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Article #7018 0360 0000 4867 1405

FEB 24 2021

Missouri Department of Natural Resources
Water Protection Program
MS4 Program Coordinator
PO Box 176
Jefferson City, MO 65102-0176

Re: MOR040057 City of St. Joseph Small MS4 biennial report

Dear MS4 Program Coordinator:

Enclosed is the City of St. Joseph 2019-2020 Small MS4 biennial report documenting the City's continuing implementation of the six minimum control measures.

The 2019-2020 report was compiled with input from City staff and information recorded from practices implemented through ordinances and City policy.

If there are any questions concerning this report, please feel free to contact Katie Bruegge of my staff at 816-596-8008 or kbruegge@stjeomo.org.

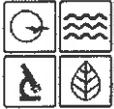
Sincerely,



Edward Leaverton, Superintendent of Water Protection

EL/kb

Enclosures



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
**MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
STORMWATER MANAGEMENT PLAN REPORT**

FOR OFFICE USE ONLY

PROJECT ID NUMBER

DATE RECEIVED

Part A – MS4 PERMIT HOLDER INFORMATION

1. MS4 NAME City of St. Joseph Small MS4	2. NPDES PERMIT NUMBER MOR040057	3. MS4 UNIQUE ID NO.	
4. ADDRESS 3500 State Route 759	5. CITY St. Joseph	6. STATE MO	7. ZIP CODE 64504
8. TELEPHONE NUMBER WITH AREA CODE 816-596-8006	9. EMAIL carmstrong@stjoemo.org		
10. NAME OF MS4 CONTACT PERSON Colleen Armstrong			

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: January 2019

ENDING: December 2020

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

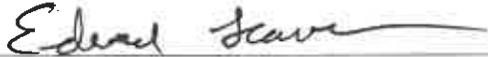
PART F – SUBMIT REPORT TO:

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 OR PERMITTEE (LEGALLY RESPONSIBLE PERSON)



DATE SIGNED

2-24-21

NAME (PRINTED OR TYPED)

Edward Leaverton

TITLE

Superintendent of Water Protection

St. Joseph MS4 Biennial Report

The document describes the stormwater control practices that were implemented by the City of St. Joseph within the MS4 area between January 1, 2019 and December 31, 2020. These practices are consistent with permit MO-R040057 requirements to minimize the discharge of pollutants into Waters of the State from the storm sewer system.

Executive Summary

The Federal Clean Water Act, Phase II rule requires operators of communities with a population of less than 100,000 and greater than 10,000 to obtain a permit to discharge stormwater to waters of the state under the National Pollutant Discharge Elimination System (NPDES). The Missouri Department of Natural Resources (MDNR) is the regulatory agency having the Phase II NPDES oversight authority for the State of Missouri. The City is permitted under MO-R040057 (Permit) to discharge stormwater to the One Hundred and Two River (102 River), Candy Creek, and Contrary Creek. The current permit was issued in March of 2017 and expires on September 30, 2021.

Under the Permit, the City of St. Joseph is required to submit a Stormwater Management Plan (SWMP) detailing how the Stormwater Management Program (Program) will be implemented. The City submitted an updated SWMP to the MDNR in 2018 and received their review in 2020 that determined the Program to be in compliance. The Permit provides guidance for each regulated Municipal Separate Storm Sewer System (MS4) to develop a comprehensive program that contains six minimum control measures (MCMs).

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post Construction Site Runoff Control
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Each of these MCMs include several required activities and targets. Additionally, the City is required to submit a biennial report documenting progress made towards the goals and objectives in the SWMP. This document meets that biennial reporting requirement. NOTE: Permit conditions in the next permit cycle will require an annual report.

Watershed Characteristics

The topography of St. Joseph is characterized by rolling hills, open plains, and prairie next to the Missouri River. The western side of St. Joseph drains to the Missouri River. This area is mainly serviced by the Combined Sewer System (CSS). The land on the eastern side of St. Joseph drains to the 102 River, a tributary to the Platte River. This area is mainly serviced by municipal separate storm sewer system (MS4). The land on the eastern side of town is the focus of this Stormwater Management Plan.

The 102 River is approximately 80 miles (130 km) long, located in northwestern Missouri, with its source tributaries rising in southwestern Iowa. The 102 River is the largest tributary of the Platte River, which flows into the Missouri River south of Platte City, MO. In the early 1900s much of the river was channelized, resulting in a 19% reduction of total stream miles, and an overall loss of riffle and pool

habitats. Channelization has also caused a widening of the stream channel, and reduction in low flow conditions. The riparian corridor is less than 100 feet wide through much of the stream length. This loss of woody vegetation has resulted in destabilized banks that are highly susceptible to erosion and elevated water temperatures.

