Site <b>Plan Review</b>	Continue to review 100% of residential and commercial construction sites	Track commercial and residential site plan reviews	July 2014	X			<ul style="list-style-type: none"> <li>• 282 Residential and 5 commercial sites reviewed (2017)</li> <li>• 197 Residential and 4 commercial sites reviewed (2018)</li> </ul>
Erosion Control plan <b>review and inspection</b>	Continue to inspect and review 100% of residential and commercial construction sites	Track commercial and residential site erosion control reviews and inspections	July 2015	X			<ul style="list-style-type: none"> <li>• 282 Residential and 5 commercial sites reviewed and inspected (2017)</li> <li>• 197 Residential and 4 commercial sites reviewed and inspected (2018)</li> </ul>
Construction Site <b>Inspection and Enforcement</b>	Review Ordinance		August 2017	X			Ordinance revised to clarify penalties for non-compliance
Construction Site Runoff <b>Ordinance</b>	Review Ordinance		August 2018	X			No revision necessary



**2019 MS4 SWMP Report: Progress & Compliance**

Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal Complete?			Accomplishments
				Yes	No	On-track	
<b>Enforcement of Construction site runoff violations</b>	Ensure the control of site run-off by education and/or penalties for non-compliance	Attach erosion control and vegetative restoration requirements to Land Disturbance Permit packages	August 2017	X			Erosion control regulations and penalties for are attached to all Land Disturbance packets. No enforcement action was taken on any commercial construction sites in this reporting period.
<p><b>2. Summary of Construction Site Runoff Control activities scheduled for the next reporting cycle:</b></p> <p>BMPs from the previous reporting period are deemed effective and shall be continued. Enforcement tracking of residential construction site to be updated to track offenders over multiple sites (single family).</p>							
<p><b>3. Proposed changes to the Stormwater Management Plan, BMPs, measurable goals:</b></p> <p>There are no proposed changes to the SMP at this time, however, the city is reviewing the need for clarification of Ordinance 455.101 and 455.020 with respect to land disturbance requirements for lots less than one acre. Permit section 4.2.4.1.1</p>							

**2019 MS4 SWMP Report: Progress & Compliance**

**Minimum Control Measure #5 Post Construction Runoff Control**

**Target Audiences:** Builders, Contractors, Developers and City Inspectors

**Target Pollutants & Sources:** Sediment, litter, stormwater runoff

**1. Status of Permit Compliance**

**Summary**

All milestones and measurable goals have been met or are on track to meet the measurable goals. The City continues to promote examples of post-construction BMPs in new and redevelopment construction. In November 2018, the city was recognized as a 2018 Sustainable Success Story from the Mid America Regional Council and The Academy for Sustainable Communities for our Permeable Paver Crosswalks project.

**Status of Measurable Goals**

Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal Complete?			Accomplishments
				Yes	No	On-track	
<b>Stormwater BMP Inspection and Enforcement</b>	Inspect all public and privately owned BMPs	Compile an inventory of all public and privately owned BMPs	June 2017	X			100% of known BMP's inspected. Deficiencies (Mostly due to improper maintenance and vegetation) were found in 20%
<b>Stormwater Treatment Ordinances</b>	Adopt and maintain Post-Construction Runoff Control ordinances	Present Post- Construction Treatment Requirement and Stream Buffer ordinances to the Planning Commission	June 2015	X			Ordinances adopted by Planning Commission: • Section 450.080 Stormwater Treatment Facility Plan Requirements • Section 450.090 Permit Procedures, Requirements, and Performance Surety. • Section 450.100 Construction Inspections • Section 450.100 Maintenance and Repair of Facilities • Section 450.120 Enforcement and Penalties

