

# 2023 City of St. Joseph MS4 Annual Report



## MOR04C038: 2021-2026

This document describes the stormwater control practices that are implemented in 2023 by the City of St. Joseph within the MS4 area to minimize the discharge of pollutants into Waters of the State from the storm sewer system.

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# ST. JOSEPH MS4 ANNUAL REPORT

*The document describes the stormwater control practices that were implemented by the City of St. Joseph (City) within the MS4 area between January 1, 2023, and December 31, 2023. These practices are consistent with permit MO-R04C038 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-R04C038 (Permit) to discharge stormwater to the One Hundred and Two River (102 River), Candy Creek, and Contrary Creek. The current permit was issued in December of 2021 and expires on September 30, 2026.

Under the Comprehensive Permit, the City is not required to submit a SWMP detailing how the Stormwater Management Program (Program) will be implemented but shall retain the most recent copy of the SWMP at a reasonable location accessible to the Department. The Permit provides guidance for each regulated Municipal Separate Storm Sewer System (MS4) to develop a comprehensive program that contains the 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 required activities, best management practices (BMPs), targets, and tracking measures. Additionally, the City is required to submit an annual report documenting progress made towards the goals and objectives in the SWMP.

## 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.

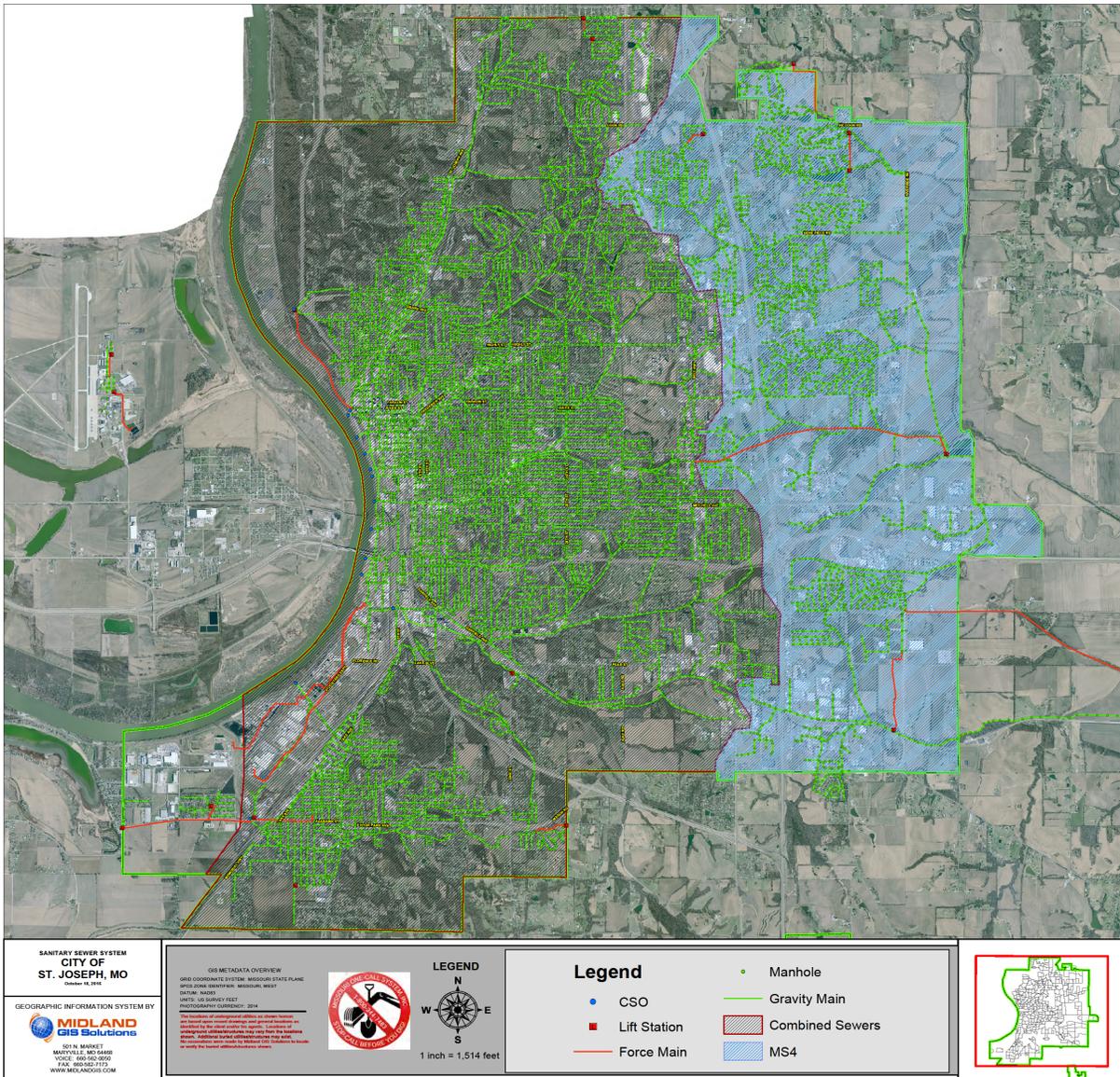


Figure 1: Map of St. Joseph, with MS4 area identified in blue.

**Part D – Minimum Control Measures, Best Management Practices, and Measurable Goals Evaluation** An attachment is necessary for many items under the MCMs below to provide information regarding the progress toward achieving the statutory goal of reducing the discharge of pollutants to the MS4 to the maximum extent practicable to the MS4. Provide additional informative data, success stories, and experiences that support the successful implementation of your stormwater management plan (SWMP).

**MCM 1: PUBLIC EDUCATION AND OUTREACH**

2023 Reporting Period:

**ASSESSMENT OF EFFECTIVENESS:**

2023 provided many public education and outreach opportunities for Stormwater Staff to connect with and educate community members. The Sustainable Advisory Committee to the Mayor subgroup, Plant Native!, adopted a 900 sqft roundabout from Mosaic. Through an MDC Community, Grant Plant Native and the Stormwater Quality Coordinator installed planter boxes, and native plants to provide pollinator habitat, and decrease stormwater runoff.

This year was our first Annual Water Week in partnership with St. Joseph Youth Alliance. The weeks activities consisted of CSO verses MS4 storm sewer overview and Water Protection plant tour, green infrastructure education, storm drain stenciling, and a Stream Clean up on the One Hundred and Two river, with students 11-18 years old. Youth Alliance Program Director and Stormwater Quality Coordinator have started planning the Water Week for 2024.

In 2023, the Stormwater Quality Coordinator presented to the St. Joseph Flower Society, topics covered were Combined sewer system, verses MS4, our City’s Stormwater Program, and how to decrease stormwater pollution at home. Coordinator is slated to present to the group again in February 2025. Presenting to this group, allowed for us to hit a wider group of residents and expanded the knowledge within the community, regarding our stormwater program.

3. (4.1.C) Were any changes made to educational resources to be used as BMPs (materials, postings, etc.) in conjunction with the selected pollutants for the selected target audiences during the reporting period? Yes, city supplied EPA Erosion and Sediment Control BMP fact sheets to utility companies, as a part of Right of Way Permitting. Staff training resources, such as a training PowerPoint, and city stormwater link QR code handout, and who to contact for illicit discharges, which were given to attendees during the 8/9 staff training session. Stormwater education handouts were created for the Industrial Open house, such as hazardous waste disposal locations in town.

<b>Target Audience</b>	<b>Target Pollutants</b>	<b>Educational BMP</b>	<b>Changes to Educational Resources</b>
City Employees	Street sweepings, de-icing products/rock salt, sediment from construction projects, fluids from vehicles, floatables	1. In-house training created through HR training platform, Paycor.	Staff training for 2023 was hosted on 8/9. This was a facilitator led training with PEC Engineering, training focused on industrial users and Munciple staff. A virtual option to distribute to staff via Paycor was created to ensure that training will be available for Munciple staff in 2024.  Multiple occurrences of one-on-one training with Parks, Streets, engineering project managers, Property maintenace, and Line Maintenance Departments, during site visits and project collaboration with other departments.

Residents	fertilizers (nutrients), chemicals/toxics, yard/pet waste, salt or other de-icing products	1. City Stormwater webpage with educational materials.	Reviewed in 2023 – No changes were made to resources. Links on City website checked in June, to ensure that all links were operational. In 2024, industrial stormwater documents, created by PEC Engineering
		2. Peachjar flyers to School District Parents	1 PeachJar flyer submitted on ways to reduce stormwater pollution geared towards residents and yard waste. This flyer was also shared on the City’s Facebook page, and SEAC’s page, reaching a larger audient.  One newspaper article were published in KQ2 in 2023, covering stormwater pollution and how we can all play our part in decreasing stormwater pollution.  We are going to publish 4 Peachjar fliers in 2024.
		3. Storm drain stenciling	115 inlets stenciled during Youth Alliance Water Week. Altec, and Industrial facility participated during event, incorporating education to this industrial user, and to residents.
Business Owners	Restaurant waste (FOG) fertilizers (nutrients), Chemicals	4. FOG handouts supplied to restaurants	The City has a Fats, Oils, and Grease (FOG) program that works with restaurants to ensure that they are in compliance with their FOG permit. A part of this program is educating restaurant workers and owners on how they can impact stormwater quality through proper grease trap clean out schedule to prevent overflows, covering dumpsters, and proper cleaning methods around grease dumpsters.
		5. City Stormwater Webpage	Reviewed in 2023 – No changes were made to resources.
Contractors Developers	Improperly managed land disturbance sites lead to sediment runoff, chemical/toxics spills, trash/waste/floatables leaving the site.	1. Targeted educational campaign - Handouts on proper site management given out during permitting	Educational handouts are provided at the time of permitting or during the pre-construction site meeting with operators. ESC inspectors see a decrease in land disturbance site issues on sites that followed the land disturbance permit requirement of a pre-con meeting.  In 2023 17 pre-construction meetings were held for construction sites.
		2. Site management discussion during preconstruction meeting	City supplied EPA Erosion and Sediment Control BMP fact sheets to utility companies, as a part of Right of Way Permitting. Stormwater Quality Coordinator attended 8 utility Coordinators meetings, discussing ESC plan requirements for submittal/review and approval, restoration and seeding, stockpiling, and ESCs in the field.

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4. (4.1.D, 4.1.E) Were any changes made to involvement activities, or support to be used as BMPs (events, activities, etc.) in conjunction with the selected pollutants for the selected target audiences during reporting period? Yes

In 2023, our involvement activities consisted of Stream Team clean-up events, the City’s biannual Clean-Sweep and street sweeping program, volunteer water quality monitoring, habitat improvement via native planting volunteer events and educational booth MOAM’s Safety fair. The two tabling events in 2023, allowed for stormwater staff to collaborate with other city departments and businesses in town. Due to this we choose to utilize these opportunities to reach a larger audience of residents, city staff, business owners, and contractors.

7. The BMPs for MCM 1 were deemed effective for the 2023 reporting period. We saw an increase in participation from residents in cleanup activities and planting events. As we expand our program and continue to work with various community groups, we are seeing more interest in the Stormwater program.

Permit Section	BMP Description	Measurable Goals	Measurable Goal Assessment
4.1.A	Target Audience Identification	Update/review lists annually and determine if the lists should include other audiences. Tracking will include flyers dropped off at City Hall and participation at events.	During annual review of program, staff determined that participation numbers at stormwater events have increased, and tracking is conducted via sign in sheets and excel sheet. We have seen an increase in participation and interest in the stormwater program. In 2023, staff sent volunteer opportunities to MWSU students, as a result, and we had an increase in college students attending volunteer events.
4.1.B	Target Pollutant Identification	Evaluate previously identified pollutants of concern annually to determine if the City should target other pollutants.	Transitioned from FOG as a target pollutant to unauthorized discharges from Industrial facilities. – Due to # of restaurants verse industrial facilities within the MS4.
4.1.C	City Staff Training	Training materials exist. Transition to Paycor in first year of permit cycle. Training will include a test: track test scores to see improvement.	Staff training for 2023 was hosted on 8/9. This was a facilitator led training with PEC Engineering, training focused on industrial users and Munciple staff. A virtual option to distribute to staff via Paycor was created to ensure that training will be available for Munciple staff in 2024.  Multiple occurrences of one-on-one training with Parks, Streets, and Line Maintenance Departments, during site visits and working with other departments.
	Residents & businesses Educational	Review webpage content annually. Create/update educational materials.	Stormwater educational materials on the city’s webpage were reviewed, and Industrial Stormwater education materials will be added in 2024.

Program - Stormwater Webpage	Quantify participation of audience through number of visits to the site.	
Publish articles in local newsletter. Residents Educational Program - Flyer Distribution via PeachJar	Develop topics that are group specific and address activities or a pollutant of concern. distributed via PeachJar to School District Parents. Two (2) flyers per year will be sent out.	Only one flyer was published in Peachjar in 2023, titled "Lawn care and reducing stormwater pollution". In 2024 we will develop and submit more stormwater education materials via Peachjar.
Concept review And preconstruction meetings to educate Contractors and Developers	Update handouts on proper site management given out with ALL permits and conduct site management discussions during pre-construction meetings.	Concept review meetings were held in 2023, and stormwater control runoff for development and redevelopment was discussed with developers and the engineers present. Development, engineering firm, and date are tracked via excel spreadsheet.
Mark storm inlet with "No-Dumping-Drains to Stream"	Placard, stencil, or paint, a minimum of 10% of all known stormwater inlets in MS4 area per year.	<p>-We have 1,993 inlets in the separated sewer.</p> <p>-Stormwater staff partnered with Youth Alliance and Altec to host Water Week for kids ages 11-18. 115 inlets stenciled during Youth Alliance Water Week. Altec, and Industrial facility participated during the event, incorporating education to this industrial user, and to residents.</p> <p>- In 2023 the City purchased 2 concrete stamps with the messages "No dumping, drains to stream" and "No Dumping, I live downstream." These are installed as inlets are repaired/replaced throughout the city.</p> <p>- 50 installed in 2023.</p>
Promote, host, or develop educational meetings, seminars, or trainings  Targeted Education Campaign, FOG Handouts to restaurants	<p>A minimum of two events shall be held, hosted, or promoted annually. These events may address different pollutants/audiences.</p> <p>Industrial Pretreatment Day and Industry Open House</p> <p>Track number of handouts to restaurants per year. Follow up with restaurants that are not in compliance with FOG</p>	<p>Change to educational BMP (Targeted Education Campaign to educational meetings/training), to match change in Target Audience, this change was based on number of restaurants in MS4 area compared to industrial facilities. WPC's FOG techs will continue to inspect/regulate/educate restaurants in the City.</p> <p>In 2023, 2 educational meetings/trainings were hosted by City.</p> <p>3/21 - Industrial Pretreatment Day – Stormwater Coordinator presented on illicit discharges and stormwater program.</p> <p>8/1 – Industrial Open House – goal was to provide hazardous waste proper disposal</p>

		<del>permits-</del>	education, spill protection, Illicit discharge, and reporting/cleanup procedures. 0 attendees attended the event – future events staff will increase promotion, advertising, and communication to increase attendance.
4.1.D	Stream or Watershed clean-up events; Litter clean-up events such as Missouri Stream Team	Determine site location, host volunteer event, and clean up or 400 yards of stream/ streambank/ watershed or 2 miles of roadside (site determinate)  (These may be combined such as 1 acre of land and 200 yards of stream.)	Stormwater staff planned, participated, and provided resources/materials for multiple litter clean up events in 2023. Staff was able to participate in 7 litter clean up events, as well as attended numerous Beautify St. Joe Steering Committee meetings, where events were planned and coordinated. See Public Education Tracking and Stream Team Reports for additional details.
	Volunteer water quality monitoring;	Water quality monitoring will be completed 1 time per year on the same stream to assess if educational efforts are improving water quality.	A volunteer water quality monitoring event was held on 10/14/2023, inconjunction with stormwater staff training. Monitoring was conducted during Stream Team Level 1 training, Colleen and Sam (Stormwater Coordinator and GI Tech) attended, 6 MWSU students, 1 MDC staff, and 1 Stream team staff.
	Ongoing yard waste collection, designated yard waste collection area, household hazardous waste collection, or street sweeping program.	Provide the service as an annual occurrence or at readily accessible location. For street sweeping, this shall be conducted at minimum twice a year.	The city’s biannual clean sweep was held in 2023 in April and October. During Clean Sweep week, Water Protection staff participate in picking up trash at the plant, and receive an overview on stormwater pollution.  In 2023 2,725 miles were swept.

**MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION**

**2023 REPORTING PERIOD:**

ASSESSMENT OF EFFECTIVENESS: The City’s SWMP and BMPs were effective in 2023 for MCM 2. The Stormwater Subcommittee (Subcommittee) of the Sustainable Environment Advisory Committee of St. Joseph (SEAC) was created in 2020. The Subcommittee was successful in increasing public involvement and participation. Through SEAC and the Subcommittee, a Planting Native Committee was formed to get stakeholders within the city involved in Green Infrastructure (GI) and native plantings within the city. This committee has been a valuable resource for the Stormwater Management Team to educate citizens on the Program. Along with the Subcommittee, the Stormwater Management Team

are very active in Beautify St. Joe, a community group focused on planning and hosting litter cleanup events and increasing awareness for antilittering within the city. Through working with this group, we have seen an increase in volunteers at litter clean up events, and more community groups who want to participate and give back to the community.

3. (4.2.D)

MCM 2 MEASURABLE GOALS:

For each of the BMPs under this MCM, please provide a brief summary of how the measurable goals were achieved and documented. For any BMPs where the measurable goals were not achieved, provide a brief summary of how the BMP evaluated/modified in an effort for success in the coming reporting year.