MDNR, under the Clean Water Act, works to restore and maintain the chemical, physical, and biological integrity of the state’s waters. To do that, MDNR assigns uses for each waterbody based on current and historic consumption. Once those uses are assigned, then water quality standards are established to meet those uses. The beneficial uses for the 102 River include irrigation, livestock and wildlife watering, protection of warm water aquatic life and human health fish consumption, whole body contact recreation (subset B), secondary contact recreation and drinking water supply.

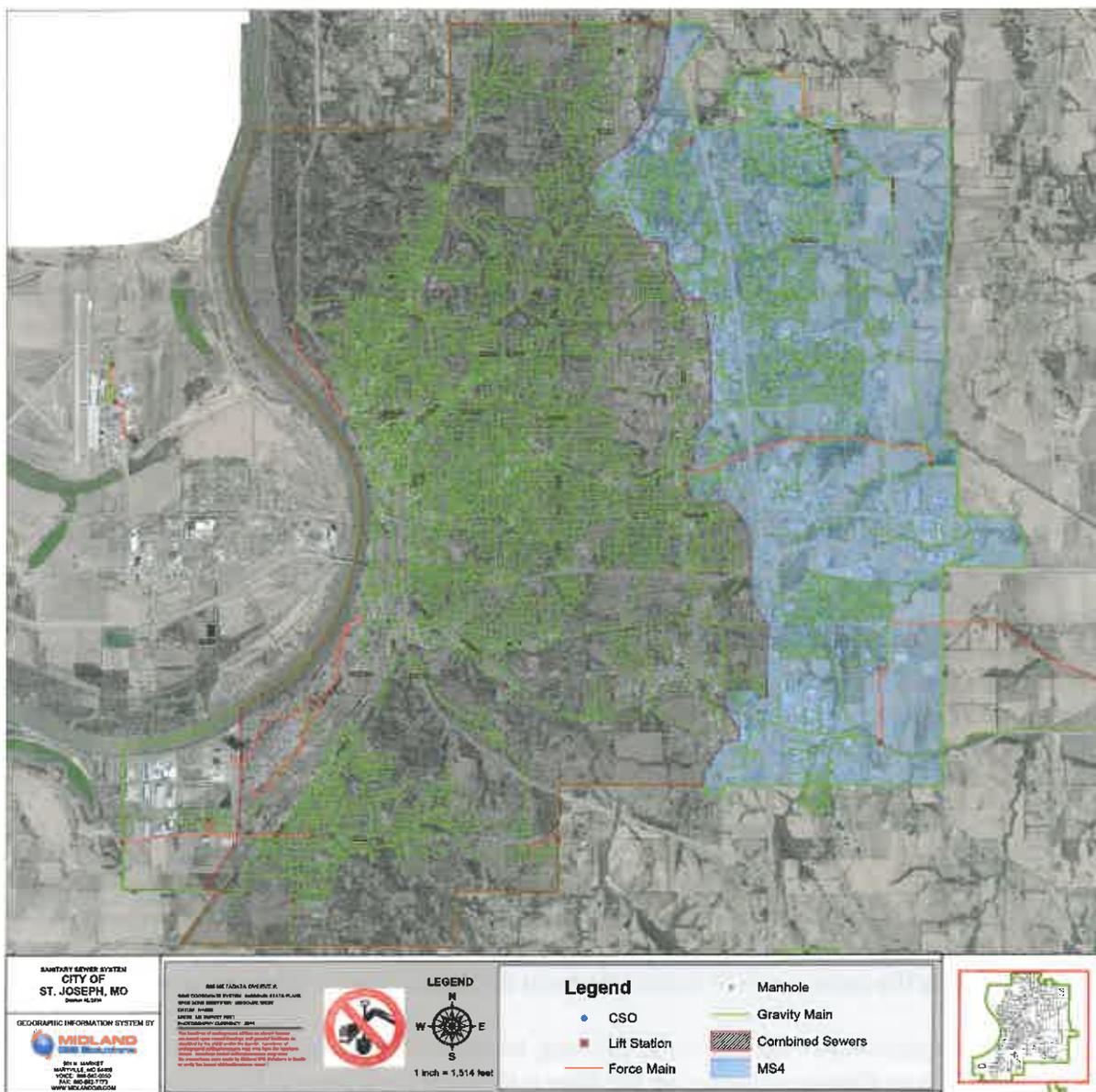


Figure 1: Map of St. Joseph, with MS4 area identified in blue.