**2019 MS4 SWMP Report: Progress & Compliance**

Status of Measurable Goals							
Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal	Complete?		Accomplishments
				Yes	No	On-track	
BMP Maintenance Plans and Agreements	Require maintenance plans and bonds for all Stormwater BMPs constructed	Adopt ordinance Section 450.100-Maintenance and Repair of Facilities	2015	X			Maintenance plans and bonds on file for all structural stormwater BMPs after 2015. 3 BMP O&M plans and bonds were filed in this reporting period.
<b>Review</b> Municipal Code Ordinances	Incorporate standards and guidelines for flexible design criteria for Post-Construction BMPs.	Convened Native and Adaptive Landscapes committee	May 2017	X			Published 86 page Native and Adaptive Landscapes guide as a reference for consultants and developers
<p><b>2. Summary of Post Construction Runoff Control activities scheduled for the next reporting cycle:</b>                      Post construction inspection and enforcement ordinances are in place and operational. In the next reporting cycle an emphasis on tracking owners and maintenance enforcement in BMPs constructed before required maintenance agreements will be in effect. In addition, stormwater staff has acquired the software and will complete stormwater modeling training to address and design effective stormwater BMPs.</p>							
<p><b>3. Proposed changes to the Stormwater Management Plan, BMPs, or measurable goals:</b>                      There are no proposed changes at this time. Enforcement ordinance for pre-maintenance agreement BMPs will be reviewed and revised if needed.</p>							

**2019 MS4 SWMP Report: Progress & Compliance**

<b>Minimum Control Measure #6 Pollution Prevention/ Good Housekeeping</b>	
<b>Target Audiences:</b>	Municipal employees
<b>Target Pollutants &amp; Sources:</b>	Improper storage, use or disposal of fertilizers, herbicides, solvents, petroleum products. Sediment, litter and organic debris.

**1. Status of Permit Compliance Summary**

All milestones and measurable goals have been met or are on track to meet the measurable goals.

**Status of Measurable Goals**

Task/BMP	Measurable Goal	Interim Milestones	Implementation Schedule	Goal Complete?			Accomplishments
				Yes	No	On-track	
Training for Public Works and Parks employees	Conduct annual training and new employee training as needed	Continue to track the number of trainings conducted and participation	February 2017 August 2018	X			Two trainings held with 42 participants
<b>Operations and Maintenance</b>	Develop site specific SWPPP, O&M manuals and SOPs for City facilities	Update as new Municipal facilities are built or added	July 2015	X			O&M and SWPPPs added to reflect 2 new Municipal Buildings
<b>Street Sweeping</b>	Sweep all paved streets and municipal parking lots a minimum of two (2) times	Track lane miles of sweeping operations and estimated amount of debris removed	Twice a year (Fall and Spring)	X			442 Lane miles swept 260 in 2018 and 282 in 2019. Approximately 16 cubic yards of debris removed each year
<b>Inlet cleaning</b>	Clean and inspect twenty-five percent (650) storm sewer inlets	Annually track and map inlets inspected and cleaned	Ongoing	X			1,728 Inlets cleaned (average 864 per year)
<b>Inspection</b>	Conduct random inspections at Municipal facilities	Educate staff on pollution prevention if violations are found	Ongoing	X			Two inspections conducted. No violations observed other than open dumpster lid infractions

**2. Summary of Pollution Prevention / Good Housekeeping activities scheduled for the next reporting cycle:**

All Good Housekeeping activities will continue throughout the next reporting cycle.