Permit Section	BMP Description	Measurable Goals	Measurable Goal Assessment
4.2.A	30-day Public Notice Period Required items posted on public website	Revised SWMP posted on City's website for at least 30 days during permit renewal.	NA
4.2.C	Public Meeting with 30-day notice	Public notice of the public meeting for at least 30 days before meeting. Posted on City's website during permit renewal.	NA
4.2.D	Public Comments submitted via email to Stormwater Quality Coordinator	The Stormwater Quality Coordinator will track communication with the public. Correspondence will be divided into different categories: concerns, ideas for improvement, general questions.	Reports, comments, or questions submitted are tracked via an excel spreadsheet. After reviewing this tracking method in 2022, it was determined that it is not effective and was updated in 2023. In 2022 the Stormwater Quality Coordinator's email was added to the city's SW page.
4.2.E	Stormwater Subcommittee of SEAC	Participation in the subcommittee will be monitored, membership will be tracked from year to year. Also, the number of nonmembers participating at events will be tracked.	This is not a stormwater committee, but it does provide the opportunity for people within the community to participate in our program. Tracking of membership did not occur in 2023, but membership participation in events was tracked.

4.2.F	Update to City Council	Questions, attendance, and suggestions will be tracked.	Presented 12/19/2023 Questions were not tracked, due to it being at a council work session. Covered DNR audit and audit findings, 2023 outreach and education events, and goals for 2024.
4.2.G	Evaluate program	Evaluate tracking to modify program as needed	Tracking measures for all MCMs were determined to be ineffective in 2022 and were revamped in 2023. Tracking measures for 2023 deemed effective, but staff will continue to evaluate and improve in 2024.
4.2.I	Tracking mechanisms to track attendance, inquires, or concerns	Participation and communication from the public will be tracked. See increase in public participation in the SW program.	We have seen an increase in participation in the program. We have also seen an increase in communication from the public via direct communication and reports from other city departments related to stormwater.

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### MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

2023 REPORTING PERIOD:

ASSESSMENT OF EFFECTIVENESS:

The separation of Blacksnake Creek has been completed, although this is still a part of the combined sewer and not the MS4, we are including monitoring, clean-up events, and identifying priority areas within the Blacksnake Creek watershed. Mapping of this watershed is not complete yet, but the city has a contract with SAM to complete the mapping, there are three phases of mapping left to complete at a cost of \$77,000.

Permit Section	BMP Description	Measurable Goals	Measurable Goal Assessment
4.3.A	Maintain storm sewer map in GIS system showing MS4 outfalls, waters of the state, and boundary of the MS4 area.	Maintain map of constructed outfalls on GIS through contract with SAM, LLC. One local watershed will be updated each year.	Outfalls within the city are already mapped, SW staff is working to identify city owned outfalls that discharge to WOTS. In 2023, staff gained admin access on GIS to mark outfalls as privately owned (pink) versus city (blue), this allows for staff to easily identify city outfalls for DWS and IDDE. In 2023, a WOTS layer was added to City's GIS, streams and conveyances were already mapped, but this additional layer is a valuable resource when identifying priority areas, & City owned outfalls to WOTS. Due to funding, one new watershed a year is not being met, but all watersheds in MS4 are mapped, and updates added as urban area expands east.

4.3.B	The MS4 Operator must record the sources of information used for the map and track, at minimum: 1. A numbering or naming system of all outfalls; 2. Dates that the outfall locations were verified/ or last field survey; and 3. For newly added outfalls, the date that it was added to the storm sewer system	Finalize inspection procedures and GIS layers. Add all new stormwater BMPs in GIS as development projects are completed.	Inspection procedures were reviewed. In 2022, we hired a part time employee/student intern to map post-construction stormwater BMPs. In 2023, new basins were mapped. Staff is working with our streets department to determine what the best number system for outfalls is. In 2023 we started to transition to using Cartegraph for our DWS and outfall screening information. This includes the date that the outfall is surveyed in the field.
4.3.C	Illicit discharge ordinance (Chapter 25: Sec. 25-98)	Review Illicit Discharge Ordinance. Enforce City ordinance and record all enforcement actions.	IDDE ordinance was reviewed in 2022, and updates were made, which were presented to council during the Stormwater Program council meeting in 2022. All stormwater ordinances were passed by City Council in March 2023.
4.3.D	Outfall field assessments Dry Weather Field Screening SOP 1.4.002	Review and update Dry Weather Field Screening SOP. Conduct screening at 12% of outfalls. Use enforcement actions when needed. Determine priority areas to be screened annually.	If the outfall is on private property, then the city will not maintain it, per city ordinances, making all outfalls that are not on the city's property or within the ROW, private outfalls, unless deterioration or damage to outfall will cause ROW issues. Then the City will repair said outfall, at which time that outfall will be deemed a city owned outfall. All city owned outfalls were identified in 2023, apart from 3 small watersheds, determinations for these and DWS will be completed early 2024.
4.3.E 4.3.F	Illicit Discharge Detection and Elimination SOP 1.4.001 (Appendix C) Dry Weather Field Screening SOP 1.4.002	Review IDDE SOP. Respond to reports of illicit discharges and illegal dumping. Identify illicit discharges and the source, take enforcement actions when needed. Record all responses.	IDDE SOP was reviewed in 2023. Staff responded to all illicit discharge reports, and sampling data is included at the end of this report.
4.3.G	Maintain procedures for removing the source of an illicit discharge. Work with source of illicit discharge to remedy situation.	Review and update IDDE SOP to include details on how to remedy the situation. Identify illicit discharges and the source. Work with source to remove the discharge. Record all responses.	Procedures are reviewed annually, staff works with source of illicit discharge to prevent occurrence, educate, and determine if remediation needs to be completed.
4.3.H	Identify illicit discharge priority areas.	Identify priority areas and create list/map.	Priority areas within the MS4 area have been established, and the industrial area within the MS4 has been deemed a priority screening area. Majority of illicit discharge reports received by SW staff are located within the

			combined sewer area, due to this being the older and more developed area.
4.3.I	Maintain written procedures for implementing IDDE program. Illicit Discharge Detection and Elimination SOP Dry Weather Field Screening SOP	Implement dry weather screening program and implement schedule to address all non-stormwater discharges.	IDDE and DWS SOPs have been developed for the City's Stormwater Program, and staff reviewed in 2023.
4.3.J	Conduct investigations in response to field screening discoveries, spills, or complaints from public, or municipal staff.	Update Dry Weather Screening and IDDE SOP to reflect permit requirements. Conduct investigations regarding all discovered and reported spills.	All reports of illicit discharges were investigated in 2023, response time will be improved in 2023 and the SOP will be updated.
4.3.K	Appropriate enforcement procedures for illicit discharge ordinance	Enforce City ordinance and record all enforcement actions.	Code was reviewed in 2022 and presented to council during a work session. Code updates for permit regulations were completed in 2023, and passed through City Council in March, in conjunction with other code updates from Water Protection.
4.3.L	Create and maintain database for tracking dry weather screenings, spills, incidents, and investigations.	Review data to determine if there are new priority areas for the IDDE program and ways to eliminate them.	Tracking for DWS, IDDE, and reports were previously completed in an excel spreadsheet. We found this to not be the most effective or efficient tracking method and were revamped in 2023. DWS forms are now in Cartegraph.
4.3.M	Education and Outreach Strategies in MCM 1 and MCM 6 regarding the hazards of illegal discharges and improper disposal of waste.	Review training and educational materials. Conduct annual City staff training about IDDE. Record public presentations regarding IDDE and enforcement procedures. Provide illicit discharge materials to all open land disturbance site managers.	Training for city staff consisted of one-on-one training with Parks, Line Maintenance, Streets, and Property Maintenance and training on 8/9 with PEC Engineering in 2023. Water Protection staff received additional IDDE training before WPC's biannual plant clean sweep in October. Training resources will be transitioned to Paycor in 2024. SW staff is working with a community group (Beautify St. Joe) to conduct litter clean-ups, and train residents and business owners on the importance of removing trash of stormwater pollution prevention.
4.3.N 4.3.O	Review program annually and update implementation procedures as necessary	Revisions to ordinance completed in 1st yr. of permit cycle, update map to include permit requirements. Review program and update implementation procedures. Ensure program is in compliance with permit. Maintain an updated map with all items in MCM3.	Code was reviewed in 2022 and presented to council during a work session. Code updates for permit regulations were completed in 2023, and passed through City Council in March, in conjunction with other code updates from Water Protection.

4.3.Q	Develop and implement training program for all municipal field staff, who may come in contact with an illicit discharge. Training will be in conjunction with MCM 1 training.	Review and update training and educational materials. Conduct annual City staff training about IDDE. Record training dates, topics, and attendance.	Training consisted of one-on-one with other city departments and training on 8/9 with PEC Engineering in 2023, in 2024 we will be transiting to Paycor to distribute training to all municipal staff who have the potential to impact stormwater.
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#### MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

2023 REPORTING PERIOD:

ASSESSMENT OF EFFECTIVENESS:

Permit Section	BMP Description	Measurable Goals	Measurable Goal Assessment
4.4.A	Land Disturbance and Sediment Control Ordinance (Chapter 25: Section 25-9)	Review and update ordinance as needed. Track all enforcement actions.	Code was reviewed in 2022, and presented to council during a work session, code updates for permit regulations were completed in 2023, and passed through City Council in March, in conjunction with other code updates from Water Protection.  City Land Disturbance Permit requirements were reviewed in 2023, and no updates were necessary for compliance requirements.
4.4.B	Commercial and Subdivision Review SOP	Develop pre-construction plan review checklist to ensure consistency during review. Review all pre-construction plans and document.	A pre-construction plan review checklist was created in 2023, this is used for all commercial plan review conducted by stormwater staff.
4.4.C 4.4.L	City of St. Joseph Land Disturbance Requirements and LD Inspection SOP	Review and update LD Requirements and LD Inspection procedures. Track inspections and enforcement actions.	All inspections and enforcement actions were tracked. Tracking methods were updated in 2023. We are transiting to Cartegraph for LD items, making tracking more efficient and easier to assess the data. One item that will be improved in 2024, is tracking of all verbal education and enforcement.

4.4.D	Land Disturbance and Sediment Control Ordinance (Chapter 25: Section 25-9), City LD Requirements, Enforcement Response Plan	Record all enforcement actions taken by the City.	All enforcement actions taken by the SW team are tracked via land disturbance inspection form or tracking sheet. We are planning to transition using Cartegraph for enforcement tracking. One deficiency noted in 2023, was not tracking all verbal enforcement for sites, this is being evaluated and improved for 2024. One method that is being considered for improving verbal enforcement tracking is the creation of a One Drive form, that will automatically update information into an excel sheet. Form will be accessible to staff while in field and will be filled out asap after providing verbal enforcement.
4.4.E	City of St. Joseph Land Disturbance Requirements and LD Inspection SOP	During each LD inspection, ESC inspectors verify that inspections are occurring. Track and use enforcement measures when necessary.	During each inspection ESC Inspectors verify if inspections are being conducted by site operators, and this is noted on the inspection form. During plan review, SWQC checks SWPPPs to ensure that inspection requirements are called out, and during preconstruction meetings inspectors, emphasize/remind site reps the importance of site inspections.
4.4.F 4.4.G	Inventory of active LD sites, including all relevant info regarding the site and inspection details.	Update list as new LD sites become active.	As new projects are approved for permits, these are added to the Stormwater land disturbance projects, under the city's server.
4.4.H	Review & update Stormwater Program (ordinances, Permitting procedures, review procedures, inspection procedures, & enforcement procedures	Review Stormwater Management Program and complete inventory of active LD sites.	Active land disturbance site inventory is complete and is added to when new LD projects are approved for permits. This inventory is housed on the city's server, containing approved plans, and all stormwater related documents.
4.4.I	Web-based comment Submission platform, customer comment drop box in City Hall lobby,	Record all complaints and responses	Tracking measures for all MCMs were determined to be ineffective in 2022 and were revamped in 2023. Tracking measures for 2023 deemed effective,

	"Report a Spill" form on SW webpage.		but staff will continue to evaluate and improve in 2024. City received one report via the "Report a Spill" button on website.
4.4.K	Provide construction site runoff control training to all ESC inspectors and plan reviewers, once per permit cycle	Provide training to inspectors when current training expires. Track and document.	All ESC inspectors have received for construction site runoff control. We hired a new Green Infrastructure Inspector in 2022, he received ESC training in the fall and is now able to conduct ESC inspections.  Two project managers under the City's Engineering dept, received ESC training in 2023.

MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT IN DEVELOPMENT AND REDEVELOPMENT

2023 REPORTING PERIOD:

ASSESSMENT OF EFFECTIVENESS:

Permit Section	BMP Description	Measurable Goals	Measurable Goal Assessment
4.5.A 4.5.B 4.5.C	Post-Construction Stormwater Ordinance (Chapter 25: Sect. 25-97)	Review and update ordinance as needed. Track document reviews.	Code was reviewed in 2022, and presented to council during a work session, code updates for permit regulations were completed in 2023, and passed through City Council in March, in conjunction with other code updates from Water Protection. The SW program enforces water quality standards for all development and redevelopment within the city, following the APWA MARC BMP Manual. All plan reviews are tracked and completed using a plan review checklist.
	APWA/MARC's BMP Manual, SWPPP template, Pre-construction plan review.	Enforce APWA/MARC manual requirements for all plan reviews over one acre. Document plan reviews.	The City has adopted APWA/MARC's BMP Manual and provided a Stormwater Pollution Prevention Plan (SWPPP) template to protect sensitive areas, minimize the creation of stormwater pollution, utilize BMPs that effectively remove stormwater pollution, and attempt to maintain predevelopment runoff

			conditions. During the plan review stage of a project, the Stormwater Quality Coordinator review the submittals for these requirements. In 2023 city hired a Stormwater Consulting firm to help assist in stormwater plan review.
4.5.D 4.5.E	Stormwater Treatment Facility Registration and Maintenance as listed in post-Construction Stormwater Ordinance (Chapter 25: Sect. 25-97)	Create stormwater treatment facility registry. Track all enforcement actions. Require O&M manuals for the close out of the project.	Plan review checklist was updated in 2023 to ensure that all WQ items are being accounted for during plan review. O&M manuals are required for closeout of project if they are not supplied during the review process. In 2023, plan submittal was not approved until O&M manual is submitted and reviewed for project.
	Inspection of each water quality structural and nonstructural water postconstruction BMP.	Inspect all post-construction BMPs during construction and once during first 3 years post construction. Inspect 12% of all post-con BMPs, including ongoing enforcement cases. Update SW ordinance to meet compliance.	BMPs are inspected during the ESC inspections during construction, and during the final inspection of the project. We will have to increase the percentage of inspections yearly, to meet the 60% goal. We are in the process of completing the inventory of post-con BMPs. This list will continue to evolve as projects are completed. Staff is reviewing older projects that have the potential for Post Construction BMPs onsite, to ensure that list is all encompassing.
4.5.F 4.5.G	Post-Construction Stormwater Ordinance (Chapter 25: Sect. 25-97 25-99)	Update ERP to match enforcement actions noted in permit. Evaluate and update ordinance as needed. Record all enforcement actions taken.	The City has an ordinance in place, Chapter 25: Section 25-99 that gives the authority to the City to use a range of enforcement actions for violations. EER will be reviewed and updated as needed in 2024.
4.5.H 4.5.I	Stormwater Treatment Facility Registration and Maintenance as listed in Post-Construction Stormwater Ordinance (Chapter 25: Sect. 25-97)	Create inventory list of all post construction BMPs and inspections. Test Cartegraph for tracking functions. Update post-construction BMP inventory as new BMPs are constructed. Track all BMP inspections.	In 2022, we hired a student intern to complete post-construction BMP mapping, while onsite, the intern takes photos of the BMP for record. Water Protection will get Cartegraph online in 2023, and testing for tracking will occur. All new BMPs will be mapped during the final inspection, code updates for annual inspections of BMPs were completed in 2023, in conjunction with other code updates from Water Protection.
4.5.J	Evaluate post-construction stormwater management program.	Review ordinances, permitting procedures, review process, inspection procedures,	Code was reviewed in 2022, and presented to council during a work session, code updates for permit regulations were completed in 2023,

		and enforcement procedures to ensure compliance with permit requirements.	and passed through City Council in March, in conjunction with other code updates from Water Protection.
4.5.L	Provide training for ESC inspectors once per permit cycle; must include structural and nonstructural BMPs, can include GI training, or specific operation of proprietary post-construction BMPs.	Provide training at minimum once during permit cycle. Document training, attendance, and date.	In 2022, Green Infrastructure techs completed a GI class, with staff turnover a new GI Tech was hired and ESC training was offered and completed, two project managers in the Engineering dept completed the ESC training as well. Additional training courses were taken by stormwater staff, these trainings were tracked, including a stormwater seminar in St. Charles County, multiple online webinars, and DNR trainings.

4.5.D Procedures for long term operations and maintenance of post-development BMPs were evaluated during the 2023 reporting period, staff is utilizing EPA post construction BMP resources for education materials to owner/operators, who do not have O&M manuals for their sites. These are sites who installed their BMPs prior to issuance of O&M manual requirements.

4.5.F and 4.5.G: Compliance and enforcement measures were evaluated for the reporting period, and thus far we have experienced sites working with the city to get into compliance, verses having to use enforcement measures. We have encountered situations where the developer installed the post-construction BMP and the current owner/operator is unaware of the facility and their responsibility to maintain. Through expanding our outreach and education, with the addition of the Industrial stormwater training day, we will hit a large percentage of post-construction facility owners.

## MCM 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL EMPLOYEES

### 2023 REPORTING PERIOD:

#### ASSESSMENT OF EFFECTIVENESS:

Training for municipal staff consisted of one-on-one or during meetings with other city departments, as well as a facilitator led training on 8/9/23. MoKAN received approval from the DNR to use the remaining grant funding for consultant led stormwater training for industries and city staff. Included in the proposal to consultant companies, the training materials can be accessible and utilized by city staff after the in-person training is completed. These training materials will be transitioned into Paycor and assigned to applicable city staff. This training opportunity was hosted in person on 8/09/2023, with attendance from Water Protection, Parks Department, Streets Department, Rosecrans Airport City Staff, and Sewer Line Maintenance.