Minimum Control Measures

MCM 1: Public Education and Outreach

The Missouri MS4 General Permit requires the City of St. Joseph to implement a public education program to distribute educational materials to the community; conduct outreach activities to educate about the impact of stormwater discharges on waterbodies and provide information on the steps the public can take to reduce pollutants in stormwater runoff. The permit requires the inclusion of best management practices (BMPs) associated with the public education program consisting of the following elements:

- Identify target audiences that have significant impacts on stormwater.
- Develop a plan to inform individuals and households about steps to reduce stormwater pollution.
- Develop a plan to inform individuals and groups on how to become involved in pollution prevention activities and the SWMP.
- Develop an outreach strategy including the mechanisms to reach target audiences.
- Identify the pollutant source(s) that the education program is designed to address.

2019 through 2020 Reporting Period:

ASSESSMENT OF EFFECTIVENESS: Overall, these BMPs were effective. However, the schedule below required constant development of new materials and was difficult to meet. Moving forward, basic topics will be specified for each target audience. New audience members of each target audience will be reached every year, so using the same materials will still reach new people each year or be a reminder for others. This change will be reflected in the 2021 version of the SWMP updated for permit renewal.

Target Audiences: The 2018 SWMP submittal identified public and private schools, homeowner associations, service organizations (Kiwanis Club, Optimists Club, Missouri Master Naturalists and Master Gardeners), commercial and industrial facilities, contractors, elected officials, City staff (see MCM 6), and City residents as target audiences to receive information about stormwater pollution prevention.

Educational materials are constantly being developed and updated.

Outreach Strategy: Develop factsheets, presentations, field tours, electronic mailings, and brochures. Keep the message fresh by focusing on a different topic each year. The below table depicts the projected topics to be discussed between 2019 and 2023.

2019	2020	2021	2022	2023
Know the lingo	Bacteria	Land Disturbance	Household	Stormwater Mgmt
Basic terms	How to measure	Sediment vs Erosion	BMPs	Why is it important
Costs of not implementing	Lawn care BMPs	State and local requirements	Automotive care	Maintenance and monitoring
FAQs	Ducks and Geese	When it Rains	Lawn Care	BMPs
Did you Know?	Dog waste	When Controls fail	Salt and deicers	Examples

Educational materials for multiple audiences (Coordinate with MCM 1, 2, 3, 4 and 5):

Work began in 2019 to update the City’s Stormwater Protection webpage (<https://www.stjoemo.info/949/Stormwater-Protection>). The new page went live in 2020 with tabs that target residents, developers and contractors, businesses, pollution prevention, and codes and regulations.

Educational programs for contractors, engineers, and City employees (Coordinate with MCM 4, 5, and 6):

In 2019, the City created a Work Order with Barr Engineering to “Provide rainwater garden materials and training. Present designs, construction and maintenance.” These materials and training were developed and presented to construction contractors, engineers, and City staff in September of 2019. The topics discussed were, “Permanent erosion control, Buttoning up your site for winter.” Further training was to occur in 2020, but due to restrictions in response to the global pandemic, this training is now slated to occur in 2021.

Educational program for contractors (Coordinate with MCM 4):

2020 was a difficult year for all industries, the construction industry included. Because of this, scheduling contractor training proved almost impossible. Instead of reaching practicing contractors, the stormwater management team presented to the Associated General Contractors - Missouri Western State University Chapter about land disturbance permit requirements and conducted a site tour in order to demonstrate erosion and sediment control BMPs in the field.

Educational program for City residents (Coordinate with MCM 1, 2, 3, 4 and 5):

Restrictions on group gatherings in 2020 forced the stormwater management team to use mainly digital and remote education and outreach tactics. Virtual meetings and presentations, an email platform used by the St. Joseph School District (PeachJar), and Facebook posts were all used to reach residents. Four (4) seasonally appropriate flyers were distributed in 2020 that addressed the following topics: *Smart Flushing and Individual Earth Week Actions, Back to School Watershed Basics, Fall Leaf Clean-Up Tips, and Smart Salt Spreading Tips.*

The St. Joseph Parks Department held a socially distanced Trunk-or-Treat event in 2020. Water Protection staff participated in this new event and distributed candy and educational materials to approximately 1000 people. Materials focused on watersheds, the Missouri River, wetlands, and pollution prevention.



Projected activities for 2021

Maintain seasonally appropriate messaging on PeachJar and Facebook.

Update educational program for elected officials, and City employees (coordinate with MCM 6):

Foundational education is an important aspect to making good decisions. Easy to understand technical information, legal requirements and scientific information about water quality and stormwater

management can aid City officials and employees in understanding the effects of council decisions and management activities. Providing elected officials, department heads and new employees with the fundamental information on MS4 permit requirements and best management practices, will increase dialogue and support decision-making on stormwater issues and practices.

In 2019, Stormwater Management staff put together two articles that were share through City Link, the City’s weekly e-newsletter. One article discussed the Water Protection Rain Garden Demonstration Project and the other was about the Stormwater Basin Inventory conducted in the summer of 2019.