**3. Proposed Changes to the Stormwater Management Plan, BMPs, or measurable goals:**

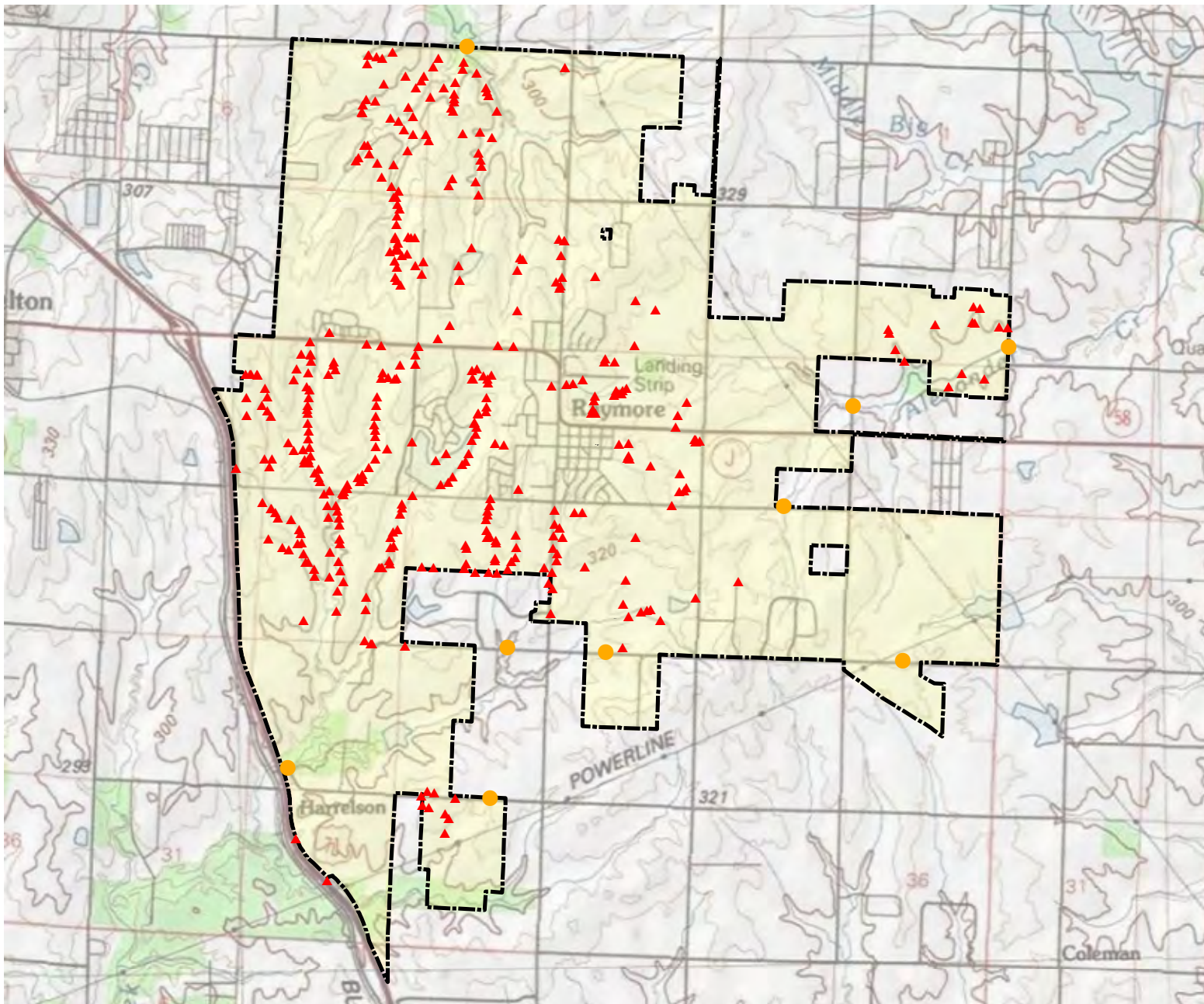
There are no proposed changes at this time.



## NPDES Phase II Stormwater Annual Report

### Appendix A

### City of Raymore Outfall Map



### Legend

- Representative Outfall (9)
- ▲ Stormwater Outfall (406)
- Corporate Limits
- USA Topo Maps







# NPDES Phase II Stormwater Annual Report

## **Appendix B**

### **Report Form (MO-R040029)**



**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?
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> 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 OF PERMITTEE (LEGALLY RESPONSIBLE PERSON)



DATE SIGNED

February 14, 2019

NAME (PRINTED OR TYPED)

Michael E. Krass

TITLE

Director of Public Works



# NPDES Phase II Stormwater Annual Report

## **Appendix C**

### **Inspection Reports**

City of Raymore					<b>Erosion Control-Site Inspection Report</b>			
Engineering Department								