Permit Section	BMP Description	Measurable Goals	Measurable Goal Assessment
4.6.A 4.6.B	City Staff Training (MCM 1 BMP 3) to prevent and reduce stormwater pollution.	Training materials exist. Transition to PayCor in first year of permit cycle. Training will include a test: track test scores to see improvement.	<p>This goal was achieved in 2023. Water Protection incoming hires all receive new employee training that includes stormwater pollution prevention. WPC has a Pollution Prevention Team that focuses on reducing stormwater pollution at the facility. 2x/yr. WPC has a Clean Sweep, where staff receives stormwater education, and picks up trash onsite.</p> <p>Staff training was hosted on 8/9, through PEC engineering, departments that attended are Water Protection, Streets, Line Maintenance, Parks, airport, and Direct and Deputy Directors over Public Works.</p> <ul style="list-style-type: none"> <li>- A survey was given after the training, and one comment received from multiple staff stated, that “they were not aware of the depth of stormwater regulations, and our permit requirements.”</li> </ul>
4.6.C	Maintain training materials for City staff used to reduce stormwater pollution.	Maintain materials used in training program, including those from other organizations. Create and maintain written procedures for training program. Create a schedule to offer for specific training (must be completed 1st yr. permit cycle)	<p>Training materials from MoKAN industrial stormwater training day, will be used by the city for stormwater training, and issued to staff via Paycor.</p> <p>All training materials are saved on City server.</p>
4.6.D	Maintain a list of all municipal ops/facilities impacted by operation and maintenance program	Update municipal operations and facilities list as needed. Review O&M program. Staff at these facilities will be specifically targeted by	List of all municipal operations impacted by this O&M program is complete and updated as necessary. No new operations were added in 2023.

		MCM 1 BMP3/MCM 6 BMP 1.	
4.6.E	Maintain a list of industrial facilities owned and operated by the City that discharge to the MS4.	Update industrial facilities list as needed. Staff at these facilities will be specifically targeted by MCM 6 BMP 1.	The industrial facilities list is complete for all city owned facilities within the MS4. List was reviewed and updated as necessary in 2023.
4.6.F	Policies for trash reducing and eliminating floatables and pollutants from permittee owned or operated municipal sites listed in 4.6.D & 4.6.E.	Compile different department policies on floatables and pollutant elimination. Create policies in SWMP. Annual inspections of all municipal facilities.	Policies were reviewed in 2023, stormwater staff will review, update, and create policies as needed as we continue to grow our stormwater program, and as need arises.
4.6.G	Procedures for the proper disposal of waste removed from separate storm sewers and areas of jurisdiction	Review procedures in CMOM and SWMP annually. Track waste disposed of from MS4 area.	Within the <i>City of St. Joseph, MO Capacity, Management, Operations, and Maintenance (CMOM) Comprehensive Index</i> are the Sewer Maintenance Sewer Cleaning Procedures. Also in the CMOM plan is the Sanitary Sewer Overflow Response Plan (SSORP) which contains information about the containment and clean-up of SSOs. Department heads are in the process of updating the SSORP.
4.6.H	Procedures for the washing of municipal vehicles and equipment	Create inspection procedures.	Each municipal facility maintains their own fleet washing procedures. These procedures were reviewed and updated as necessary in 2023.
4.6.I	Maintain written explanation of the controls, procedures, inspection schedules, and explanation of tracking of these controls.	Create and maintain explanation of the controls, procedures, inspection schedules, and explanation of tracking of these controls. Create tracking mechanism for	Facilities have developed O&M manuals for sites, these will be reviewed and updated as necessary in 2024.

		inspections. (Must be completed 1st yr. permit cycle)	
4.6.K	Evaluate current Stormwater Management Program (training, inspection procedures, and other municipal operation procedures)	Any changes necessary must be completed in 1st year of permit cycle.	MCM 6 goals was not met for the 2022 reporting period. Goal was met in 2023 with industrial/staff training hosted by MoKAN and the sw staff working with other city departments.  Site inspections occurred at the Rosecrans airport, parks within the MS4, and Water Protection (CSO Area).  Facility inspection form was created in 2023 for site inspections.



*Robidoux Roundabout – Adopted, planted, and maintained by Plant Native Group, and SWCQ.*





Youth Alliance Water Week – 102 Stream Clean



Bioswale Native planting event: 1 Mosaic rep



Youth Alliance Water Week – Storm Drain stenciling Day



Remington spillway project with parks and native planting volunteer event.



Beautify St. Joe River Front Park Clean-up



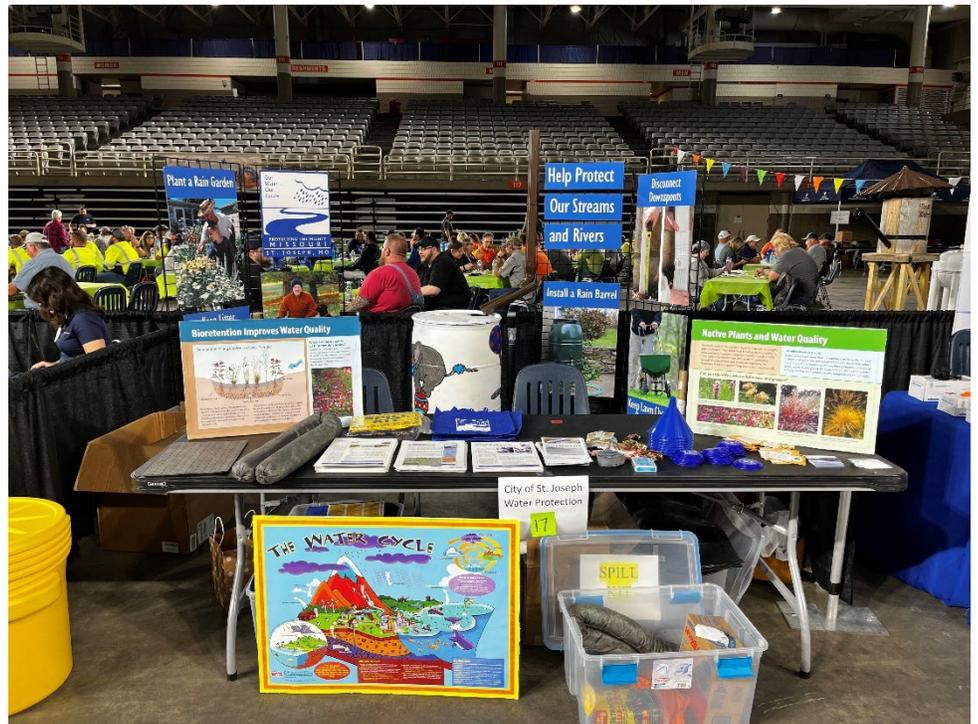
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*Missouri American Safety Fair – 9/14/2023*

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50 people stopped by booth, 38 native seed packets with "Bee Stormwater Smart" were handed out, 45 oil funnels with WQ education message, 40 rain barrel handouts, 15 water quality playing cards handed out.

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**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Activity Report Online Data Form Submitted  
**Date:** Monday, April 3, 2023 1:45:21 PM

---

The Following form has been submitted to Missouri Stream Team:

**Stream Team Identification:**

<i>Parameter</i>	<i>Value</i>
<b>Team Number:</b>	4260
<b>Team Name:</b>	City of St. Joseph Water Protection
<b>*Activity Reporter's First Name:</b>	Colleen
<b>*Activity Reporter's Last Name:</b>	Armstrong
<b>Business or School (if applicable):</b>	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<i>Parameter</i>	<i>Value</i>
<b>Is the shipping address commercial or residential?:</b>	Residential
<b>*Shipping Address:</b>	3500 MO-759
<b>*City:</b>	St. Joseph
<b>*State:</b>	MO
<b>*Zip Code:</b>	64504
<b>Home Phone:</b>	(816)273-8615
<b>Work Phone:</b>	
<b>Email:</b>	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<i>Parameter</i>	<i>Value</i>
<b>Contact Person for Team (First</b>	Colleen

<b>Name):</b>	
<b>Contact Person for Team (Last Name):</b>	Armstrong
<b>Is there a change in Contact Person?:</b>	No
<b>Is there a change in the Contact Person's address?:</b>	No

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
<b>*Type of Activity:</b>	LPU - Litter Pickup
<b>If the activity was not in the list above, please describe it here:</b>	
<b>*Activity Date:</b>	04/01/2023
<b>*Stream Name:</b>	Missouri River
<b>Activity County:</b>	Buchanan
<b>Activity Basin:</b>	Missouri River
<b>Miles of river covered: (if applicable)</b>	.5
<b>*Number of volunteers involved:</b>	30
<b>*Project hours:</b>	1.25
<b>Total hours spent on project (Number of Volunteers x Project Hours):</b>	37.50
<b>*Describe the pickup:</b>	Cleaned up remnants of a homeless camp along the river walk in St. Joseph. 52 bags of trash were collected. Approximately 4.5 acres were covered during the clean-up event.
	Started at the parking lot under the highway

<b>Location Description:</b>	229 underpass - Latitude 39.76610, Longitude 94.86069, and worked our way north on the river walk. Township 57, Range 35, Section 8.
<b>Project Description:</b>	This clean-up was a partnership between Beautify St. Joseph, and City of St. Joseph Water Protection, we had volunteers from Community Missions, the St. Joe Bucks, the St. Joseph Youth Alliance, and Civil Savages.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>Bookmarks:</b>	<b>Spring Peeper:</b>
<b>Bumper Sticker (Quality Water, 3 1/2" x 9 1/4"):</b>	5
<b>Cell Phone Wallets (Stream Team, stick-on):</b>	5
<b>Colorbook (Stream Team Superstars, Grades K-3):</b>	10
<b>Face Mask:</b>	
<b>Headwraps:</b>	
<b>Ink Pens (Stream Team):</b>	
<b>Keychains (Whistle - Stream Team):</b>	5
<b>Koozies (Stream Team):</b>	
<b>Mood Cup (Stream Team 17 oz. color-changing):</b>	
<b>Patches (Stream Team, Scouts only, 3" round):</b>	
<b>Pencils (Get Into Missouri Streams):</b>	

<b>Pop It Fidget Toy:</b>	5
<b>Stickers (I Love Missouri Streams, 3" round):</b>	10
<b>Tattoo:</b>	<b>ST Logo:</b>
<b>T-Shirts (Stream Team) (shipped in available sizes and colors):</b>	YS: YL: S: M: L: XL: 1 XXL:
<b>Vinyl Decal:</b>	<b>Go With the Flow: 5</b> <b>I Live For Clean Streams: 5</b> <b>I Love MO Streams: 5</b>

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
<b>Would you like to be included in our 'Activity Prize Drawing'?:</b>	Yes
<b>Participants' Name:</b>	Colleen Armstrong Samuel Miller
<b>-- OR --</b>	
<b>Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):</b>	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>First Aid Kit (Limit one per 10-15 participants):</b>	1
<b>Litter Pickup Bag (24" x 36" green</b>	

mesh) for cleanups with larger trash items:	5
Litter Pickup Bag (Standard red mesh):	5
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Activity Report Online Data Form Submitted  
**Date:** Tuesday, April 25, 2023 11:38:48 AM

---

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Team Number:</b>	4260
<b>Team Name:</b>	City of St. Joseph Water Protection
<b>*Activity Reporter's First Name:</b>	Colleen
<b>*Activity Reporter's Last Name:</b>	Armstrong
<b>Business or School (if applicable):</b>	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Is the shipping address commercial or residential?:</b>	Commercial
<b>*Shipping Address:</b>	3500 MO-759
<b>*City:</b>	St. Joseph
<b>*State:</b>	MO
<b>*Zip Code:</b>	64504
<b>Home Phone:</b>	(816)273-8615
<b>Work Phone:</b>	
<b>Email:</b>	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Contact Person for Team (First</b>	Colleen

<b>Name):</b>	
<b>Contact Person for Team (Last Name):</b>	Armstrong
<b>Is there a change in Contact Person?:</b>	No
<b>Is there a change in the Contact Person's address?:</b>	No

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
<b>*Type of Activity:</b>	LPU - Litter Pickup
<b>If the activity was not in the list above, please describe it here:</b>	
<b>*Activity Date:</b>	04/19/2023
<b>*Stream Name:</b>	City of St. Joseph Water Protection
<b>Activity County:</b>	Buchanan
<b>Activity Basin:</b>	
<b>Miles of river covered: (if applicable)</b>	
<b>*Number of volunteers involved:</b>	5
<b>*Project hours:</b>	2
<b>Total hours spent on project (Number of Volunteers x Project Hours):</b>	10.00
<b>*Describe the pickup:</b>	Water Protection plant litter clean up event over 38 acres. 20 bags of trash collected.
<b>Location Description:</b>	3500 State Route 759 St. Joseph Missouri 64504 Section 30 - Township 57 - Range 35

<b>Project Description:</b>	This is the plants biannual clean sweep.
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**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>Bookmarks:</b>	<b>Spring Peeper:</b>
<b>Bumper Sticker (Quality Water, 3 1/2" x 9 1/4"):</b>	
<b>Cell Phone Wallets (Stream Team, stick-on):</b>	8162738615
<b>Colorbook (Stream Team Superstars, Grades K-3):</b>	
<b>Face Mask:</b>	
<b>Ink Pens (Stream Team):</b>	
<b>Keychains (Whistle - Stream Team):</b>	
<b>Koozies (Stream Team):</b>	
<b>Mood Cup (Stream Team 17 oz. color-changing):</b>	
<b>Patches (Stream Team, Scouts only, 3" round):</b>	
<b>Pencils (Get Into Missouri Streams):</b>	
<b>Pop It Fidget Toy:</b>	
<b>Stickers (I Love Missouri Streams, 3" round):</b>	
<b>Tattoo:</b>	<b>ST Logo:</b>

T-Shirts (Stream Team) (shipped in available sizes and colors):	YS: YL: S: M: L: XL: XXL:
Vinyl Decal:	Go With the Flow: I Live For Clean Streams: I Love MO Streams:

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	Yes
Participants' Name:	Colleen Armstrong, Samuel Miller, Kevin Lytton
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	
Litter Pickup Bag (Standard red mesh):	

Work Gloves:

Large:  
Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

## Colleen Armstrong

---

**From:** streamteam@mdc.mo.gov  
**Sent:** Tuesday, July 25, 2023 3:56 PM  
**To:** Colleen Armstrong  
**Subject:** Activity Report Online Data Form Submitted

### The Following form has been submitted to Missouri Stream Team:

#### Stream Team Identification:

<i>Parameter</i>	<i>Value</i>
Team Number:	4260
Team Name:	City of St. Joseph Water Protection
*Activity Reporter's First Name:	Colleen
*Activity Reporter's Last Name:	Armstrong
Business or School (if applicable):	City of St. Joseph Water Protection

#### Contact/Shipping Information:

<i>Parameter</i>	<i>Value</i>
Is the shipping address commercial or residential?:	Commercial
*Shipping Address:	3500 MO-759
*City:	St. Joseph
*State:	MO
*Zip Code:	64504
Home Phone:	(816)273-8615
Work Phone:	
Email:	carmstrong@stjosephmo.gov

#### Team Contact Person Information:

<i>Parameter</i>	<i>Value</i>
Contact Person for Team (First Name):	Colleen
Contact Person for Team (Last Name):	Armstrong
Is there a change in Contact Person?:	No

Is there a change in the Contact Person's address?:	No
---	----

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
*Type of Activity:	SDS - Storm Drain Stenciling
If the activity was not in the list above, please describe it here:	
*Activity Date:	07/25/2023
*Stream Name:	102 River
Activity County:	Buchanan
Activity Basin:	
Miles of river covered: (if applicable)	
*Number of volunteers involved:	16
*Project hours:	2.5
Total hours spent on project (Number of Volunteers x Project Hours):	40.00
*Number of drains:	115
Unit of Measurement:	drains
Location Description:	St. Joseph Mo. Pickett Road east of I-29 Highway. Starting at Deer Park Drive to Riverside Road and Pickett Road to University Ave. Township 57N Section 24 Range 35 W
Project Description:	This was Water Protections first storm drain stenciling event with Youth Alliance and Altec. We had 3 Water Protection employees, 8 students and 1 Program Director with Youth Alliance and 4 Altec Employees.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
Belt Bag:	
Cell Phone Wallets (Stream Team, stick-on):	8162738615
Colorbook (Stream Team Superstars, Grades K-3):	
Face Mask:	
Ink Pens (Stream Team):	
Keychains (Whistle - Stream Team):	
Koozies (Stream Team):	

Mood Cup (Stream Team 17 oz. color-changing):	
Patches (Stream Team, Scouts only, 3" round):	
Pencils (Get Into Missouri Streams):	
Pop It Fidget Toy:	
Stickers (I Love Missouri Streams, 3" round):	15
Tattoo:	ST Logo:
T-Shirts (Stream Team) (shipped in available sizes and colors):	YS: YL: S: M: L: XL: XXL:
Vinyl Decal:	Go With the Flow: 15 I Live For Clean Streams: 15 I Love MO Streams: 15
Wrist Keychain:	5

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	No
Participants' Name:	
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	
Litter Pickup Bag (Standard red mesh):	
Work Gloves:	Large: Small:

Uploaded Activity Photos

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

## Colleen Armstrong

---

**From:** streamteam@mdc.mo.gov  
**Sent:** Friday, September 15, 2023 11:17 AM  
**To:** Colleen Armstrong  
**Subject:** Activity Report Online Data Form Submitted

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<i>Parameter</i>	<i>Value</i>
Team Number:	4260
Team Name:	City of St. Joseph Water Protection
*Activity Reporter's First Name:	Colleen
*Activity Reporter's Last Name:	Armstrong
Business or School (if applicable):	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<i>Parameter</i>	<i>Value</i>
Is the shipping address commercial or residential?:	Commercial
*Shipping Address:	3500 MO-759
*City:	St. Joseph
*State:	MO
*Zip Code:	64504
Home Phone:	(816)273-8615
Work Phone:	
Email:	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<i>Parameter</i>	<i>Value</i>
Contact Person for Team (First Name):	Colleen
Contact Person for Team (Last Name):	Armstrong
Is there a change in Contact Person?:	No