Stormwater Management staff will transition their training materials into TargetSolutions, the City’s HR training platform. Targeted materials can be assigned to new hires and as annual refresher training to staff based on their positions within the City.

Educational program for Commercial and Industrial facilities:

Stormwater pollution from parking lots and roadways contributes more than 50% of the pollutant load to streams and creeks. Many commercial businesses have installed detention basins and other stormwater facilities but may not be conducting regular inspections and maintenance. Stormwater Management staff will work with Pretreatment staff to reach industries and food service establishments about their impact on stormwater pollution.

Educational and involvement in Pollution Prevention Activities:

During biannual Household Hazardous Waste Disposal and Clean Sweep events, provide educational materials about the importance of proper waste disposal.

2021 Implementation Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Transition education materials for City employees to TargetSolutions												
Meet with HR	X											
Identify transition schedule				X								
Education program for individuals and households												
Identify training topics/review topics			X					X	X			X
Evaluate participation in Trunk-or-Treat									X			
Update training materials												
Provide presentations/training												
	As needed											
	As requested											
Education materials for contractors												
Review materials				X					X			
1x/semester training with AGC Chapter				X					X			
Education and involvement in Pollution Prevention Activities												
Conduct HHW clean-up			X						X			
Conduct Clean Sweep Event				X						X		
Track recordables												X
Review 2021 implementation schedule												
												X

MCM 2: Public Involvement and Participation

The Missouri MS4 General Permit requires the City of St. Joseph to implement a public involvement and participation program that provides for public involvement in the development and oversight of the Stormwater Management Plan and opportunities for involvement in the renewal application. The permit requires the inclusion of best management practices (BMPs) associated with public participation and involvement consisting of the following elements:

- Through public notice, allow the public to review the SWMP and renewal application prior to submission to DNR.
- Provide notice to the public of meetings regarding the SWMP and renewal application.
- Identify and target stakeholders including commercial, industrial, trade associations, environmental groups, homeowner associations and educational organizations that may be impacted by stormwater requirements or impact stormwater.
- Provide opportunities for citizen representation and involvement on stormwater management panels and committees.
- Provide volunteer monitoring opportunities and/or stream/lake clean-up activities.
- Provide opportunities for volunteers to educate others about the SWMP.

2019 through 2020 Reporting Period:

ASSESSMENT OF EFFECTIVENESS: The 2017-2018 report determined that the previous SWMP and BMPs were ineffective. The Stormwater Management team's response to this assessment was to create the Stormwater Subcommittee of the Sustainable Environment Advisory Committee of St. Joseph (SEAC) in 2020. The Stormwater Subcommittee (Subcommittee) was successful in increasing public involvement and participation.

Public events:

Hazardous Waste and Clean Sweep events – The City sponsors a spring and fall Clean Sweep (yard waste and regular solid waste) and Household Hazardous Waste Collection events for all city residents and small businesses. During the Clean-Sweep events, yard waste, appliances, and other large items are accepted and disposed of free of charge. During the HHW event oil, antifreeze, batteries, pesticides, paint, and various chemicals are collected. More than 700 households participate during each event. The City contracts with a hazardous waste disposal firm to properly remove the material.

In September 2020, the Subcommittee held a Rain Garden Workday at the Water Protection Facility Rain Garden to reinstall the stone border and plant native plants. Eleven (11) people participated in the event.



In November 2020, the Subcommittee hosted an invasive species removal day at the Corby Wetland. Twenty-nine (29) people from the Subcommittee, Water Protection, and Scout Troops participated.

Projected activities for 2021

In 2021, Stormwater Management staff will continue to strengthen partnerships, find common educational needs, and develop training and volunteer opportunities. The following organizations will be targeted during this permit cycle:

- Missouri Stream Team – Water Protection has a registered Stream Team. Stormwater Management staff will reach out to other local Stream Teams to plan water quality monitoring and/or clean-up days. This will also be done through the Subcommittee.
- Missouri Master Naturalists (MMN) – engage Missourians in the stewardship of our state's natural resources through science-based education and volunteer community service.
- Missouri Master Gardeners (MMG) – horticultural trained individuals volunteering their time to help others in their communities to learn about gardening and environmental education. The City's Green Infrastructure Technicians participated in virtual MMG training in 2020.
- The Boy Scouts and Girl Scouts of America – local Troops partnered with the Subcommittee in 2020 and have already shown interest in participating in other events.

2021 Implementation Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Comply with state and local Public Notice Requirements												
Ordinances and plans are put on public notice	As needed											
Meetings/hearings are held	As needed											
SWMP on notice/notice of hearing for 30 days			X									
Engage with public to provide volunteer opportunities												
Restoration activities			X						X		X	
Clean-up activities				X						X		
Develop partnerships to provide opportunities for volunteer lead activities												
Partner needs and resources	As needed											
Provide support	As needed											
Track volunteer activities	As needed											
Review 2021 implementation schedule												X

MCM 3: Illicit Discharge Detection and Elimination

In most communities, the municipal separate storm sewer system (MS4) discharges to receiving waterways without treatment. Therefore, it is particularly important to ensure that illicit discharges are eliminated from the system.