<b>Project Name:</b>	Raymore Galeria North	<b>Construction Type:</b>	Site- Commercial
<b>Address:</b>	58 Hwy & Cambell	<b>Contractor:</b>	Larkin
<b>Building Permit No.:</b>	NA	<b>Inspector(s):</b>	L. Crandell
<b>Date of Inspection:</b>	2017-02-15R 2017-03-08 PE	<b>Time of Inspection:</b>	R, PE
			<b>Date Passed Pre-construction Inspection:</b> 9/21/2016

	Control Measures	2/15/2017	3/8/2017		Comments - include date and exact place of violation
		Yes/No	Yes/No	Yes/No	
<b>Routine(R), Post Event(PE), Post-violation(PV), Complaint(C), or Other</b>	Silt fence trenched in at least 6"	Yes	Yes		
	Gaps or tears in fabric	No	No		
	Strains/bulging in fabric	No	Yes		Slight- Acceptable
	Sediment 1/4 to 1/3 the height of the fence or less	Yes	Yes		
	Posts <6' apart	Yes	Yes		
	Fabric fastened securely to upslope side of posts	Yes	Yes		
	Sediment accumulated around inlet protections	No	No		
	Concrete washout present	Yes	Yes		
	Stabilized construction entrance acceptable	Yes	Yes		
	Mud/dirt tracked into street	No	No		
	Portable toilets placed away from inlets and properly secured	Yes	Yes		
	Trash and debris contained	Yes	Yes		

	Control Measures			10/3/2017	Comments - include date and exact place of violation
		Yes/No	Yes/No	Yes/No	
<b>Post-construction</b>	Vegetation established			Yes	
	Silt fence removed			Yes	
	Inlet protection removed			Yes	
	Street clean			Yes	







## City of Raymore

100 Municipal Circle  
 Raymore, MO 64083  
 Ph: (816) 331-0488  
 Fax: (816) 331-8724

## Stormwater Outfall Inspection Data Form

### Section 1: Background Data

Subwatershed:	Unnamed tributary to Lake Winnebago	Outfall ID:	2
Date:	6/18/2018	Time (Military)	1400
Temperature:	84 °F	Inspector(s):	L. Crandell
Previous 48 Hours Precipitation:	None	Photos Taken:	Yes If yes, Photo Numbers:
Land Use in Drainage Area:	Agricultural	Other:	Open Known Industries:

### Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE	DIMENSIONS (FT.)	SUBMERGED
Storm Sewer (Closed Pipe)	RCP	Box Other:	Diameter/Dimensions:  12	In Water: Partially
	Other:	Single Other:		With Sediment: Partially
Open Drainage (Swale/Ditch)	Other:	Other:	Depth: Top Width: Bottom Width:	

### Section 3: Physical Indicators

INDICATOR	CHECK IF PRESENT	DESCRIPTION	COMMENTS
Outfall Damage	None		
Deposits/Stains		Flow Line Other:	
Abnormal Vegetation	None		
Poor Pool Quality	None	Other:	
Pipe Algae/Growth	None		
Do physical indicators suggest an illicit discharge is present?		No	

Flow Present?	Yes	If "No", skip to Section 7 and close illicit discharge investigation
Flow Description:	Moderate	

### Section 4: Physical Indicators (Flowing Outfalls Only)

INDICATOR	CHECK IF PRESENT	DESCRIPTION	RELATIVE SEVERITY INDEX(1-3)
Odor	None		
Color (color chart)		Brown Light	Clearly visible in outfall flow
Turbidity	X	See Severity	Cloudy
Floatables		Other: Trash Other: Mattresses	Few/slight; origin not obvious
Do physical indicators (flowing) suggest an illicit discharge is present?			