Is there a change in the Contact Person's address?:	No
---	----

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
*Type of Activity:	DIS - Display at fair, mall, school, etc.
If the activity was not in the list above, please describe it here:	
*Activity Date:	09/14/2023
*Stream Name:	Missouri River
Activity County:	Buchanan
Activity Basin:	
Miles of river covered: (if applicable)	
*Number of volunteers involved:	3
*Project hours:	10
Total hours spent on project (Number of Volunteers x Project Hours):	30.00
*Number of events:	1
Unit of Measurement:	events
Location Description:	Water Protection tabled at Missouri American Water's 3rd annual safety fair, held at the Civic Arena in St. Joseph, MO.
Project Description:	This was our second time participating in the event. During the event we talked with contractors, utility workers, and county and city stormwater employees from Warrensburg, KC Water, and Excelsior Springs. We had the hydrologic cycle, rain barrel, car washing, bioretention for water quality, native plants for water quality, and disconnecting down spouts signage. During the event we handed out native seed packets, oil funnels with water quality message, stormwater education handouts, and had a spill kit example on display. Approximately 50 people stopped at the booth to talk with us, overall attendance was approximately 100 people.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
Belt Bag:	
Cell Phone Wallets (Stream Team, stick-on):	10
Colorbook (Stream Team Superstars, Grades K-3):	
Face Mask:	
Ink Pens (Stream Team):	
Keychains (Whistle - Stream Team):	15

Koozies (Stream Team):	25
Patches (Stream Team, Scouts only, 3" round):	
Pencils (Get Into Missouri Streams):	
Pop It Fidget Toy:	
Stickers (I Love Missouri Streams, 3" round):	45
Tattoo:	ST Logo:
T-Shirts (Stream Team) (shipped in available sizes and colors):	YS: YL: S: 1 M: 1 L: 1 XL: 2 XXL: 1
Vinyl Decal:	Go With the Flow: 10 I Live For Clean Streams: 10 I Love MO Streams: 10
Wrist Keychain:	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	Yes
Participants' Name:	Colleen Armstrong Kevin Lytton Samuel Miller
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	5
Litter Pickup Bag (Standard red mesh):	5
Work Gloves:	Large: Small:

Uploaded Activity Photos

[IMG\\_1789.JPG](#)

[IMG\\_1790.JPG](#)

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

## Colleen Armstrong

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**From:** streamteam@mdc.mo.gov  
**Sent:** Monday, September 18, 2023 9:40 AM  
**To:** Colleen Armstrong  
**Subject:** Activity Report Online Data Form Submitted

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<i>Parameter</i>	<i>Value</i>
Team Number:	4260
Team Name:	City of St. Joseph Water Protection
*Activity Reporter's First Name:	Colleen
*Activity Reporter's Last Name:	Armstrong
Business or School (if applicable):	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<i>Parameter</i>	<i>Value</i>
Is the shipping address commercial or residential?:	Commercial
*Shipping Address:	3500 MO-759
*City:	St. Joseph
*State:	MO
*Zip Code:	64504
Home Phone:	(816)273-8615
Work Phone:	
Email:	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<i>Parameter</i>	<i>Value</i>
Contact Person for Team (First Name):	Colleen
Contact Person for Team (Last Name):	Armstrong
Is there a change in Contact Person?:	No

Is there a change in the Contact Person's address?:	No
---	----

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
*Type of Activity:	LPU - Litter Pickup
If the activity was not in the list above, please describe it here:	
*Activity Date:	09/16/2023
*Stream Name:	Blacksnake Creek Watershed
Activity County:	Buchanan
Activity Basin:	
Miles of river covered: (if applicable)	
*Number of volunteers involved:	27
*Project hours:	2
Total hours spent on project (Number of Volunteers x Project Hours):	54.00
*Describe the pickup:	60
Location Description:	Cleanup started at 715 E Highland Ave and went to 3600 St. Joseph Ave
Project Description:	This cleanup event occurred in Blacksnake Creek Watershed along St. Joseph Ave. Beauty St. Joe, a community group that focuses on litter cleanups, spearheaded the event with assistance from the city. Water Protection, Neighborhood services both with the city, participated, along with Altec and the Chamber of Commerce.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
Belt Bag:	10
Cell Phone Wallets (Stream Team, stick-on):	
Colorbook (Stream Team Superstars, Grades K-3):	15
Face Mask:	
Ink Pens (Stream Team):	
Keychains (Whistle - Stream Team):	
Koozies (Stream Team):	
Patches (Stream Team, Scouts only, 3" round):	

Pencils (Get Into Missouri Streams):	
Pop It Fidget Toy:	
Stickers (I Love Missouri Streams, 3" round):	
Tattoo:	ST Logo:
T-Shirts (Stream Team) (shipped in available sizes and colors):	YS: YL: S: M: L: XL: XXL:
Vinyl Decal:	Go With the Flow: 15 I Live For Clean Streams: 15 I Love MO Streams: 15
Wrist Keychain:	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	Yes
Participants' Name:	Colleen Armstrong Sam Miller
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	
Litter Pickup Bag (Standard red mesh):	
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Activity Report Online Data Form Submitted  
**Date:** Thursday, October 5, 2023 12:27:14 PM

---

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Team Number:</b>	4260
<b>Team Name:</b>	City of St. Joseph Water Protection
<b>*Activity Reporter's First Name:</b>	Colleen
<b>*Activity Reporter's Last Name:</b>	Armstrong
<b>Business or School (if applicable):</b>	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Is the shipping address commercial or residential?:</b>	Residential
<b>*Shipping Address:</b>	3500 MO-759
<b>*City:</b>	St. Joseph
<b>*State:</b>	MO
<b>*Zip Code:</b>	64504
<b>Home Phone:</b>	(816)273-8615
<b>Work Phone:</b>	
<b>Email:</b>	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Contact Person for Team (First</b>	Colleen

<b>Name):</b>	
<b>Contact Person for Team (Last Name):</b>	Armstrong
<b>Is there a change in Contact Person?:</b>	No
<b>Is there a change in the Contact Person's address?:</b>	No

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
<b>*Type of Activity:</b>	NPS - Rain garden, rain barrel, green roof installation/maintenance
<b>If the activity was not in the list above, please describe it here:</b>	Bioswale maintenance and weeding
<b>*Activity Date:</b>	10/04/2023
<b>*Stream Name:</b>	Blacksnake Creek Watershed
<b>Activity County:</b>	Buchanan
<b>Activity Basin:</b>	
<b>Miles of river covered: (if applicable)</b>	0
<b>*Number of volunteers involved:</b>	5
<b>*Project hours:</b>	2.5
<b>Total hours spent on project (Number of Volunteers x Project Hours):</b>	12.50
<b>*Number of projects:</b>	1
<b>Unit of Measurement:</b>	projects

<b>Location Description:</b>	1st bioswale location: Lat: 39.79028 N, Long 94.84576 W. Section 5, township 57N, Range 35 W. South of Broadway street, east of Burnside Ave, and north of 5th avenue on the Blacksnake Creek trail. 2nd Bioswale location: Lat: 39.79258 N, Long 94.84469 W. Section 32, Township 58 N, Range 58N. 1,144 feet south of Randolph Street, 480ft east of St. Joseph Avenue.
<b>Project Description:</b>	This was the first fall bioswale maintenance volunteer event, with the assistance of Altec.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>Belt Bag:</b>	
<b>Cell Phone Wallets (Stream Team, stick-on):</b>	8162738615
<b>Colorbook (Stream Team Superstars, Grades K-3):</b>	
<b>Face Mask:</b>	
<b>Keychains (Whistle - Stream Team):</b>	
<b>Koozies (Stream Team):</b>	
<b>Patches (Stream Team, Scouts only, 3" round):</b>	
<b>Pencils (Get Into Missouri Streams):</b>	
<b>Pop It Fidget Toy:</b>	
<b>Stickers (I Love Missouri Streams, 3" round):</b>	
<b>Tattoo:</b>	<b>ST Logo:</b>

<b>T-Shirts (Stream Team) (shipped in available sizes and colors):</b>	<b>YS: YL: S: M: L: XL: XXL:</b>
<b>Vinyl Decal:</b>	<b>Go With the Flow: I Live For Clean Streams: I Love MO Streams:</b>
<b>Wrist Keychain:</b>	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
<b>Would you like to be included in our 'Activity Prize Drawing'?:</b>	Yes
<b>Participants' Name:</b>	Colleen Armstrong Kevin Lytton Sam Miller Daniel Sadler Hayle
<b>-- OR --</b>	
<b>Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):</b>	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>First Aid Kit (Limit one per 10-15 participants):</b>	
<b>Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:</b>	
<b>Litter Pickup Bag (Standard red)</b>	

mesh):	
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

## Colleen Armstrong

---

**From:** streamteam@mdc.mo.gov  
**Sent:** Thursday, October 19, 2023 11:49 AM  
**To:** Colleen Armstrong  
**Subject:** Activity Report Online Data Form Submitted

### The Following form has been submitted to Missouri Stream Team:

#### Stream Team Identification:

<i>Parameter</i>	<i>Value</i>
Team Number:	4260
Team Name:	City of St. Joseph Water Protection
*Activity Reporter's First Name:	Colleen
*Activity Reporter's Last Name:	Armstrong
Business or School (if applicable):	City of St. Joseph Water Protection

#### Contact/Shipping Information:

<i>Parameter</i>	<i>Value</i>
Is the shipping address commercial or residential?:	Commercial
*Shipping Address:	3500 MO 759
*City:	St. Joseph
*State:	MO
*Zip Code:	64504
Home Phone:	(816)273-8615
Work Phone:	
Email:	carmstrong@stjosephmo.gov

#### Team Contact Person Information:

<i>Parameter</i>	<i>Value</i>
Contact Person for Team (First Name):	Colleen
Contact Person for Team (Last Name):	Armstrong
Is there a change in Contact Person?:	No

Is there a change in the Contact Person's address?:	No
---	----

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
*Type of Activity:	PRE - Presentation to groups, gov't, etc.
If the activity was not in the list above, please describe it here:	
*Activity Date:	10/12/2023
*Stream Name:	Blacksnake Creek Watershed
Activity County:	Buchanan
Activity Basin:	
Miles of river covered: (if applicable)	
*Number of volunteers involved:	11
*Project hours:	1.25
Total hours spent on project (Number of Volunteers x Project Hours):	13.75
*Number of presentations:	1
Unit of Measurement:	presentations
Location Description:	Presentation at constructed stormwater wetland .25 miles north of Corby Pond at the convergence of Northwest and Northeast Parkway. Section 4 Township 57 N Range 35 W.
Project Description:	Presentation by Colleen Armstrong Citys Stormwater Quality Coordinator on the citys stormwater program green infrastructure projects decreasing combined sewer overflows and benefits of planting native plants to decrease stormwater pollution.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
Belt Bag:	
Cell Phone Wallets (Stream Team, stick-on):	
Colorbook (Stream Team Superstars, Grades K-3):	
Face Mask:	
Keychains (Whistle - Stream Team):	
Koozies (Stream Team):	
Patches (Stream Team, Scouts only, 3" round):	

Pencils (Get Into Missouri Streams):	
Pop It Fidget Toy:	
Stickers (I Love Missouri Streams, 3" round):	
Tattoo:	ST Logo:
T-Shirts (Stream Team) (shipped in available sizes and colors):	YS: YL: S: M: L: XL: XXL:
Vinyl Decal:	Go With the Flow: I Live For Clean Streams: I Love MO Streams:
Wrist Keychain:	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	No
Participants' Name:	
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	
Litter Pickup Bag (Standard red mesh):	
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

## Colleen Armstrong

---

**From:** streamteam@mdc.mo.gov  
**Sent:** Thursday, October 19, 2023 12:06 PM  
**To:** Colleen Armstrong  
**Subject:** Activity Report Online Data Form Submitted

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<i>Parameter</i>	<i>Value</i>
Team Number:	4260
Team Name:	City of St. Joseph Water Protection
*Activity Reporter's First Name:	Colleen
*Activity Reporter's Last Name:	Armstrong
Business or School (if applicable):	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<i>Parameter</i>	<i>Value</i>
Is the shipping address commercial or residential?:	Commercial
*Shipping Address:	3500 MO 759
*City:	St. Joseph
*State:	MO
*Zip Code:	64504
Home Phone:	(816)273-8615
Work Phone:	
Email:	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<i>Parameter</i>	<i>Value</i>
Contact Person for Team (First Name):	Colleen
Contact Person for Team (Last Name):	Armstrong
Is there a change in Contact Person?:	No

Is there a change in the Contact Person's address?:	No
---	----

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
*Type of Activity:	REC - Recruited new member/Team
If the activity was not in the list above, please describe it here:	
*Activity Date:	10/12/2023
*Stream Name:	102 River
Activity County:	Buchanan
Activity Basin:	
Miles of river covered: (if applicable)	
*Number of volunteers involved:	3
*Project hours:	1
Total hours spent on project (Number of Volunteers x Project Hours):	3.00
*Number of people:	2
Unit of Measurement:	people
Location Description:	
Project Description:	Recruited 2 new members to the City of St. Joseph Stream Team.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
Belt Bag:	2
Cell Phone Wallets (Stream Team, stick-on):	
Colorbook (Stream Team Superstars, Grades K-3):	
Face Mask:	
Keychains (Whistle - Stream Team):	
Koozies (Stream Team):	
Patches (Stream Team, Scouts only, 3" round):	
Pencils (Get Into Missouri Streams):	

Pop It Fidget Toy:	
Stickers (I Love Missouri Streams, 3" round):	
Tattoo:	ST Logo:
T-Shirts (Stream Team) (shipped in available sizes and colors):	YS: YL: S: M: 2 L: 2 XL: 2 XXL:
Vinyl Decal:	Go With the Flow: 10 I Live For Clean Streams: 10 I Love MO Streams: 10
Wrist Keychain:	2

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	No
Participants' Name:	
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	
Litter Pickup Bag (Standard red mesh):	
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Activity Report Online Data Form Submitted  
**Date:** Wednesday, November 8, 2023 11:40:10 AM

---

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<i>Parameter</i>	<i>Value</i>
<b>Team Number:</b>	4260
<b>Team Name:</b>	City of St. Joseph Water Protection
<b>*Activity Reporter's First Name:</b>	Colleen
<b>*Activity Reporter's Last Name:</b>	Armstrong
<b>Business or School (if applicable):</b>	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<i>Parameter</i>	<i>Value</i>
<b>Is the shipping address commercial or residential?:</b>	Residential
<b>*Shipping Address:</b>	3500 MO 759
<b>*City:</b>	St. Joseph
<b>*State:</b>	MO
<b>*Zip Code:</b>	64504
<b>Home Phone:</b>	(816)273-8615
<b>Work Phone:</b>	
<b>Email:</b>	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<i>Parameter</i>	<i>Value</i>
<b>Contact Person for Team (First</b>	Colleen

<b>Name):</b>	
<b>Contact Person for Team (Last Name):</b>	Armstrong
<b>Is there a change in Contact Person?:</b>	No
<b>Is there a change in the Contact Person's address?:</b>	No

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
<b>*Type of Activity:</b>	LPU - Litter Pickup
<b>If the activity was not in the list above, please describe it here:</b>	
<b>*Activity Date:</b>	11/04/2023
<b>*Stream Name:</b>	Whitehead Watershed
<b>Activity County:</b>	Buchanan
<b>Activity Basin:</b>	
<b>Miles of river covered: (if applicable)</b>	
<b>*Number of volunteers involved:</b>	35
<b>*Project hours:</b>	1.5
<b>Total hours spent on project (Number of Volunteers x Project Hours):</b>	52.50
<b>*Describe the pickup:</b>	3 large dumpsters worth of trash was collected by volunteers and residents in the neighborhood.
<b>Location</b>	Garfield Avenue north to Pacific Street, on streets 10th 11th and 12th. Township 57N

<b>Description:</b>	Range 35W Section 20.
<b>Project Description:</b>	One city staff member spoke with a resident in the neighborhood who had lived there for 40 years and she said that there has never been an organized cleanup event in the neighborhood.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>Belt Bag:</b>	
<b>Cell Phone Wallets (Stream Team, stick-on):</b>	8162738615
<b>Colorbook (Stream Team Superstars, Grades K-3):</b>	
<b>Face Mask:</b>	
<b>Keychains (Whistle - Stream Team):</b>	
<b>Koozies (Stream Team):</b>	
<b>Patches (Stream Team, Scouts only, 3" round):</b>	
<b>Pencils (Get Into Missouri Streams):</b>	
<b>Pop It Fidget Toy:</b>	
<b>Stickers (I Love Missouri Streams, 3" round):</b>	
<b>Tattoo:</b>	<b>ST Logo:</b>
<b>T-Shirts (Stream Team) (shipped in available sizes and colors):</b>	<b>YS:</b> <b>YL:</b> <b>S:</b> <b>M:</b> <b>L:</b>

	XL: XXL:
Vinyl Decal:	Go With the Flow: I Live For Clean Streams: I Love MO Streams:
Wrist Keychain:	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
Would you like to be included in our 'Activity Prize Drawing'?:	No
Participants' Name:	
-- OR --	
Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
First Aid Kit (Limit one per 10-15 participants):	
Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:	
Litter Pickup Bag (Standard red mesh):	
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Activity Report Online Data Form Submitted  
**Date:** Thursday, January 18, 2024 2:21:54 PM

---

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<i>Parameter</i>	<i>Value</i>
<b>Team Number:</b>	4260
<b>Team Name:</b>	City of St Joseph Water Protection
<b>*Activity Reporter's First Name:</b>	Colleen
<b>*Activity Reporter's Last Name:</b>	Armstrong
<b>Business or School (if applicable):</b>	City of St Joseph Water Protection

**Contact/Shipping Information:**

<i>Parameter</i>	<i>Value</i>
<b>Is the shipping address commercial or residential?:</b>	Residential
<b>*Shipping Address:</b>	3500 MO 759
<b>*City:</b>	St. Joseph
<b>*State:</b>	MO
<b>*Zip Code:</b>	64504
<b>Home Phone:</b>	(816)273-8615
<b>Work Phone:</b>	
<b>Email:</b>	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<i>Parameter</i>	<i>Value</i>
<b>Contact Person for Team (First</b>	Colleen

<b>Name):</b>	
<b>Contact Person for Team (Last Name):</b>	Armstrong
<b>Is there a change in Contact Person?:</b>	No
<b>Is there a change in the Contact Person's address?:</b>	No