To meet that need, the Missouri MS4 General Permit requires the City of St. Joseph to develop, implement and enforce a program to detect and eliminate illicit discharges into the MS4 system. The permit requires best management practices (BMPs) associated with the municipal operations to include the following elements at a minimum:

- Develop a map showing the location of all constructed outfalls. This map must include the names and locations of the waters of the state that receive discharges from those outfalls. The sources of information used to develop the map, plans to field verify, and schedule for updates must also be included.
- Pass an ordinance to regulate non-stormwater discharges with enforcement procedures and actions.
- Develop a plan and implementation schedule to detect and address non-stormwater discharges, including spills and illegal dumping.
- Develop a dry-weather field screening plan for non-stormwater discharges.
- Procedures for locating priority areas, including areas with higher likelihood of illicit connections, or ambient sampling to locate impacted reaches.
- Procedure to track the source of an illicit discharge, including the specific techniques used to detect the location of the source.
- Procedures for eliminating the illicit discharge.
- Development and implementation of appropriate enforcement procedures including fines and actions as required in the ordinance.
- Development of a plan to inform the public about the hazards associated with illegal discharges and improper disposal of waste.
- Development of a plan to address non-stormwater discharges identified as a significant contribution of pollution

2019 through 2020 Reporting Period:

ASSESSMENT OF EFFECTIVENESS: The 2017-2018 report determined that the previous SWMP and BMPs were ineffective. Since then, Stormwater Management staff focused on developing Standard Operating Procedures (SOPs) to address Permit Requirements under MCM 3. Staff developed an Illicit Discharge Detection and Elimination SOP (1.4.001) and a Dry Weather Field Screening SOP (1.4.002). Progress has been made and the MCM 3 BMPs are effective.

The City of St. Joseph Missouri's Water Protection Line Maintenance Division (WPLM) or outside contractors have taken the following measures citywide between the dates of January 1, 2019 - December 31, 2020 to locate and eliminate sources of infiltration and inflow into our collection system:

- Close caption TV inspection of 135,646 feet of sewer line.
- Cleaned 77 miles of sewer line.
- Repaired 122 sewer inlets.
- Replaced 155 sewer inlets.
- Repaired 150 cave-ins.

Projected activities for 2021

Now that the Dry Weather Screening SOP is created, Stormwater Management staff will start regularly conducting screenings at the ten (10) identified outfalls for monitoring. Information from mapping outfalls, and field monitoring; infrastructure and watershed profile data; citizen complaints and service reports from the WPLM division to identify the areas with the highest chance of illegal discharges to the storm sewer system. A matrix will be developed to set priority areas for maintenance, monitoring, or additional services. By identifying and correcting the problems identified above, St. Joseph can address the most common sources of IDDE and make positive steps to improve the water quality for our residents.

The training for City employees that will transition to TargetSolutions addresses what to do when a City employee witnesses evidence of or an active illicit discharge.

In 2020, Stormwater Management staff responded to eight (8) citizen or City employee illicit discharge concerns. These concerns ranged from someone dumping building demolition materials along a creek to land disturbance activities being done with no permits or BMPs in place.



2021 Implementation Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Storm Sewer Outfall Map												
Update infrastructure maps	SAM (formerly Midland) updates GIS layers											
Conduct Dry Weather Screening												
Train Staff			X									
Conduct dry weather screening	As weather and time allows (at least 2/year)											
Refine Enforcement Procedures												
Review past IDDE discharges			X									X
Review 2021 schedule and activities												X

MCM 4: Construction Site Stormwater Runoff Control

The Missouri MS4 General Permit requires the City of St. Joseph to implement and enforce a program to reduce pollutants in stormwater runoff from construction activities from land disturbances (LD) of greater than or equal to one acre. The General Permit requires the City to reduce stormwater discharges from projects and activities disturbing less than one acre if that activity is part of a larger common plan of development or sale that would disturb one acre or more. The General Permit requires best management practices (BMPs) associated with MCM 4 to consist of the following elements:

- Develop an ordinance to require operators to implement erosion and sediment control BMPs at construction sites and to include sanctions designed to ensure compliance.
- Implement requirements for construction site operators to control construction site waste that may cause adverse impacts to water quality.
- Procedures to review all pre-construction site plans for potential water quality impacts.
- Procedures to receive information submitted by the public.
- Procedures to inspect sites and enforce control measures, including prioritization of site inspections.
- Inspection and monitoring requirements for any structure that functions to prevent pollution of stormwater or to remove pollutants from stormwater to ensure that all BMPs are implemented and effective.
- Development of appropriate enforcement procedures including fines and actions that the ordinance has implemented.