### Section 5: On-Site Sampling/Testing (Flowing Outfalls Only)

PARAMETER	RESULT	ACCEPTABLE RANGE	WITHIN RANGE (Y/N)	EQUIPMENT
Temperature		NA	NA	Thermometer

pH		6 - 9		5-in-1 Test Strip
Ammonia		<3 mg/L April-Oct <8 mg/L Nov-March		Test Strip
Free Chlorine		NA	NA	5-in-1 Test Strip
Total Chlorine		<0.05 mg/L		5-in-1 Test Strip
Phenols		<0.1 mg/L		Test Kit
Detergents as Surfactants		>0.25 mg/L residential >5 mg/L non-residential		Test Kit
Copper		<0.25 mg/L		Test Strip
Alkalinity		NA	NA	5-in-1 Test Strip
Hardness		NA	NA	5-in-1 Test Strip
Sample Location				

(Note NA values used for future tracing procedures)

**Section 6: Data Collection for Lab Testing (see flow chart)**

1. Sample for the lab?	No
2. If yes, collected from:	

PARAMETER	RESULT (from lab)	ACCEPTABLE RANGE	WITHIN RANGE (Y/N)
Fecal Coliform		400 per 100 mL	
Fluoride		0.6 mg/L	
Potassium		Ammonium/Potassium ratio of >20 mg/L	

\*note: label sample with outfall number

**Section 7: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?**

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**City of Raymore, Missouri**

Address: Madison Valley

Owner:

Date: 7/12/17

Engineer: J. Keaveny

BMP I.D.: 072 001

I. REASON FOR INSPECTION		
	Routine	Other:
II. BMP'S AND INSPECTION RESULTS		
Item	Inspection Results	BMP's in General
1	Apparent problems	BMP does not appear to be well maintained.
2	Design flaws	BMP observed to have significant design flaws which lessens its effectiveness.
3	Unauthorized modifications	BMP has unauthorized modifications that reduce its effectiveness.
4	BMP Removed	BMP has been destroyed or removed from the property.
5	Trash	Yes Trash and debris has accumulated on/in BMP. Yard waste in BMP.
6	Contaminated	Evidence of oil, gasoline, contaminants or other pollutants.
7	Smells	Unpleasant odors from the BMP.
Item	Inspection Results	BMP: Ponds & Lakes
1	Weeds	Yes Invasive, nuisance vegetation, or weeds are present.
2	Brush/Trees	Growth of brush and trees does not allow for proper maintenance. Dead, diseased, or dying trees are present. Tree growth on berms or emergency spillway > 4' in height or covering more than 10% of spillway.
3	Sediment accumulated	Yes Sediment in storage areas, rock filters, and pond has reduced storage volume.
4	Erosion	Eroded damage over two inches deep; potential for continued erosion, any erosion on a compacted berm embankment; soil from adjacent areas washes into/on BMP; continued erosion is prevalent.
5	Rodent holes	If facility acts as a dam or berm, any evidence of rodent holes, or any evidence of water piping through dam or berm via rodent holes.
6	Insects	Wasps, hornets, or bees interfere with maintenance activities. Excessive or nuisance levels.
7	Oil sheen	Prevalent and visible oil sheen.
8	Non level berm	Non level internal berm dividing wet pond cells.
9	Valves not functioning	Control valve and drain valve are inoperable.
10	Clogged	Overflow or low flow orifice is clogged or obstructed with sediment and/or debris.
11	Spillway in disrepair	Emergency spillway is obstructed, filled with sediment, eroded out, or in disrepair.
12	Rip rap needs repair	Yes Rip rap is washed out or insufficient to handle discharges.
13	Forebay non-operational	Sediment forebay is either filled with sediment (greater than 50% of design depth), being bypassed, or does not allow sufficient time to settle solids.
14	Trash racks need cleaning	Debris has accumulated on trash racks.
15	Pipes/structural repairs needed	Pipes and structures show signs of corrosion, spalls, leaks, deformation, crushing, or other material failure.
16	Sediment in overflow	Sediment has accumulated in overflow or the overflow is eroded.
17	Dam needs repair	The dam/embankment has visible signs of cracking, sliding, piping, leaking, or bulging.
18	Slope protection failure	Yes Slope reinforcement has been eroded or otherwise damaged so that slope is unstable.
(If an item in the left column contains "Yes," corrective maintenance is required)		
1. Is maintenance needed at this time?	Yes	
2. Date maintenance is to be completed:		
3. Comments/Notes:		
III. FOLLOW-UP		
1. Describe corrective actions taken:		
2. Date Corrected:	3/23/2015	