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
<b>*Type of Activity:</b>	PRE - Presentation to groups, gov't, etc.
<b>If the activity was not in the list above, please describe it here:</b>	
<b>*Activity Date:</b>	12/19/2023
<b>*Stream Name:</b>	Missouri River
<b>Activity County:</b>	Buchanan
<b>Activity Basin:</b>	
<b>Miles of river covered: (if applicable)</b>	
<b>*Number of volunteers involved:</b>	1
<b>*Project hours:</b>	5
<b>Total hours spent on project (Number of Volunteers x Project Hours):</b>	5.00
<b>*Number of presentations:</b>	1
<b>Unit of Measurement:</b>	presentations

<b>Location Description:</b>	Presentation was given at City of St Joseph City Hall located at 1100 Frederick Ave.
<b>Project Description:</b>	This was the second annual update presented to City Council for MS4 permit compliance. HDR the consulting firm hired for verification of remaining projects for the Citys CSO AOC presented to Council during work session.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>Belt Bag:</b>	10
<b>Cell Phone Wallets (Stream Team, stick-on):</b>	
<b>Colorbook (Stream Team Superstars, Grades K-3):</b>	10
<b>Keychains (Whistle - Stream Team):</b>	20
<b>Koozies (Stream Team):</b>	
<b>Patches (Stream Team, Scouts only, 3" round):</b>	
<b>Pencils (Get Into Missouri Streams):</b>	
<b>Pop It Fidget Toy:</b>	
<b>Stickers (I Love Missouri Streams, 3" round):</b>	25
<b>Tattoo:</b>	<b>ST Logo:</b>
<b>T-Shirts (Stream Team) (shipped in available sizes and colors):</b>	YS: YL: S: M: L: XL:

	<b>XXL:</b>
<b>Vinyl Decal:</b>	<b>Go With the Flow: I Live For Clean Streams: I Love MO Streams:</b>
<b>Wrist Keychain:</b>	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
<b>Would you like to be included in our 'Activity Prize Drawing'?:</b>	Yes
<b>Participants' Name:</b>	Colleen Armstrong
<b>-- OR --</b>	
<b>Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):</b>	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>First Aid Kit (Limit one per 10-15 participants):</b>	
<b>Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:</b>	
<b>Litter Pickup Bag (Standard red mesh):</b>	
<b>Work Gloves:</b>	<b>Large: Small:</b>

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Activity Report Online Data Form Submitted  
**Date:** Thursday, October 5, 2023 12:27:14 PM

---

**The Following form has been submitted to Missouri Stream Team:**

**Stream Team Identification:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Team Number:</b>	4260
<b>Team Name:</b>	City of St. Joseph Water Protection
<b>*Activity Reporter's First Name:</b>	Colleen
<b>*Activity Reporter's Last Name:</b>	Armstrong
<b>Business or School (if applicable):</b>	City of St. Joseph Water Protection

**Contact/Shipping Information:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Is the shipping address commercial or residential?:</b>	Residential
<b>*Shipping Address:</b>	3500 MO-759
<b>*City:</b>	St. Joseph
<b>*State:</b>	MO
<b>*Zip Code:</b>	64504
<b>Home Phone:</b>	(816)273-8615
<b>Work Phone:</b>	
<b>Email:</b>	carmstrong@stjosephmo.gov

**Team Contact Person Information:**

<b><i>Parameter</i></b>	<b><i>Value</i></b>
<b>Contact Person for Team (First</b>	Colleen

<b>Name):</b>	
<b>Contact Person for Team (Last Name):</b>	Armstrong
<b>Is there a change in Contact Person?:</b>	No
<b>Is there a change in the Contact Person's address?:</b>	No

**Stream Team Activity:**

<i>Parameter</i>	<i>Value</i>
<b>*Type of Activity:</b>	NPS - Rain garden, rain barrel, green roof installation/maintenance
<b>If the activity was not in the list above, please describe it here:</b>	Bioswale maintenance and weeding
<b>*Activity Date:</b>	10/04/2023
<b>*Stream Name:</b>	Blacksnake Creek Watershed
<b>Activity County:</b>	Buchanan
<b>Activity Basin:</b>	
<b>Miles of river covered: (if applicable)</b>	0
<b>*Number of volunteers involved:</b>	5
<b>*Project hours:</b>	2.5
<b>Total hours spent on project (Number of Volunteers x Project Hours):</b>	12.50
<b>*Number of projects:</b>	1
<b>Unit of Measurement:</b>	projects

<b>Location Description:</b>	1st bioswale location: Lat: 39.79028 N, Long 94.84576 W. Section 5, township 57N, Range 35 W. South of Broadway street, east of Burnside Ave, and north of 5th avenue on the Blacksnake Creek trail. 2nd Bioswale location: Lat: 39.79258 N, Long 94.84469 W. Section 32, Township 58 N, Range 58N. 1,144 feet south of Randolph Street, 480ft east of St. Joseph Avenue.
<b>Project Description:</b>	This was the first fall bioswale maintenance volunteer event, with the assistance of Altec.

**Thank You Items (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>Belt Bag:</b>	
<b>Cell Phone Wallets (Stream Team, stick-on):</b>	8162738615
<b>Colorbook (Stream Team Superstars, Grades K-3):</b>	
<b>Face Mask:</b>	
<b>Keychains (Whistle - Stream Team):</b>	
<b>Koozies (Stream Team):</b>	
<b>Patches (Stream Team, Scouts only, 3" round):</b>	
<b>Pencils (Get Into Missouri Streams):</b>	
<b>Pop It Fidget Toy:</b>	
<b>Stickers (I Love Missouri Streams, 3" round):</b>	
<b>Tattoo:</b>	<b>ST Logo:</b>

<b>T-Shirts (Stream Team) (shipped in available sizes and colors):</b>	<b>YS: YL: S: M: L: XL: XXL:</b>
<b>Vinyl Decal:</b>	<b>Go With the Flow: I Live For Clean Streams: I Love MO Streams:</b>
<b>Wrist Keychain:</b>	

**Activity Prize Drawing (Optional):**

<i>Parameter</i>	<i>Value</i>
<b>Would you like to be included in our 'Activity Prize Drawing'?:</b>	Yes
<b>Participants' Name:</b>	Colleen Armstrong Kevin Lytton Sam Miller Daniel Sadler Hayle
<b>-- OR --</b>	
<b>Would you like to be included in our 'Youth Group Prize Drawing'? (teachers/youth group leaders only):</b>	No

**Activity Supplies (Optional):**

<i>Item</i>	<i>Number Requested</i>
<b>First Aid Kit (Limit one per 10-15 participants):</b>	
<b>Litter Pickup Bag (24" x 36" green mesh) for cleanups with larger trash items:</b>	
<b>Litter Pickup Bag (Standard red)</b>	

mesh):	
Work Gloves:	Large: Small:

**Uploaded Activity Photos**

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Macroinvertebrate DataSheet Submitted  
**Date:** Tuesday, October 24, 2023 11:06:11 AM

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**The Following form has been submitted to Missouri Stream Team:**

<i>Parameter</i>	<i>Value</i>
<b>Existing Site</b>	Yes
<b>Site#</b>	2
<b>State</b>	Missouri
<b>County</b>	Buchanan
<b>Tributary</b>	Yes
<b>Stream Name</b>	One Hundred and Two River
<b>Site Location</b>	Tributary of One Hundred and Two River US College Drive at Missouri Western State University
<b>Date</b>	10/14/2023
<b>Time</b>	1125
<b>Rainfall (inches in last 7 days)</b>	.03
<b>Water Temp.(°C)</b>	14
<b>Stream Team Number</b>	4260
<b>Data Submitter</b>	Colleen Armstrong
<b>Participants</b>	Five training participants

<i>Invertebrate Type</i>	<i>Net Set #1</i>	<i>Net Set #2</i>	<i>Net Set #3</i>	<i>Score</i>
<b>Habitat type</b>	Non-flow	Rootmat	Rootmat	
<b>Net Type(circle type)</b>	Kick Net	D-net	D-net	
<b>Time Spent Picking = Minutes picking x number of</b>	4 min. * 3 = 12 min.	10 min. * 2 = 20 min.	10 min. * 2 = 20 min.	

<b>people picking)</b>				
<i>Sensitive</i>	<i># of Organisms</i>	<i># of Organisms</i>	<i># of Organisms</i>	<i>Types Present</i>
Caddisfly Larvae				
Hellgrammites				
Mayfly Nymphs				
Gilled Snails (right)				
Riffle Beetles				
Stonefly Nymphs				
Water Penny Larvae				
<i>Somewhat Tolerant</i>	<i># of Organisms</i>	<i># of Organisms</i>	<i># of Organisms</i>	<i>Types Present</i>
Other Beetle Larvae				
Clams/Mussels				
Crane Fly Larvae				
Crayfish				
Dragonfly Nymphs				
Damselfly Nymphs	1	3	6	2
Scuds				
Sowbugs				
Fishfly Larvae				
Alderfly Larvae				
Watersnipe Fly				
<i>Tolerant</i>	<i># of Organisms</i>	<i># of Organisms</i>	<i># of Organisms</i>	<i>Types Present</i>
Aquatic Worms				
Black Fly Larvae				
Leeches				
Midge Larvae		5	2	1

<b>Pouch Snails (left)</b>				
<b>Other Snails (flat)</b>				

<i>Parameter</i>	<i>Value</i>
<b>WQR</b>	3 (<12 = Poor 12-17 = Fair 18-23 = Good >23 = Excellent)
<b>Comments</b>	Mosquito larvae present, found one crayfish outside of net sets.
<b>Fish Present?</b>	Yes
<b>DNR Comments</b>	
<b>QC Level</b>	(none)

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

## MACROINVERTEBRATE DATA SHEET

Complete this data sheet and keep for your records. Data can be submitted online at [mostreamteam.org](http://mostreamteam.org).

Site # \_\_\_\_\_ Stream Otoe Creek County Buchanan  
 Site Location 100 yds VS James McClarty Dr. bridge  
 Date 10/14/23 Time (military time) 1125 Rainfall (inches in last 7 days) .03 Water Temp. (°C) 14  
 Trained Data Submitter (responsible volunteer) \_\_\_\_\_ Stream Team Number \_\_\_\_\_  
 Participants \_\_\_\_\_

Invertebrate Type	Net Set #1	Net Set #2	Net Set #3	Score
Habitat type →	<u>Pool</u>	<u>Root Mat</u>	<u>Root Mat</u>	After entering the number(#) of organisms collected, circle the number below for every type of organism collected. Add the numbers circled and record the totals as your Water Quality Rating.
Net Type (circle type) →	<input checked="" type="checkbox"/> Kick Net <input type="checkbox"/> D-Net	<input type="checkbox"/> Kick Net <input checked="" type="checkbox"/> D-Net	<input type="checkbox"/> Kick Net <input checked="" type="checkbox"/> D-Net	
Time Spent Picking (Minutes picking x number of people picking)	min. picking <u>4</u> × # people <u>3</u> = total min. <u>12</u>	min. picking <u>10</u> × # people <u>2</u> = total min. <u>20</u>	min. picking <u>10</u> × # people <u>2</u> = total min. <u>20</u>	
<b>Sensitive</b>	<b># of Organisms</b>	<b># of Organisms</b>	<b># of Organisms</b>	
Caddisfly Larvae				3
Hellgrammites				3
Mayfly Nymphs				3
Gilled Snails (right)				3
Riffle Beetles				3
Stonefly Nymphs				3
Water Penny Larvae				3
<b>Somewhat Tolerant</b>	<b># of Organisms</b>	<b># of Organisms</b>	<b># of Organisms</b>	<b>Circle Types Present</b>
Other Beetle Larvae				2
Clams/Mussels				2
Crane Fly Larvae				2
Crayfish				2
Dragonfly Nymphs				2
Damselfly Nymphs	1	3	6	②
Scuds				2
Sowbugs				2
Fishfly Larvae				2
Alderfly Larvae				2
Watersnipe Fly				2
<b>Tolerant</b>	<b># of Organisms</b>	<b># of Organisms</b>	<b># of Organisms</b>	<b>Circle Types Present</b>
Aquatic Worms				1
Black Fly Larvae				1
Leeches				1
Midge Larvae		5	2	①
Pouch Snails (left)				1
Other Snails (flat)				1
< 12 = Poor      12-17 = Fair      18-23 = Good      >23 = Excellent				Water Quality Rating _____
Comments (mention any changes from your usual readings) <u>Mosquito larvae present, found one crayfish outside of net sets</u>				
Fish Present (Please Mark) Yes <input checked="" type="checkbox"/> or No <input type="checkbox"/>				

## STREAM DISCHARGE DATA SHEET

Complete this data sheet and keep for your records. Data can be submitted online at [mostreamteam.org](http://mostreamteam.org).

Site # \_\_\_\_\_ Stream \_\_\_\_\_ County \_\_\_\_\_

Site Location \_\_\_\_\_

Date \_\_\_/\_\_\_/\_\_\_ Time (military time) 1130 Rainfall (inches in last 7 days) \_\_\_\_\_ Water Temp. (°C) \_\_\_\_\_

Trained Data Submitter (responsible volunteer) \_\_\_\_\_ Stream Team Number \_\_\_\_\_

Participants \_\_\_\_\_

If discharge is unmeasurable due to conditions, please indicate:  Flow too low to measure  Flow too high to measure

For reporting USGS gage value (special cases only): USGS gage # \_\_\_\_\_ at \_\_\_\_\_ cfs

### Instructions for Calculation of Stream Discharge (Flow)

**Step 1a: Determine stream width.** Select a section of stream that is relatively straight, free from large objects such as logs or large boulders, with a noticeable current, and with a depth as uniform as possible. Stretch the tape measure provided by the program across the stream. The "0" point should be anchored at the flowing edge of the stream. The end of the tape measure should be anchored at the opposite end so that it is taut and even with the other flowing edge. Do not measure nonflowing water.

Stream Width  
 (Feet)

**Step 1b: Determine stream cross-sectional area.** The first step in determining cross-sectional area is to measure and calculate the average stream depth. In the table below, for streams less than 20 feet wide, record depth measurements at every foot. For streams greater than 20 feet wide, record depth measurements every two feet. The depth must be measured in tenths of a foot (e.g. 1.7 feet equals one foot and seven tenths). **DO NOT MEASURE DEPTH IN INCHES.**

#### Record Depth at 1-Foot Intervals

Interval Number	Depth in Feet	Interval Number	Depth in Feet	Interval Number	Depth in Feet
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
Sum		Sum		Sum	

The average depth is calculated by dividing the sum of the depth measurements by the number of intervals at which measurements were taken.

$$\begin{array}{ccccc}
 \boxed{\phantom{000}} & \div & \boxed{\phantom{000}} & = & \boxed{\phantom{000}} \\
 \text{Sum of Depths} & & \text{Number of} & & \text{Average Depth} \\
 \text{(feet)} & & \text{Intervals} & & \text{(feet)}
 \end{array}$$

The final step in calculating the cross-sectional area is multiply the average depth (in feet) by the stream width (in feet) at the point where the tape measure is stretched across the stream.

$$\begin{array}{ccccc}
 \boxed{\phantom{000}} & \times & \boxed{\phantom{000}} & = & \boxed{\phantom{000}} \\
 \text{Average Depths} & & \text{Stream Width} & & \text{Cross Sectional} \\
 \text{(feet)} & & \text{(feet)} & & \text{Area (feet)}^2
 \end{array}$$

**Step 2: Determine the average velocity for the stream.** A minimum of four velocity measurements should be taken from equal intervals across the stream's width. For example, if the stream is eight feet wide, then velocity measurements should be taken at approximately every foot and a half across the stream in order to derive four measurements. For a stream width of 16 feet, velocity measurements should be taken at approximately three feet increments across the stream to derive four measurements. This method of measuring the stream velocity will ensure that velocity measurements are recorded for the slow and fast portions of the stream. For greater accuracy, more than four measurements are recommended for wider streams.

To measure the water's surface velocity, the first step is to select two points located equal distance upstream and downstream from the tape measure you have stretched across the stream. Determine the distance between these two points and record this value (in feet) in the **Distance Box** on the back of this page. A 10-foot total float distance is a recommended starting point. This distance can be lengthened or shortened depending on stream swiftness. Count the number of seconds it takes a neutrally buoyant object (such as a wiffle practice golf ball) to float this distance. Record this time (in seconds) in the table on the back of this page for each float trial you complete.

## WATER CHEMISTRY DATA SHEET

Complete this data sheet and keep for your records. Data can be submitted online at [mostreamteam.org](http://mostreamteam.org).

Site # \_\_\_\_\_ Stream \_\_\_\_\_ County \_\_\_\_\_

Site Location \_\_\_\_\_

Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Time (military time) 1310 Rainfall (inches in last 7 days) \_\_\_\_\_ Water Temp. (°C) \_\_\_\_\_

Trained Data Submitter (responsible volunteer) \_\_\_\_\_ Stream Team Number \_\_\_\_\_

Participants \_\_\_\_\_

	Calibration and/or Expiration Date	Measurement
<b>Weather Conditions</b> (cloud cover)		(cloudy)
<b>NO<sub>3</sub> - N (mg/L) - Nitrate</b>	Reagent 1 (Mixed Acid or Tablet #1) Expiration Date:	<u>12, 2024</u>
	Reagent 2 (Nitrate Reducing Reagent or Tablet #2) Expiration Date:	<u>1, 2024</u>
		(less than .1)
<b>Air Temperature (°C)</b>		15
<b>Water Temperature (°C)</b>		14
<b>Dissolved O<sub>2</sub> (mg/L)</b>	DO #1 Expiration Date:	<u>9, 2026</u>
	DO #2 Expiration Date:	<u>3, 2025</u>
	DO #3 Expiration Date:	<u>11, 2025</u>
	Sodium Thiosulfate Expiration Date:	<u>11, 2026</u>
		6
<b>Dissolved O<sub>2</sub>, % Saturation</b>		58%
<b>pH</b>	Date Calibrated:	<u>10/14/2023</u>
	pH 7.0 Solution Expiration Date:	<u>4, 2025</u>
	pH 10.0 Solution Expiration Date:	<u>4, 2024</u>
		7.7
<b>Conductivity (µS/cm)</b>	Date Calibrated:	<u>10/14/2023</u>
	Sodium Chloride Standard Expiration Date:	<u>5, 2024</u>
		986
<b>Transparency (cm)</b>		36
<b>Chlorides (mg/L)</b>	Quantab Titration Strip Expiration Date:	—/—
<b>Hardness (mg/L)</b>		
<b>Alkalinity (mg/L)</b>		
<b>PO<sub>4</sub> (mg/L)</b>	PhosVer3 Expiration Date:	—/—
<b>NH<sub>3</sub> - N (mg/L) - Ammonia</b>	Ammonia Salicylate Expiration Date:	—/—
	Ammonia Cyanurate Expiration Date:	—/—
<b>Other Parameter (list)</b> Write in kit type and model #		
<b>Comments</b> (mention any changes from your usual readings) _____		
_____		
_____		
<b>Fish Present</b> (Please Mark) Yes <input checked="" type="checkbox"/> or No <input type="checkbox"/>		

## VISUAL SURVEY DATA SHEET

Complete this data sheet and keep for your records. Data can be submitted online at [mostreamteam.org](http://mostreamteam.org).