2019 through 2020 Reporting Period:

ASSESSMENT OF EFFECTIVENESS: The City implemented BMPs for MCM 4 are effective. In 2017, the City's Land Disturbance requirements were codified, using APWA standards for erosion and sediment control. In 2018, additional enforcement tools were added to the City's ordinance. These updates provide guidance, minimum standards, and the ability for City staff to enforce noncompliance.

In 2020, Stormwater Management staff developed an Enforcement Response Plan for Land Disturbances (SOP 1.4.005).

Plans reviewed for water quality impacts:

- Commercial – all plans that disturb more than 1000 square feet are reviewed for water quality impacts. During 2019, 142 plans for projects citywide were reviewed.
- Residential – all projects that disturb more than 1000 square feet are reviewed for erosion and sediment control.

Land Disturbance Permits Issued in 2019-2020:

A total of 123 City Land Disturbance Permits were pulled in 2019, with 129 issued in 2020.

- Commercial – Projects ranged from infill development on existing pavement, to extensive dirt moving and new development on multiple sites.
- Residential – The City's requirements for a land disturbance permit is set at 1000 square feet. Therefore, many residential lots, swimming pools, garages and sheds are permitted under this threshold.

Site Inspections Conducted:

- *Pre-Construction Inspections* – in 2018 the City initiated requirements for pre-construction inspections on all commercial projects, and projects over 1 acre. Once the permit is issued, the contractor must install perimeter controls and request a city inspection. During the inspection, contacts are made, the Stormwater Pollution Prevention Plan (SWPPP) is reviewed and the site is inspected including downstream to document conditions prior to construction. In 2019-2020 there were 24 pre-construction meetings conducted.
- *Routine Inspection* – The purpose of an inspection is to determine the site's compliance with the City's permitting requirements and to document any potential or existing negative impacts upon surface waters and city infrastructure. Inspections are required for all sites that meet the one (1) acre or more threshold. In 2019-2020, the City conducted 220 routine inspections.



- *Follow-up or Post-Event Inspections* – In 2019-2020, 38 follow-up or post-event inspections were conducted.
- *Final Inspections* – At the end of construction, the site must be inspected to ensure vegetation requirements are met (100% coverage with 70% density), all temporary erosion and sediment controls (ESC) are removed, and all permanent ESC are installed per plan requirements. In 2019-2020, the City staff conducted 50 post-construction inspections. Plans are in place to include permanent BMP mapping on the City's GIS platform as part of the Final Inspection Procedure.

Enforcement Actions in 2019-2020:

Work without a permit

- A fill project did not have permits. In-person meetings and written correspondence used to get landowner in compliance.
- A residential project was being conducted without proper permitting. A Stop Work Order (SWO) was issued until all permitting was obtained. Work continued under the SWO and a municipal ticket was issued.

Not adhering to permit requirements

- A fill project was not meeting LD permit requirements. A Notice of Violation (NOV) was sent explaining that a SWO would be issued if the site did not come into compliance. The landowner made the necessary site improvements.
- A 12-acre commercial project was consistently not meeting LD permit requirements. An NOV was sent explaining that a SWO would be issued if the site did not come into compliance. The site manager made the necessary site improvements.
- A 5-acre commercial project was consistently not meeting LD permit requirements. An NOV was sent explaining that a SWO would be issued if the site did not come into compliance. The site manager made the necessary site improvements.

- A 24-acre commercial project was consistently not meeting LD permit requirements. An NOV was sent explaining that a SWO would be issued if the site did not come into compliance. The site manager made the necessary site improvements.
- A 1.5-acre commercial project was consistently not meeting LD permit requirements. An NOV was sent explaining that a SWO would be issued if the site did not come into compliance. The site manager made the necessary site improvements.
- A 36-acre subdivision project was consistently not meeting LD permit requirements. A Letter of Warning (LOW) was sent explaining that a NOV would be issued if the site did not come into compliance. The site manager made the necessary site improvements.

Defaulting on Performance Contract

- A seven (7) acre site did not meet their vegetation establishment timeline in the Performance Contract. Notice of default was sent and landowner complied.

Performance Agreements Developed

As commercial projects are completed, there is a push to get the certificate of occupancy (CO) and business license from the City. This CO approval and license is often the only leverage the city has to ensure the project is completed per the approved plans.

In many cases, the land disturbance permit is still active because the vegetation has not completely been established. In 2018, stormwater staff worked with the legal department to develop procedures to create a performance agreement that allows the city to hold the amount of money to sod or vegetate the site, in case the contractor is unable to complete the work. Once the site is stabilized and the permits terminated the monies held are returned to the contractor.

In 2019-2020, nine (9) projects were not finally stable per the MDNR requirement at the time of occupancy. In these situations, a temporary occupancy permit was issued, and a performance bond developed to protect the City.

Training Conducted

Staff Training

- Design, Construction and Maintenance for Permanent Erosion Control; Buttoning up your site for Winter, 9.18.2019 – 16 in attendance.

Contractor/Developer Training

- Associated General Contractors MWSU Chapter, 9.23.2020 – Land Disturbance Permit Requirements, 9 in attendance.
- Associated General Contractors MWSU Chapter, 9.25.2020 – Field Tour of LD Permit Requirements and ESC BMPs, 9 in attendance.

Public information

- Ecumenical Eco-Justice 11.19.2020 – Stormwater Management Program (talked about construction site controls and LD permitting) 12 members attended.

Projected activities for 2021

Training materials for target City inspectors, developers, operators, and contractors will be transitioned to TargetSolutions.

All City issued LD permits will be tracked for inspection and compliance recordkeeping. Records will be kept for the number of applications made per year.

2021 Implementation Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Prohibit Stormwater Discharges from Construction Sites by Ordinance												
Review Ordinance - update as needed												X
Implement Erosion and Sediment BMPs and Waste Controls from Construction Sites												
Conduct Contractor Training			X							X		
Pre-Construction Plan Reviews												
Track Pre-construction plans submitted/reviewed					X	X						
Construction Site Inspection Procedures												
Develop annual review training materials						X						
Conduct Inspections	All year, use SOP to determine priority sites											
Construction Site Enforcement and Compliance Plan												
Conduct internal ERP training			X									
Track enforcement cases	All year											
Procedures for public input on non-compliance												
Develop web-based reporting for public												X
Review 2021 schedule and activities												X

MCM 5: Post-Construction Stormwater Management

The goal of stormwater management is to regulate water quality and quantity to prevent additional decline in community resources and receiving waters. The three basic techniques for addressing this goal include maintaining existing conditions, decreasing peak flows and reducing pollutants. Therefore, runoff volumes from storm events should not increase the velocity or quantity of runoff, or the amount of pollutants leaving the site.

The Missouri MS4 General Permit requires the City of St. Joseph to implement and enforce a program to address the quality of long-term stormwater runoff from new development and redevelopment projects that disturb one acre or more, including projects less than one acre that are part of a larger common plan of development. The permit requires best management practices (BMPs) associated with long-term stormwater management to consist of the following elements:

- Develop an ordinance to address post-construction runoff from new development and redevelopment projects, including an implementation plan.
- Long-term operation and maintenance plan of selected BMPs, including agreements.
- Strategies to minimize water quality impacts, including site evaluation and design plan review.
- Procedures to inspect post construction stormwater management BMPs and implementation schedule.
- Development of appropriate enforcement procedures including fines and actions that the ordinance has implemented.

2019 through 2020 Reporting Period:

ASSESSMENT OF EFFECTIVENESS: In 2017 the procedures for stormwater management were codified, using American Public Works Association (APWA) Mid-American Regional Council (MARC) standards. In 2018, additional enforcement tools were added to the city's ordinance. All commercial site development within the MS4 area of St. Joseph receives full stormwater protection for projects over 1-acre. This system is effective in providing Post-Construction Stormwater Management.

Plan review for water quality and water quantity impacts:

The concept review meeting will assist the design engineer in identifying major stormwater issues while minimizing flooding, project costs, stormwater facility conflicts and construction difficulties. With early discussions, the final plan is less likely to experience delays in the review process. This is also the time that innovative ideas may be discussed and preliminary approval for design variances can be provided so the engineer can proceed with the assurance of final approval.

The St. Joseph stormwater ordinance requires the developer to prepare and submit a stormwater treatment plan with the following information:

- construction drawings for stormwater treatment facilities that meet the requirements of the design criteria,
- a construction sequence for protection of the stormwater treatment facilities from construction phase sedimentation,
- a projected maintenance schedule, and a pollution prevention plan.
- For multi-lot subdivisions the stormwater treatment plan shall also include maintenance agreements as deemed necessary by the Director.
- Stormwater facility information must include the location, description, ownership, inspection and maintenance requirements and implementation schedule for each facility.

Projected activities for 2021

Education for contractors and inspectors on appropriate stormwater management requirements and techniques is the focus for this BMP. As plans are submitted for City review and approval, City staff will need to recognize potential stormwater opportunities on building and site designs. Getting familiar with stormwater treatment and design requirements will enable the staff to use multiple options and common sense when working with developers and consulting engineers. Inspectors and contractors will also need training and experience constructing and installing stormwater facilities.