Site # \_\_\_\_\_ Stream \_\_\_\_\_ County \_\_\_\_\_  
 Site Location \_\_\_\_\_  
 Date \_\_\_/\_\_\_/\_\_\_ Time (military time) 1450 Rainfall (Inches in last 7 days) \_\_\_\_\_ Water Temp. (°C) \_\_\_\_\_  
 Trained Data Submitter (responsible volunteer) \_\_\_\_\_ Stream Team Number \_\_\_\_\_  
 Participants \_\_\_\_\_

<p><b>*1. Floodplain land use</b> industrial _____% commercial _____% residential _____%                  pasture/hayfields <u>2</u> % row crops _____% woods <u>98</u> %                  other (specify) _____ %</p>
<p><b>*2. Riparian cover</b> trees <u>60</u> % grasses or weeds <u>10</u> % bare ground <u>30</u> %                  parking lots/streets _____% buildings _____%                  other (specify) _____ %</p>
<p><b>*3. Streambank conditions</b> trees <u>5</u> % grasses or weeds <u>10</u> % bare ground <u>85</u> %                  bedrock _____% pavement/riprap _____%                  other (specify) _____ %</p>
<p><b>*4. Bed composition of riffle (or, if alternative habitat, check box <input type="checkbox"/>)</b> silt or mud <u>5</u> %                  sand <u>65</u> % gravel <u>25</u> % cobble (2-10") <u>4</u> % boulder (&gt;10") <u>1</u> % bedrock _____ %</p>
<p><b>5. Percent embeddedness of cobble substrate</b> = <math>\frac{20 + 5 + 5 + 5 + 50}{15} = \frac{85}{15} = 17</math> %  <input type="checkbox"/> Cobble substrate not present at site</p>
<p><b>6. Signs of human use</b> <u>Glass bottles, pathway, metal frame, bricks, plastic bottles</u></p>
<p><b>7. Algae</b>                  What percent of stream bottom is covered by visible algae? <u>0</u> %                  Of the algae observed what percentage is:                  (a) close-growing _____% + (b) filamentous (strands over 2" long) _____% = 100 %                  (The sum of 7a and 7b should equal 100%)</p>
<p><b>8. Water Color</b> (describe) <u>Mostly clear</u></p>
<p><b>9. Water Odor</b> (describe) <u>None</u></p>
<p><b>10. Weather Conditions</b> (cloud cover) <u>Cloudy</u></p>
<p><b>11. Comments</b> <u>Oil film on water surface</u></p>
<p><b>12. Fish Present</b> (Please mark) Yes <input checked="" type="checkbox"/> or <input type="checkbox"/> No</p>

\*Items 1 thru 4 must total 100%

**SUBMIT DATA ONLINE:**  
[www.mostreamteam.org/reporting-forms.html](http://www.mostreamteam.org/reporting-forms.html)



Data may be mailed to:  
 VWQM Coordinator, Water Protection Program, Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Stream Discharge DataSheet Submitted  
**Date:** Tuesday, October 24, 2023 11:07:35 AM

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**The Following form has been submitted to Missouri Stream Team:**

<i>Parameter</i>	<i>Value</i>
<b>Existing Site</b>	Yes
<b>Site#</b>	2
<b>State</b>	Missouri
<b>County</b>	Buchanan
<b>Tributary</b>	Yes
<b>Stream Name</b>	One Hundred and Two River
<b>Site Location</b>	Tributary of One Hundred and Two River US College Drive at Missouri Western State University
<b>Date</b>	10/14/2023
<b>Time</b>	1130
<b>Rainfall (inches in last 7 days)</b>	.03
<b>Water Temp.(°C)</b>	14
<b>Stream Team Number</b>	4260
<b>Data Submitter</b>	Colleen Armstrong
<b>Participants</b>	Five training participants

<i>Parameter</i>	<i>Value</i>
<b>Method used</b>	Flow Too Low To Measure
<b>Stream Discharge(ft<sup>3</sup>/s)</b>	
<b>USGS Gauge Number</b>	

**Calculation of Stream Discharge (Flow)**

<i>Parameter</i>	<i>Value</i>
<b>Stream Width (Feet)</b>	

**Step 1: Determine stream cross-sectional area**

**Record Depth at 1-Foot Intervals**

<i>Interval Number</i>	<i>Depth in feet</i>	<i>Interval Number</i>	<i>Depth in feet</i>	<i>Interval Number</i>	<i>Depth in feet</i>
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
<b>Sum</b>	0	<b>Sum</b>	0	<b>Sum</b>	0

<i>Parameter</i>	<i>Value</i>
<b>Average Depth(Feet) = Sum of Depths (Foot) / Number of Intervals</b>	0ft/0= 0
<b>Cross Sectional Area (Feet)<sup>2</sup> = Average Depth (Feet) * Stream Width (Feet)</b>	0ft *0ft = 0

**Step 2: Determine the average velocity for the stream**

**Velocity Float Trials**

<i>Trial Number</i>	<i>Time(Seconds)</i>
1	
2	
3	
4	
5	

6	
7	
8	
9	
10	
Sum	0

<i>Parameter</i>	<i>Value</i>
<b>Distance Box</b>	
<b>Average Float Time (Seconds) = Sum of Float Times (Seconds) / Number of Trials</b>	0ft/0= 0
<b>Average Surface Velocity(Feet per Second) = Distance Floated(Feet) / Average Float Time(Seconds)</b>	0ft /0s = 0
<b>Corrected Average Stream Velocity (Feet per Second) = Correction Value * Average Surface Velocity (Feet per Second)</b>	(none) * 0 = 0.00

**Step 3: Calculate the stream discharge**

<i>Parameter</i>	<i>Value</i>
<b>Stream Discharge (Cubic Feet per Second) = Cross-Sectional Area(Feet<sup>2</sup>) * Corrected Average Stream Velocity(Feet per Second)</b>	0 ft <sup>2</sup> * 0.00 ft/s = 0 ft <sup>3</sup> /s
<b>Comments</b>	
<b>Fish Present?</b>	Yes
<b>DNR Comments</b>	
<b>QC Level</b>	(none)

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Visual Survey DataSheet Submitted  
**Date:** Tuesday, October 24, 2023 11:48:01 AM

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**The Following form has been submitted to Missouri Stream Team:**

<i>Parameter</i>	<i>Value</i>
<b>Existing Site</b>	Yes
<b>Site#</b>	2
<b>State</b>	Missouri
<b>County</b>	Buchanan
<b>Tributary</b>	Yes
<b>Stream Name</b>	One Hundred and Two River
<b>Site Location</b>	Tributary of One Hundred and Two River US College Drive at Missouri Western State University
<b>Date</b>	10/14/2023
<b>Time</b>	1450
<b>Rainfall (inches in last 7 days)</b>	.03
<b>Water Temp.(°C)</b>	14
<b>Stream Team Number</b>	4260
<b>Data Submitter</b>	Colleen Armstrong
<b>Participants</b>	Five training participants

**Floodplain land use**

<i>Parameter</i>	<i>Value</i>
<b>Industrial</b>	%
<b>Commercial</b>	%
<b>Bare Ground</b>	%
<b>Pasture/hayfields</b>	2%
<b>Row crops</b>	%

<b>Woods</b>	98%
<b>Other</b>	%
<b>Total</b>	100%
<b>Describe other</b>	

**Riparian cover**

<i>Parameter</i>	<i>Value</i>
<b>Trees</b>	60%
<b>Grasses or weeds</b>	10%
<b>Bare ground</b>	30%
<b>Parking lots/streets</b>	%
<b>Buildings</b>	%
<b>Other</b>	%
<b>Total</b>	100%
<b>Describe other</b>	

**Streambank conditions**

<i>Parameter</i>	<i>Value</i>
<b>Trees</b>	5%
<b>Grasses or weeds</b>	10%
<b>Bare ground</b>	85%
<b>Bedrock</b>	%
<b>Pavement/riprap</b>	%
<b>Other</b>	%
<b>Total</b>	100%
<b>Describe other</b>	

**Bed composition of riffle**

<i>Parameter</i>	<i>Value</i>
<b>Silt or mud</b>	%
<b>Sand</b>	%
<b>Gravel</b>	%

<b>Cobble (2-10")</b>	%
<b>Boulder (&gt;10")</b>	%
<b>Bedrock</b>	%
<b>Total</b>	0%
<b>Describe alternative habitat</b>	Two root mats in non-flow water and one section of non-flow water

<i>Parameter</i>	<i>Value</i>
<b>Percent embeddedness of cobble substrate</b>	$20+5+5+5+50=85/5 = 17$
<b>Signs of human use</b>	Glass and plastic bottles, pathway to stream site, metal frame in water, bricks
<b>What percent of stream bottom is covered by visible algae?</b>	0
<b>Close-growing algae %</b>	0
<b>filamentous (strands over 2" long)</b>	0
<b>Water Color</b>	Clear
<b>Water Odor</b>	No perceptible odor(None)
<b>Weather Conditions</b>	Cloudy
<b>Comments</b>	Oily film on water's surface that suctioned itself back together when disturbed
<b>Fish Present?</b>	Yes
<b>DNR Comments</b>	
<b>QC Level</b>	(none)

**EXTERNAL EMAIL:** Do not click on any links or open any attachments unless you are

expecting the email and/or know the content is safe. If in doubt, delete the email.

**From:** [streamteam@mdc.mo.gov](mailto:streamteam@mdc.mo.gov)  
**To:** [Colleen Armstrong](#)  
**Subject:** Water Chemistry DataSheet Submitted  
**Date:** Tuesday, October 24, 2023 11:10:41 AM

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**The Following form has been submitted to Missouri Stream Team:**

<i>Parameter</i>	<i>Value</i>
<b>Existing Site</b>	Yes
<b>Site#</b>	2
<b>State</b>	Missouri
<b>County</b>	Buchanan
<b>Tributary</b>	Yes
<b>Stream Name</b>	One Hundred and Two River
<b>Site Location</b>	Tributary of One Hundred and Two River US College Drive at Missouri Western State University
<b>Date</b>	10/14/2023
<b>Time</b>	1310
<b>Rainfall (inches in last 7 days)</b>	.03
<b>Water Temp.(°C)</b>	14
<b>Stream Team Number</b>	4260
<b>Data Submitter</b>	Colleen Armstrong
<b>Participants</b>	Five training participants

	<i>Kit Type Used</i>	<i>Calibration and/or Expiration Date</i>	<i>Measurement</i>
<b>Weather Conditions</b>			Cloudy
<b>NO3-N(mg/L) - Nitrate</b>	LaMotte - NCR	Mixed Acid Expiration Date 12/2024 Nitrate	< 0.25

		Reducing Reagent Expiration Date	01/2024	
<b>Air Temperature(°C)</b>				15
<b>Water Temperature(°C)</b>				14
<b>Dissolved O<sub>2</sub> (mg/L)</b>		DO #1 Expiration Date DO #2 Expiration Date DO #3 Expiration Date Sodium Thiosulfate Expiration Date	09/2026 03/2025 11/2025 11/2026	6
<b>Dissolved O<sub>2</sub> % Saturation</b>				58
<b>pH</b>		Date Calibrated pH 7.0 Solution Expiration Date pH 10.0 Solution Expiration Date	10/14/2023 04/2025 04/2024	7.7
<b>Conductivity (µS/cm)</b>		Date Calibrated Sodium Chloride Standard Expiration Date	10/14/2023 05/2024	986
<b>Transparency (cm)</b>				36
		Chloride		

<b>Chlorides (mg/L)</b>	N/A	Strips (high or low) Expiration Date	
<b>Hardness (mg/L)</b>			
<b>Alkalinity (mg/L)</b>			
<b>PO4 (mg/L)</b>	N/A	PhosVer 3 Expiration Date	
<b>NH3-N (mg/L)- Ammonia</b>	N/A	Ammonia Salicylate Expiration Date Ammonia Cyanurate Expiration Date	
<b>Other Parameter list: units:</b>			

<i>Parameter</i>	<i>Value</i>
<b>Comments</b>	
<b>Fish Present?</b>	Yes
<b>DNR Comments</b>	
<b>QC Level</b>	(none)

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**BILL # 356-22**

**AN ORDINANCE AMENDING DIVISION 4 "STORMWATER MANAGEMENT" OF ARTICLE II "CONSTRUCTION, REPAIR AND MAINTENANCE" OF CHAPTER 25 "STREETS, SIDEWALKS AND MISCELLANEOUS PUBLIC PLACES" OF THE CODE OF ORDINANCES RELATING TO STORMWATER MANAGEMENT REGULATIONS.**

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF ST. JOSEPH, MISSOURI, AS FOLLOWS:

**SECTION 1.** That Chapter 25, Article II, of the Code of Ordinances of the City of St. Joseph, Missouri, be, and hereby is, amended by repealing Division 4 entitled "Stormwater Management" and enacting in lieu thereof a new Division 4 to be entitled and read as follows:

**DIVISION 4. STORMWATER MANAGEMENT**

**Sec. 25-96. Definitions.**

(a) In this division, these words and phrases have the following meanings:

(1) **Best management practices (BMP).** Permanent or temporary stormwater management practices and site design features which store, treat, infiltrate or reduce the volume and improve the quality of runoff from development sites. Including 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.

(2) **Clean Water Act.** The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

(3) **Common promotional plan.** A plan undertaken by one or more persons to offer lots for sale or lease; where land is offered for sale by a person or group of persons acting in concert, and the land is continuous or is known, designed, or advertised as a common unit or by common name or similar names, the land is presumed, without regard to the number of lots covered by each individual offering, as being for sale or lease as part of a common promotional plan.

(4) **Construction activity.** Activities subject to NPDES Construction Permits. 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.

(5) **Conveyance.** Publicly or privately-owned premises by which stormwater is collected and/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 humanmade or altered drainage channels, reservoirs, swales, drains, catch basins, paved or unpaved channels, other drainage structures, or other constructed or natural

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**features designed or utilized for routing of stormwater.**

(6) Developer. Any person who owns a development or redevelopment site, or who authorizes, plans, undertakes, executes, or is otherwise directly responsible for development or redevelopment to occur on a given parcel.

(7) Development or redevelopment. Any human activity that alters the elevation, cover or other hydrologic feature of the land. Such activities include but are not limited to the subdivision of land and the addition or alteration of improvements such as cuts and fills, drainage alterations, utilities, buildings, pavements, landscape, and any combination of these elements. Also the project, lot, parcel or tract or land where development or redevelopment occurs.

(8) Development site. Any lot or parcel of land or a series of lots or parcels of land adjoining or contiguous or joined together under one ownership on which development or redevelopment of land occurs after the effective date of this section.

(9) Director. Means the director of public works and transportation or his/her authorized representative.

(10) Hazardous materials. 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.

(11) Illicit discharge. Any discharge to **a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to a state operating permit, other than stormwater discharge permits and discharges from firefighting activities.**

(12) Illicit connections. An illicit connection is defined as either of the following:

a. Any drain or conveyance, whether on the surface or subsurface that allows an illegal discharge to enter the storm drain system including but not limited to any conveyances that 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 said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency, or

b. Any drain or conveyance connected from land use to the storm drain system that has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

(13) Industrial activity. Activities subject to NPDES Industrial Stormwater Permits as defined in 40 CFR, Section 122.26 (b)(14).

(14) **Land disturbance. Activities subject to a State Land Disturbance Permit (MO-RA), including the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one acre. Activities include clearing, grubbing, excavating, grading, filling and other activities that**

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**result in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution to waters of the state.**

(15) **Larger common plan of development or sale. A continuous area where multiple separate and distinct construction activities are occurring under one plan, including any offsite borrow areas that are directly and exclusively related to the land disturbance activity. Off-site borrow areas utilized for multiple different land disturbance projects are considered their own entity and are not part of the larger common plan of development or sale.**

(16) Municipal separate storm sewer system (MS4). **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 does not include any waters of the state as defined in section 644.016, RSMo. Is owned and operated by the City of St. Joseph and is not a part or portion of a combined sewer system. Is not a part of the publicly owned treatment works as defined in 40 CFR 122.2." 10 CSR20-6.200(1)(D)16.**

(17) National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit. 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.

(18) Non-stormwater discharge. Any discharge to the storm drain system that is not composed entirely of stormwater.

(19) Nuisance. Any discharge in violation of this article or as otherwise defined in this code.

(20) Premises. A tract of land including its buildings.

(21) Person. Any natural or corporate person, business association or business entity including, but not limited to, a corporation, a partnership, a sole proprietorship, a political subdivision, a public or private agency of any kind, a utility, an owners association, a successor or assign of any of the foregoing, or any combination thereof.

(22) Pollutant. 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, articles, 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; concrete wash waters and noxious or offensive matter of any kind.

(23) Pollution prevention plan. BMPs and other structural, procedural, operational and maintenance provisions designed and operated to reduce or eliminate the discharge of pollutants, particularly in stormwater runoff.

(24) Premise. Any building, lot, parcel of land, or portion of land whether improved

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or unimproved including adjacent sidewalks and parking strips.

(25) Stormwater. Any and all surface flow, runoff, or drainage resulting from any form of natural precipitation, also any discharge to the public storm sewer allowed under the City of St. Joseph's NPDES stormwater discharge permit.