Newly constructed stormwater facilities will be inspected prior to issuance of building occupancy. The stormwater facility must be stabilized, all temporary erosion and sediment controls should be removed, and inlet and outfall elevations must match design plans. All aspects of the stormwater facility, including landscaping, irrigation, and establishment of specified vegetation, shall be completed in accordance with the accepted plans on file with the City. Major deviations to the original plan will require submittal of As-built plans of the completed structures and a letter of compliance from the designer. At the discretion of the City, a test of the facility may be performed to demonstrate adequate performance. The test shall be performed in the presence of development engineering personnel and a City representative.

2021 Implementation Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Develop Stormwater Management Education Program												
Review training materials and handouts			X									
Conduct training for internal staff					X							X
Evaluate and revise training materials												X
Pre-development Plan Review Procedures												
Review process and checklists			X									
Stormwater Facility Construction and Certification												
Develop inspection and certification process							X					
Develop inspection procedures and checklist					X							
Long-term Maintenance and Operation Strategy												
Develop Maintenance Agreement templates				X								
Create BMP database template										X		
City employee inspection training			X									
Review 2021 schedule and activities												X

MCM 6: Pollution Prevention and Good Housekeeping for Municipal Operations

The Missouri MS4 General Permit requires the City of St. Joseph to develop and implement an operation and maintenance program that includes a training component with the goal of preventing or reducing pollution from municipal operations. The permit requires best management practices (BMPs) associated with the municipal operations to include the following elements at a minimum:

- Develop a 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 maintenance.
- Develop a list of all municipal operations that are impacted by this operation and maintenance program.
- Develop long-term inspection procedures, maintenance BMP's, maintenance schedules to reduce floatables and other pollutants to the MS4 system.
- Develop controls for reducing or eliminating the discharge of pollutants from streets, roadways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas and salt storage and snow disposal areas.
- Develop and implement procedures for the proper disposal of waste removed from the MS4 system including dredged materials, accumulated sediments, floatables and other debris.
- Develop procedures to assess the impacts of water quality for new flood management projects.
- Spill prevention and control of solvents, paints, petroleum products and wastes at all municipal facilities to prevent spills and releases of contaminants in stormwater runoff and to waters of the state.

2019 through 2020 Reporting Period:

ASSESSMENT OF EFFECTIVENESS: The 2017-2018 report determined the current SWMP and BMPs were ineffective. In 2018, a new SWMP was developed to better address the permit needs and requirements. Training materials have been developed for City employees and staff trainings have occurred, but this is still ineffective. In 2021, the training materials will be transitioned to TargetSolutions, the City's HR training platform.

In 2019, the City created a Work Order with Barr Engineering to, "Provide rainwater garden materials and training. Present designs, construction and maintenance." These materials and training were developed and presented to construction contractors, engineers, City staff, and elected officials in 2019. Further training was to take place in 2020, but due to restrictions in response to the global pandemic, this training is slated to occur in 2021 (MCM 4 and 5).

City staff received training in May of 2019 from Midland GIS on how to use the newly purchased Trimble R2 unit for GIS mapping of BMPs (MCM 5). Ten (10) staff members attended this training.

Further staff training was provided by local engineering firm, Snyder and Associates, in 2020 to discuss post-construction stormwater management (MCM 5).

Projected activities for 2021

The City of St. Joseph is responsible for a wide variety of land uses and activities such as roadways, parking lots, transportation, and equipment garages, fueling areas, stockpiles of salt and other raw materials, waste handling and disposal, and parks maintenance. These can all be sources of stormwater pollutants. If practices are not in place to contain spills, manage trash, or handle non-stormwater discharges, municipal facilities can be sources of stormwater pollutants. During the next 5-year permit

cycle, Stormwater Management staff will review procedures for spill containment, waste disposal, vehicle washing, pesticide application and open space management to ensure stormwater pollutants are adequately managed and do not enter local waterways.

In 2021, the developed training materials will be transitioned to TargetSolutions, the HR training platform. The training on TargetSolutions will include new employee training and subsequent annual training and will have targeted messages for different City Departments.



2021 Implementation Schedule

	J	F	M	A	M	J	J	A	S	O	N	D
Pollution Prevention/Good Housekeeping Training												
Review training materials				X	X							
Transition materials to TargetSolutions						X	X	X	X	X	X	
Implement training												X
Review municipal operations that could contribute to stormwater pollution												
Review list of municipal operations	X											
Conduct site inspections/visits						X			X			X
Review contact list					X							
Review procedures to reduce floatables												
Review street sweeping/lot cleaning policies										X		
Update as needed										X		
Track debris removal amounts												X
Assess WQ impacts on Flood Control Projects												
Review City owned SW facilities	X											
Inspect facilities								X				
Review procedures for O&M												X
Review 2020 schedule and activities												X