(26) Stormwater management plan. A document which describes the BMPs 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, and/or receiving waters to the maximum extent practicable.

(27) Stormwater treatment facility. Any constructed facility, or designated natural or restored open space, designed either to reduce the pollution load of stormwater, or to reduce the peak flow or volume of stormwater, or both. Controls can be structural or non-structural depending on the needs of the site. Structural controls are pollution prevention practices that require the construction, or use of a device, to capture or prevent pollution in stormwater runoff. Structural controls may include but are not limited to: extended detention basins, bio-retention, infiltration basins, stormwater wetlands, bioswales, vegetative lined ditches, subsurface drains, permeable pavement or concrete, sand filter basins, stormwater planters, proprietary BMPs, storage tanks, and hydrodynamic separators. Non-structural controls are pollution prevention practices that focus on management by limiting or eliminating pollutants before they mix with stormwater. Non-structural controls may include but are not limited to: site and land use planning, vegetated filters, stream buffers, low impact development (LID), open space preservation, and impervious cover restrictions.

(28) Stormwater treatment facility owner. The person who controls, possesses, or takes stewardship of a stormwater treatment facility which is planned and constructed in order to meet the requirements of this section.

(29) Watercourse. A stream usually flowing in a particular direction, though it need not flow continually. It must flow in a definite channel, having a bed, sides, or banks, and usually discharge itself into some other stream or body of water.

(30) Waters of the state. All waters within the jurisdiction of this state, including all rivers, streams, lakes, and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased, or otherwise controlled by a single person or two or more persons jointly or as tenants in common.

(31) Wastewater. Any water or other liquid, other than uncontaminated stormwater, discharged from a premise.

**Sec. 25-97. Post-construction stormwater treatment.**

(a) Purpose. The purpose of the section is to arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, utilize BMPs that effectively remove stormwater pollution, attempt to maintain predevelopment runoff conditions and protect and further the public interest by improving water quality, by limiting the impacts on stormwater from land development, and to assist the

city's efforts to comply with the Clean Water Act.

(b) Application.

(1) This section shall apply to all development or redevelopment within the city limits of the City of St. Joseph.

(2) This section does not apply to development or redevelopment that are less than one acre in size and which are not part of a larger common plan of development or sale.

(3) This section shall not apply to any development or redevelopment that has submitted a compliant final site plan or preliminary plat prior to June 30, 2017, provided work shown proceeds to construction by terms outlined in the code for the initial term of the plat.

(4) This section shall not apply to any development or redevelopment area that was platted and had a stormwater development plan reviewed and approved by the city prior to January 1, 2017, provided that such area remains under continuous active development and such development is completed prior to June 30, 2027. Any area included within such a plat that is not completed prior to June 30, 2027 shall be redesigned and shall comply with the requirements of this ordinance.

(c) Administration.

(1) Administrative duties. The director of public works and transportation is the principal City of St. Joseph official responsible for administration of this section and its requirements. The director may delegate any or all of his or her duties under this section.

(2) Supplemental requirements:

a. Supplemental regulation. The director is hereby authorized to adopt and, from time to time, to amend supplemental regulations necessary to implement this section.

Copies of any such regulations shall be available in the office of the director.

b. Design criteria. The director is hereby authorized to adopt and amend standards for post-inspection and maintenance of stormwater treatment facilities. Copies of such standards shall be available in the office of the director.

c. Maintenance standards. The director is hereby authorized to adopt and amend standards for inspection and maintenance of stormwater treatment facilities. Copies of any such standards shall be available in the office of the director.

d. Construction standards. The director is hereby authorized to adopt and amend construction standards for stormwater treatment facilities. Copies of any such construction standards shall be available in the office of the director

e. Stormwater treatment facility registry. The director is hereby authorized to create and sustain a registry of all stormwater treatment facilities required by this section.

(3) City of St. Joseph's right to enter. The director is authorized to enter the premises for the purposes of inspecting compliance with this section and regulations adopted thereto and for performing any work necessary to bring the site into compliance with this section and regulations thereto. When entering premises the director shall carry identification as an agent or employee of the City of St. Joseph. In the event that the owner or occupant refuses entry after a request to enter has been

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made, the City of St. Joseph is hereby empowered to seek assistance from a court of competent jurisdiction in obtaining such entry.

(d) Stormwater treatment facility design and construction.

(1) Developer shall prepare and submit stormwater treatment plan in conjunction with final development plan, final plat, building permit applications, and other building or land development applications as may be identified in the supplemental regulations. The plan shall consist of 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.

(2) Permit required. The director shall review and approve the stormwater treatment plan. Upon approval the director shall issue a stormwater treatment facility permit. Review, approval, construction inspection, warrantee and performance bond for the stormwater treatment facilities shall be an integral part of the performance required under the stormwater treatment facility permit.

(3) Developer to construct. The developer shall construct the stormwater treatment facilities according to the approved plan and the adopted construction standards.

(4) Prevent damage from construction phase sediment. The developer shall manage the construction and its sequence to protect the stormwater treatment facilities from construction phase sedimentation and damage.

(5) City of St. Joseph construction phase inspection. In addition to inspections established under previously adopted or subsequently amended code of ordinances, the director may during the construction phase inspect any stormwater treatment facility required under this section to ensure that it is correctly installed and adequately protected from construction phase sedimentation and damage.

(6) Prior to issuance of a certificate of occupancy the developer shall enter into an agreement requiring all private property in the development to be responsible for maintenance of stormwater treatment facilities. In addition, owners associations shall be responsible for costs associated with maintenance and upkeep of the stormwater treatment facilities per city Code of Ordinances.

**(7) Prior to issuance of a certificate of occupancy, the owner of the stormwater treatment facility shall supply the city with a copy of the operation and maintenance manuals.**

**(8) It is the responsibility of the owner of the stormwater treatment facility to retain copies of the operation and maintenance manual for said facility.**

(e) Stormwater treatment facility registration and maintenance.

(1) Stormwater treatment facility registry. The director shall create and sustain a registry of all stormwater treatment facilities required under this section. The registry shall include the location, description, ownership, and inspection and maintenance

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history of each facility and other information as the director deems necessary. The owner of each stormwater treatment facility required under this section shall register that facility with the director and shall update the director of changes in contact information and transfers of any facility to another owner. The owner of a stormwater treatment facility that is not installed as part of development or redevelopment may elect to register the facility with the director.

(2) Owner inspection and maintenance. At intervals identified in the approved maintenance schedule (but in no case less frequently than once per year) each stormwater treatment facility owner shall inspect all stormwater treatment facilities under their control. The stormwater treatment facility owner shall promptly remove all sediment and other sequestered pollutants and make all modifications, repairs, restoration, replanting, and media replacement identified in the inspection report. The owner shall provide a copy of the inspection report and certification of subsequent maintenance standards in effect at the time of inspection to the city for evaluation and review.

(3) City of St. Joseph operational inspections. The director may inspect any stormwater treatment facility required under this section as necessary to ensure that it is correctly installed and effectively maintained and is performing its intended function.

(f) Other matters.

(1) Neither this section nor any decision made with respect hereto exempts the applicant or any other person from other requirements of the City of St. Joseph code, from state and federal laws, or from procuring other required permits, nor does it limit the right of any person to maintain, at any time, any appropriate action, at law or in equity, for relief or damages against the applicant or any person arising from the activity regulated by this section.

(2) This section shall not be construed to be in conflict with any state or federal law intended to control the management of stormwater and water quality. In those instances where state or federal law imposes a duty or requirement with respect to a matter covered by this section, the more strict duty or requirement shall control.

(3) The permittee is responsible for safely and legally completing the development project. Neither the approval of a stormwater treatment plan under the provisions of this section, nor the compliance with the provisions hereto or with any condition imposed by the City of St. Joseph, shall relieve any person from responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon the City of St. Joseph for damages to persons or property.

(4) City of St. Joseph failure to enforce. The City of St. Joseph's failure to enforce or remedy any noncompliance of the terms and conditions of this section shall not constitute a waiver of the City of St. Joseph's rights nor a waiver of any person's obligation as provided in this section.

(5) Reservations of rights. In addition to any rights specifically reserved to the City of St. Joseph by this section, the City of St. Joseph reserves unto itself every right and power which is required to be reserved by a provision of any ordinance under any registration, permit, or other authorization granted under this section.

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(6) Savings clause. Neither the adoption of this section, nor the future repeal or amendment of any section or part or portion thereof, shall in any manner affect the prosecution for violation of this section, nor be construed as a waiver of any license, fee or penalty at said effective date and unpaid under either ordinance, nor be construed as affecting any of the provision of these ordinances relating to the collection of any such license, fee or penalty, or the penal provisions applicable to any violation thereof, nor to affect the validity of any bond or cash deposit in lieu thereof required to be posted, filed or deposited pursuant to any ordinance, and all rights and obligations there under shall continue in full force and effect.

**Sec. 25-98. Illicit discharge.**

(a) Purpose of this section. To construct an article that will apply these illicit discharge prohibitions to any discharge city wide, regardless of if it is in a designated MS4 area or CSS area.

(b) Application. This section shall apply to all water entering the stormwater conveyance system or waters of the state, generated on any developed and undeveloped lands unless explicitly exempted by the director.

(c) Administration. The director shall administer, implement, and enforce the provisions of this article. Any powers granted or duties imposed upon the director may be delegated in writing by the director of public works and transportation to persons or entities acting in the beneficial interest of or in the employ of the City of Saint Joseph, MO.

(d) Prohibition of illegal discharges.

(1) No person shall throw, drain, or otherwise discharge, cause, or allow others under its control to throw, drain, or otherwise discharge into the stormwater conveyance system any pollutants or waters containing any pollutants, other than stormwater. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

a. The following discharges are exempt from discharge prohibitions established by this article: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated **and uncontaminated residential** swimming pool discharges, and street **and sidewalk** wash water **that does not contain detergents**.

d. Discharges or flow from **emergency** firefighting, and other discharges specified in writing by the director as being necessary to protect public health and safety. **Fire-fighting activities do not include washing of trucks, run-off water from training activities, and similar activities.**

c. 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 United States Environmental Protection Agency (EPA), 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 stormwater conveyance system.

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(2) The city may evaluate and remove any of the above exemptions if it is determined that they are causing an adverse impact or require the responsible party to remediation or restoration of the affected property, or implement source control of BMPs to prevent reoccurrence of the violation.

(e) Prohibition of illicit connections.

(1) The construction, use, maintenance or continued existence of illicit connections to the stormwater conveyance 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 any substance prohibited by this article or as defined in code to the stormwater conveyance system, or allows such a connection to continue.

(4) Improper connections in violation of this article must be disconnected and redirected, if necessary, to an approved onsite wastewater management system or the sanitary sewer system upon approval of the director.

(5) Any drain or conveyance that has not been documented in plans, maps or equivalent, and which may be connected to the stormwater conveyance system, shall be located by the owner or occupant of that property upon receipt of written notice of violation from the director requiring that such locating be completed. Such notice will specify a reasonable time period within which the location of the drain or conveyance is to be determined, that the drain or conveyance be identified as storm sewer, sanitary sewer or other, and that the outfall location or point of connection to the stormwater conveyance system, sanitary sewer system or other discharge point be identified. Results of these investigations are to be documented and provided to the director.

(f) 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.

(g) Right of entry: inspection and sampling. The director shall be permitted to enter and inspect premises subject to regulation under this article as often as may be necessary to determine compliance with this article.

(1) 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 the director.

(2) The director shall be allowed 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

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performance of any additional duties as defined by state and federal law.

(3) The director shall have the right to set up on any facility or property subject to regulations under this article such devices as are necessary in the opinion of the director to conduct monitoring and/or sampling of the premise's stormwater discharge.

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

(5) Unreasonable delays or denial of access to a facility or property is a violation of this article.

(h) Search warrants. If the director has been refused access to any part of the premises from which stormwater is discharged, and he/she 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 and/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 director may seek issuance of a search warrant from any court of competent jurisdiction.

(i) Notification of spills. Notwithstanding other requirements of law, as soon as any person responsible for a premise or operation, or responsible for emergency response for a premise 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 stormwater conveyance system, or waters of the United States, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release.

In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the director in person or by phone or facsimile within 24 hours of becoming aware of the release. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the director within five business days of the phone notice.

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. Failure to provide notification of a release as provided above is a violation of this article.

(j) Compensatory action. In lieu of enforcement proceedings, penalties, and remedies authorized by this article, the director may impose upon a violator alternative compensatory action, including but not limited to:

- (1) Storm drain stenciling;
- (2) Attendance at compliance workshops;
- (3) Creek cleanup; or

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(4) Other actions that serve to promote and further the goals of the city's MS4 program.

(k) 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 director to seek cumulative remedies. The director may recover all attorneys' fees, court costs and other expenses associated with enforcement of this article, including sampling and monitoring expenses.

**Sec. 25-99. Violations remedies.**

(a) Violations. Violations of provisions of this division may be enforced in any manner described in this section.

(b) Fine. Any person violating any provision of this division shall be, upon conviction or a plea of guilty, subject to a fine not to exceed \$500.00, or the maximum amount allowed by state law.

(c) Enforcement by administrative building citation. Any violation of any section of this article shall be deemed a building code violation that may be enforced by the issuance of an administrative building citation in accordance with the provisions set forth in Chapter 2.

(d) Stop work order—issuance. Where work regulated by this division is being performed in a manner contrary to the provisions of this division or in a dangerous or unsafe manner, the director of public works and transportation, or his or her designee, may issue a written stop work order. The stop work order shall be given to the owner of the property on which the work has been performed, the owner's authorized agent, or the person performing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order and the conditions under which the cited work will be permitted to resume.

(e) Stop work order—violations. Any work performed in violation of a stop work order, except work that is directed by the issuer of the stop work order to remove a violation or unsafe condition, shall constitute a separate violation of this division.

**(f) Any issuance of illegal dumping, illicit connection or illicit discharge, the city can deem the party responsible for cleanup, remediation, restoration or abatement costs.**

**SECTION 2.** That any ordinances or parts of ordinances in conflict with this ordinance be, and hereby are, repealed.

**SECTION 3.** That if any provision of this ordinance is found to be invalid, such provision shall be considered to be severable from the other parts of this ordinance and shall not affect the validity of the remaining parts of this ordinance.

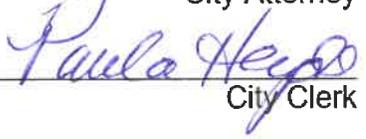
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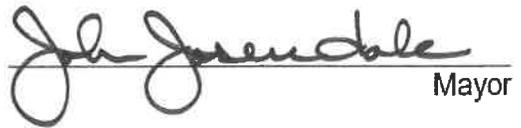
**SECTION 4.** That this ordinance shall be in full force and effect from and after date of passage.

Approved as to form:

  
\_\_\_\_\_  
City Attorney

  
\_\_\_\_\_  
City Clerk

Passed: April 17, 2023

  
\_\_\_\_\_  
Mayor

**Date:** April 3, 2023  
**Amount:**  
**Account Number:**

**EXPLANATION TO COUNCIL BILL**

**ORIGINATING DEPARTMENT:** Public Works & Transportation

**PURPOSE:** To amend Division 4 "Stormwater Management of Article II "Construction, Repair and Maintenance" of Chapter 25 "Streets, Sidewalks and Miscellaneous Public Places and Other Infrastructure" of the Code of Ordinances.

**REMARKS:** The City of St. Joseph Municipal Separate Storm Sewer System (MS4) was issued a new Missouri State Operating Permit (MO-R04C038) in December 2021. This permit includes new code enforcement requirements, outlines the Stormwater Management Plan obligations for the City, updated definitions, and new Minimum Control Measures (MCMs) to reduce the discharge of pollutants from the MS4, to protect water quality, and to satisfy the water quality requirements of the Clean Water Act. These Chapter 25 changes reflect the new MS4 permit requirements for the City to be in compliance with the Clean Water Act.

The changes include a provision that makes clear that land disturbances cannot be broken up into multiple sections of less than one acre to avoid compliance with land disturbance requirements. The changes also remove areas that discharge to the combined sewer system from being included in the MS4 system, which reduces some stormwater regulation from older parts of town. Facility owners must provide the City with operation and maintenance manuals for operating newly constructed stormwater facilities before they will be issued a certificate of occupancy. Finally, for any illegal dumping, illicit connection, or illicit discharge, the city can deem the harming party responsible for cleanup, remediation, restoration or abatement costs.

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CITY CLERK

Date	Event	Location	Target Audience	Pollutants/Sources	Attendees	Resources Provided	Trackable measure
1/16/2023	Litter Clean-up	Wetland up to Lilac hill	Residents	Litter	5	Staff time, materials	4 trash bags of trash collected
1/28/2023	Super Science Saturday	MWSU	Residents	General stormwater pollution and how we can all reduce our stormwater pollution	45	Staff time, educational materials	Handed out 45 stormwater education materials
3/16/2023	Utility Coordinators meeting	Streets building	Utility Companies	Sediment	11 utility employees	Staff time, materials	Discussed need for ESC measures with all projects and ESC plans with submittal for review
3/16/2023	Concept review meeting	City Hall	Developers	Construction site sediment, proper ESCs, Post Construction	5 city staff, Larry Whittington with CCSAE (Engineer), and developer	Staff time	Midwest warehouse Larry Whittington with CCSAE (Engineer)
3/18/2023	Litter Clean-up	Downtown	Businesses, residents	Litter	38	Staff time, materials	50 bags of trash
3/21/2023	Industrial Pretreatment Day	Remington Nature Center	Industrial Users	Industrial discharges and illicit discharges	35 industry Reps 7 City Employee	Staff time, meeting space	Covered industrial stormwater - Illicit discharges, what is an illicit discharge, reportable spills, and post-con BMP annual inspections
4/1/2023	Litter Clean-up	River walk	Residents	Litter	4 city employees - Brooke (PM), Donovan(FD), Sam and Colleen (WPC)	Staff time, materials	52 bags of trash - 4.5 acres
4/1/2023	Litter clean-up conducted by South Side rotary club	Mason Rd - from 8th street west past 22nd	Residents	Litter	5 residents	Trash bags	Measure length of street
4/4/2023	Plant Native St. Joe Meeting	Center for Joy	residents	NA	7 - Mary Jo, Shelley, Ann Manns, Diane, Kathleen, Steve, Colleen	Staff time and planning	Planning meeting for native planting
4/5/2023	Present to Wild Con students at MWSU	MWSU	MWSU Students	Invasive species removal, practices to decrease SW pollution, and stormwater program	2 WPC employees 27 # of MWSU Students	Staff Time,	Planning meeting for native planting Presented to them about invasive species workday at stormwater wetland - estimated that 7 will attend the workday
4/10/2023	Student Volunteer work at wetland	NE Parkway stormwater wetland	Residents	Preventing stormwater pollution	Colleen (WPC) and 1 student volunteer	Staff time, materials	1 volunteer - Removed invasive species and talked about function of constructed stormwater wetland
4/21/2023	Center for Joy Earth Day Celebration	Center for Joy	Residents	Lawn care chemicals, preventing stormwater pollution	32	staff time (Sam presented)	32 people in audience for presentation
4/21/2023	Native Planting Event	Remington Nature Center	Residents and Businesses	Lawn care chemicals, preventing stormwater pollution	15	staff time (Sam presented)	15 people in audience for talk
5/9/2023	Native planting event - Bank restoration at Corby pond	Corby pond and 22nd street bridge	Residents	Lawn care chemicals, preventing stormwater pollution	1 volunteer and 3 WPC staff	Plants, materials, staff time, location, and planning	Planted native plant species for stream bank restoration and to stop erosion
5/16/2023	Native planting event - CANCELLED due to rain	NA	NA	NA	NA	NA	NA

5/23/2023	Native planting event - Bank restoration at Remington Nature Center	Bank behind Remington nature center - Roy's branch discharges directly to Mo river	Residents	Pollutants picked up in stormwater runoff	8 volunteers - 2 of which work for the City (Parks dept) at Remington 3 WPC Staff	Plants, materials, staff time, location, and planning	Planted native plant species for stream bank restoration and to stop erosion
6/1/2023	Native planting event at Blacksake Creek Bioswales	Blacksake Creek Trail off St. Joseph Ave Bioswales that are along the trail and installed as a part of the BSC separation project	Residents	Pollutants picked up in stormwater runoff	1 volunteer and 3 WPC staff	Plants, materials, staff time, location, and planning	1 volunteer, 300 native plants installed at bioswales
6/12/2023	Facebook post SEAC Facebook	Facebook	Businesses, residents	Lawn care chemicals, litter, only rain down the drain	NA	Flyer from EPA	Number of likes XX, shares XX
6/12/2023	BMP ESC Fact Sheet for Utility Companies Provided to Deputy Director PW and Super of Streets/Line Maintenance. This Document will be provided to utility companies, as needed.	\\Simr-server\wpc\Environmental Services\Stormwater Quality Coordinator\Land Disturbance Program\LD Education Materials BMP Sheet for Utility Companies - EPA	Utility Companies	Sediment	United Fiber and Metronet	BMP Fact Sheet	Provided to United Fiber and Metronet
6/14/2023	Pollution Prevention Team Meeting WPF	Water Protection	WPF Staff	Illicit Discharges from facility, SWPPP Inspections	9 WPF staff members	Presentation	9 WPF staff present
6/15/2023	Utility Coordinator meeting	Streets building	Utility Companies and their contractors	sediment	15	staff time	Spoke to utility companies about restoration requirements, violations of the CWA, ESC measures to be used onsite
6/15/2023	Website link Check	City's website	Businesses, residents, contractors, developers	Sediment, lawn care, ESC plans	NA	Staff time and city website	Checked website links to ensure that links are functional & educational resources are applicable to program
2023	Precast inlet lids and concrete stamps with "no Dumping Drains to Stream" installation by City - Precast concrete stamps purchased by city	Various Locations	Businesses, residents, contractors, developers	floatables, yard waste, FOG	NA	City is using concrete stamp to mark inlets when they are repaired/replaced.	Number of inlets marked in 2023 50
6/29/2023	Pollution Prevention Team Meeting WPF	WPF Conference room	WPF Staff who have the potential to impact stormwater	Illicit Discharges from facility, SWPPP Inspections	Colleen, Sam, Head of Ops, Master plant operator, FOG techs, Pretreatment coordinators, maintenance staff, Env Services Supervisor	Planning, staff time, education	Illicit discharge info/education to WPC staff
7/5/2023	Peach jar flyer post	Peach jar	Residents	Fertilizer, yard waste	St. Joseph School district - Parents and students	EPA Flyer	Disturbed to St. Joe School parents

7/17/2023	BSJ Planning meeting	City Hall	Residents	Litter and Yard waste	6 members - 2 City employees (Colleen and Brooke)	Staff time, planning, and materials for cleanup events	Planning meeting for August 5th cleanup at Mount Mora Cemetery Drive up 13th and Frederick up to highly street around the collage hill park east on Ridenback then east on Frederick - then dump at the dumpster
7/19/2023	Plant Native Meeting	Center for Joy	Residents	NA	6 members and Colleen - Diane, Mary Jo, Ann Manns, Rosy (new Member), Steve, and Kathleen	Staff time, planning, and materials for planting events	
7/20/2023	Utility Coordinators meeting	Line Maintenance Building	Utility Companies	Erosion and sediment	8 utility reps - 5 city employees - and colleen	Staff time and verbal education	
July	Partnership with Youth Alliance for a Water Week - Ages 11-18	Inlet stenciling, Water Protection facility tour, 102 River Stream Team cleanup	Youth/ Residents	Multiple - Trash, floatables, Oil, tires, yard waste	13 Youth, Youth Alliance program director, KC YA Program director, 6 Altec volunteers, 2 GI Techs, and SWQC	Materials, staff time, supplies, educational materials	22 attendees/volunteers plus 3 City staff, 10 tires collected from stream, 7 bags of trash, & 115 # of inlets stenciled
8/9/2023	Municipe staff Stormwater training led by PEC Engineering	Remington Nature Center	City Staff	Municipe operations	Water Protection staff, Line Maintenance, Streets, Parks staff, Airport staff, Deputy Directors and Director of Public Works	staff time, stormwater education and resources/handouts, planning time	# of staff in attendance
8/9/2023	Industrial Users Open House	Remington Nature Center	Industrial Users	Industrial discharges and illicit discharges	0	staff time, stormwater education and resources/handouts, planning time	0 attendees -
8/5/2023	BSJ Litter Cleanup event	Mount Mora Cemetery from Highly to Frederick	Residents	Litter/Floatables	2 Water Protection, 15 volunteers	Staff time, bags, grabbers, and staff participation in event and planning	Amount of trash collected
8/17/2023	Utility Coordination Meeting	Line Maintenance Building	Utility Companies	Erosion & sediment	8 City employees 12 utility reps (Spire, Evergy, MOAM, Metronet)	Staff time and verbal education	8 City employees 12 utility reps (Spire, Evergy, MOAM, Metronet)
8/17/2023	Plant Native Meeting	Center for Joy	Residents		4 members and 1 city employee - CA	Staff time	Discussed the importance of capturing and slowing down stormwater. Native plants slow down stormwater and decreases erosion, filter pollutants, and benefit pollinators.
8/23/2023	Meeting with contractor at Clarios - Open land disturbance site	Clarios - MS4 side	Contractor	Erosion & sediment	2 contractors with A.J. Mueller construction. 2 ESC inspectors Colleen and Sam	Staff time, planning, and coordination	Discussed erosion concerns, potential solutions, BMP options, vegetation requirements, city and state regs.
8/23/2023	SEAC Monthly Meeting	Zoom	Residents	Litter, single use plastic, promoting sustainable businesses	3 city employees and 5 members	Staff time, planning	volunteers, 3 city employees
8/24/2023	Concept Review Meeting - for 3701 Pettis - Foley Equipment	City Hall	Developer	Erosion and sediment - post construction SCM - proper permitting for project	CBO, Fire, City Planner, 2 project managers, Deputy director PW, Streets, Line Maintenance, Permit Coordinator, two Foley reps, Architect, and Engineer	Staff time and verbal education	Developer/engineer education
9/14/2023	MOAM Safety Fair	Civic Arena	Construction companies, their employees, MOAM reps and their contractors	Erosion and Sediment controls, spills and cleanup, watersheds and hydrology	GI Techs worked the tabling event and SWQC stopped by and spoke with a few attendees. Overall approximately 50 people stopped by the booth to talk. Approximately 100 people were in attendance.		50 people stopped by booth, 38 native seed packets with "Bee Stormwater Smart" were handed out, 45 oil funnels with WQ education message, 40 rain barrel handouts, 15 water quality playing cards handed out

9/16/2023	Beautify St. Joe Litter Cleanup event	715 E Highland Ave to 3600 St. Joseph Ave	Residents	Litter/Floatables		Staff time, bags, grabbers, and staff participation in event and planning	
9/21/2023	Utility Coordinators Meeting	Line maintenance Building	Utility Companies	Sediment and restoration	8 utility reps, 6 city employees present. Discussed ESC requirements for plan submittal and in the field requirements	Staff time and verbal education	8 utility reps, 6 city employees present. Discussed ESC requirements for plan submittal and in the field requirements
9/28/2023	Presentation to Flower Society	United Methodist Church	Residents	SW program, yard waste and household chemicals, AOC, CSO program	What is stormwater and stormwater pollution, CSO's, LTCP for city, Green infrastructure, benefits of native plants and stormwater pollution	Staff time and verbal education	50 new residents presented to
10/3/2023	Citizen stopped to ask about BSC Bioswales	Bioswale #1 off of Randolph Street	Resident	Bioswale maintenance/function, SW program	Resident (Dorothy Ross) stopped to ask GI Tech and SWQC what the bioswale is and the work that we are doing. We talked about native plantings in town, their relation to water quality. As well as, the City's AOC and public input on the verification of remaining projects	Verbal education and provided SWQC contact info	
10/4/2023	Bioswale maintenance with Altec Volunteers	Bioswale 3 and 4	Residents and Industrial Users	Stormwater education	2 Altec Members - 2 GI Techs and SWQC Discussed the bioswales functions and why they were installed. Weeded to remove undesirables	Staff time, planning, and materials for planting events	
10/6/2023	Provided Stormwater education handouts to Community Services Coordinator to handout at outreach and education events that she attends.	Handouts	Residents	Car washing, Stormwater pollutants,	25 How to Build a Rain Garden 25 Proper Car Washing 20 Spotlight on Stormwater 20 stormwater coloring books for Children	Staff time, planning, and materials	
10/12/2023	Presentation to Residents at Constructed Stormwater Wetland	Constructed Stormwater Wetland	Residents	Sediment, Yard waste, fertilizer	11 People attended, 4 new attendees	Staff time and verbal education	
10/14/2023	Volunteer Water Quality Monitoring - Level 1 training with MDC and Stream Team	Otoe Creek - 102 River Tributary	Residents & MWSU Students	Water quality Monitoring - See Stream Team Report for parameters	Sam Miller received level 1 certification Green Infrastructure Tech. Colleen Armstrong Stormwater Quality Coordinator attended training as well, certified in 2021, attended as a refresher.	Staff time, participation, adopted spot for future monitoring	
10/19/2023	Recruitment of new Stream team Members	4260 WPC Stream team	Residents	Litter/Floatables	Recruited 2 new members to 4260 Stream team Kathleen Holeman and Steve Potter	Stream Team recruitment	Colleen Armstrong SWQC Recruited 2 new members to stream team.
10/19/2023	Utility Coordinators Meeting	Streets Department	Utility Companies	Sediment	11 utility reps, 8 city employees present. Discussed ESC requirements for plan submittal and in the field requirements	Staff time and verbal education	Targeted education
10/23/2023	Beautify St. Joe Steering Meeting	City Hall	Residents	Trash/Litter/floatables	11 People attended, 4 new attendees	Staff time, planning, and materials for planting events	How to help neighborhoods create neighborhood associations, remaining events for the year, increasing recruitment, heavy spring campaign for litter events, getting businesses to sign pledge to committee to cleanup their property,



Outreach and Education or Involvement BMP?	Column1	Column2
Involvement - Stream/lake or Watershed clean-up events; Litter clean-up events		
Outreach		
Targeted education campaign		
Outreach		
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Targeted education campaign		
Involvement - Stream/lake or Watershed clean-up events; Litter clean-up events		
Involvement - Stream/lake or Watershed clean-up events; Litter clean-up events		
Outreach - Promote, host, or develop educational meetings, seminars, or trainings;	OR Stormwater related speaker series;	
Outreach - Promote, host, or develop educational meetings, seminars, or trainings;	OR Stormwater related speaker series;	
Stream Bank restoration - Involvement		
NA		

Involvement BMP- Stream bank restoration - Planted native plant species for stream bank restoration and to stop erosion		
Habitat improvement - Prior to the event starting we covered why the bioswales were installed, how they function, and the role that native plants play in stormwater management.		
Social Media Post	Sent to Emily to post on City's FB page - Posted on 7/03/23	
Outreach - ROWP compliance with utility companies - Targeted education campaign, via mail, email, or in person.		
Staff training MCM 6		
Targeted education campaign		
Information on MS4's website - Outreach BMP		
Outreach - Maintain, or mark storm inlet with "No Dumping – Drains to Stream" or similar message.		<p>email from 6/2 locations The option to put these in Cartegraph hasn't been added for us yet so I am just sending you the locations of where the inlets with stamps have been put so far.</p> <p>3rd &amp; Hickory on SE corner 13th &amp; Corby on NW corner 16th &amp; Mitchell on NE corner 18th &amp; Duncan on NE corner 507 Richardson at alley 6510 Lake Ave. on West side 8th &amp; Pendleton on NE corner 2nd &amp; Auguste at dead-end</p>
Staff training MCM 6		
<a href="https://share.peachjar.com/flyers/2501482/districts/12208">https://share.peachjar.com/flyers/2501482/districts/12208</a>		

Involvement - Stream/lake or Watershed clean-up events; Litter clean-up events		
Targeted education campaign		

Involvement - Stream/lake or Watershed clean-up events; Litter clean-up events		
Outreach - Promote, host, or develop educational meetings, seminars, or trainings;		
Involvement - Volunteer Water Quality Monitoring - Staff training		



Date	Sample	DO	Temp (°C)	pH	COD	Ammonia	Nitrate	Nitrite	Total Phosphorus	<i>E. coli</i>
3/6/2023	Basin	Not taken	14.2	7.75	32.8 mg/L	<0.5 mg/L	Not tested		Not tested	

Date	Sample	Temp (°C)	pH	COD	FOG	Ammonia	Nitrate	Nitrite	Total Phosphorus	<i>E. coli</i>
3/6/2023	Basin	15.7	6.82	168.2 mg/L	4.41 mg/L	12.69 mg/L	Not tested		0.9	
	Creek	11	7.74	92.1 mg/L	<3.85 mg/L	0.971 mg/L	Not tested		0.9	

Date	Sample	Temp (°C)	pH	COD	FOG	Ammonia	Nitrate	Nitrite	Total Phosphorus	Total Coliform	<i>E. coli</i>
3/14/2023	Pond	No COC saved		102 mg/L	<3.85 mg/L	<0.5 mg/L	1.94 mg/L	0.010 mg/L	0.4368		Not tested

Arsenic	Boron	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
2.21	<0.00	0.501	1.32	4.765	1.46	461.26	0.018	0.881	2.693	12.49	0.03	11.82

Date	Sample	DO	Temp (°C)	pH	COD	Ammonia	Nitrate	Nitrite	Total Phosphorus	<i>E. coli</i>
5/1/2023	Upstream	11.24	15.67	8.44	33.5	<0.5	1.297	0.008 mg/L	0.36	Not tested
	Downstream	12.28	12.74	7.64	61.4	<0.5	1.612	<0.002 mg/L	0.67	Not tested

Date	Sample	DO	Temp (°C)	pH	COD	Ammonia	Nitrate	Nitrite	Total Phosphorus	<i>E. coli</i>
7/4/2023	Upstream	8.11	22.2	7.736	90.4	<0.5	0.7383	0.012	4.2	Not tested
	Downstream	8.83	Not recorded	7.63	78.8	<0.5	0.6619	0.107	4.2	Not tested

Date	Sample	DO	Temp (°C)	pH	COD	FOG	Ammonia	Nitrate	Nitrite	Total Phosphorus	<i>E. coli</i>
7/28/2023	4th St. Hole	33.2	22.45	7.76	Not ran	4.18	<0.5	0.553	0.083	0.5	
									0.053 (Second day)		

Date	Sample	DO	Temp (°C)	pH	COD	Ammonia	Nitrate	Nitrite	Total Phosphorus	Total Coliform	<i>E. coli</i>
8/4/2023	Corby	5.09	23.88	6.89	Not ran	0.83	0.334	0.017	Not ran	>2419.6	>2419.6

Date	Sample	DO	Temp (°C)	pH	COD	Ammonia	Nitrate	Nitrite	Total Phosphorus	Total Coliform	<i>E. coli</i>
8/12/2023	Up	0.04	23.84	7.61	Not ran	1.95	0.4012	0.012	0.54	>2419.6	>2419.6 MPN
	Down	0.15	23.84	9.12	Not ran	0.895	0.2	0.015	0.6	>2419.6	686.7 MPN

Date	Sample	Temp (°C)	pH	TSS	Chlorine	Ammonia	Nitrate	<i>E. coli</i>	Total Coliform
11/17/2023	Site 1				10	0.31 <0.5	0.59	290.9 MPN	>2419.6 MPN
	Site 2				46	0.16 <0.5	0.596	54.8 MPN	>2419.6 MPN
	Site 3				5	0.05 <0.5	0.934	<1 MPN	1553.1 MPN

Field Results

11/17/2023	Sample	Temp (°C)	pH	Conductivity	D.O. (mg/L)	
	Site 1	12.7		7	855	3.08
	Site 2	12.5		7.6	817	3.08
	Site 3	13		6.8	1175	5.05

Date	Sample	Temp (°C)	pH	TSS	Chlorine	Ammonia	Nitrate	Nitrite	<i>E. coli</i>	Total Coliform
12/13/2023	Basin	8.2	7.1	1030		1.806	2.04	0.015	Not valid	Not valid