



3. Provide a description of any changes to the stormwater management program, programmatic BMPs, measurable goals, and the iterative process that have occurred during the covered reporting period. *(See Part D of this form)*
4. Provide a list of programmatic BMPs that were evaluated during the reporting period and provide information on how the BMP was determined effective. *(See Part D of this form)*
  - a. If any of the programmatic BMPs were determined to be ineffective, provide a summary on how the ineffective BMP was resolved.
5. If any water samples were collected and analyzed during the covered reporting period by the permitted MS4 or on behalf of the permitted MS4, complete Part E – Water Sample(s) Analysis. This part may be uploaded as an attachment. *(This is not meant for samples collected during MCM 3 field screenings or illicit discharge investigations; those results should be retained in your SWMP.)*

**PART D – MINIMUM CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND MEASURABLE GOALS EVALUATION**

CHECK HERE if necessary attachments are uploaded for any item under the MCMs below.

**MCM 1. Public Education and Outreach**

Were any changes made to MCM 1 during the reporting period?  Yes  No

**E.1.A.i**

Were any changes to E.1.A.i made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.1.A evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.1.A.i successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.1.A.i determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.1.A.ii**

Were any changes to E.1.A.ii made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.1.A.ii evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.1.A.ii successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.1.A.ii determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.1.A.iii**

Were any changes to E.1.A.iii made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.1.A.iii evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.1.A.iii successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.1.A.iii determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**MCM 2. Public Involvement and Participation**

Were any changes made to MCM 2 during the reporting period?  Yes  No

**E.2.A**

*(Completing E.2.A in this form is only applicable during permit renewal OR as a result of major modification to the SWMP. If neither of these apply during this reporting period, check N/A here and skip to E.2.D below.)*  N/A

Were any changes to E.2.A made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.2.A evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.2.A successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.2.A determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.2.B**

*(Completing E.2.B in this form is only applicable during permit renewal OR as a result of major modification to the SWMP. If neither of these apply during this reporting period, check N/A here and skip to E.2.D below.)*  N/A

Were any changes to E.2.B made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.2.B evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.2.B successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.2.B determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.2.C**

Were any changes to E.2.C made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.2.C evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.2.C successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.2.C determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.2.D**

Were any changes to E.2.D made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.2.D evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.2.D successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.2.D determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

### E.2.E

If the permittee does not currently utilize a stormwater management panel or committee, did the permittee evaluate the potential benefits of utilizing a stormwater management panel or committee?  Yes  No

If **YES**, will the permittee utilize a stormwater management panel or committee during the next reporting period?  Yes  No

If **NO**, E.2.E is not applicable. The permittee does not utilize a stormwater management panel or committee.  Check here if N/A.  
Were any changes to 4.2.E made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for 4.2.E evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for 4.2.D successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for 4.2.D determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

### E.2.F

Were any changes to E.2.F made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.2.F evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.2.F successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.2.FC determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

### **MCM 3. Illicit Discharge Detection and Elimination**

Were any changes made to MCM 3 during the reporting period?  Yes  No

#### E.3.A

Were any changes to E.3.A made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.3.A evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.3.A successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.3.A determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

#### E.3.B

Were any changes to E.3.B made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.3.B evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.3.B successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the **BMPs** for E.3.B determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

### **E.3.C**

Were any changes to E.3.C made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.3.C evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.3.C successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the **BMPs** for E.3.C determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES** include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

### **E.3.D**

Were any changes to E.3.D made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.3.D evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.3.D successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the **BMPs** for E.3.D determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

## **MCM 4. Construction Site Stormwater Runoff Control**

Were any changes made to MCM 4 during the reporting period?  Yes  No

### **E.4.A**

Were any changes to E.4.A made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.A evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.A successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the **BMPs** for E.4.A determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

### **E.4.B.i**

Were any changes to E.4.B.i made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.B.i evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.B.i successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.4.B.i determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.4.B.ii**

Were any changes to E.4.B.ii made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.B.ii evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.B.ii successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.4.B.ii determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.4.B.iii**

Were any changes to E.4.B.iii made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.B.iii evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.B.iii successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.4.B.iii determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.4.B.iv**

Were any changes to E.4.B.iv made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.B.iv evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.B.iv successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.4.B.iv determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.4.B.v**

Were any changes to E.4.B.v made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.B.v evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.B.v successfully reached?  Yes  No  
If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.4.B.v determined effective/successful for this reporting period?  Yes  No  
If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No  
If **YES**, include an attachment describing how the BMP will be modified or replaced.  
If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.4.B.vi**

Were any changes to E.4.B.vi made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.4.B.vi evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.4.B.vi successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.4.B.vi determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**MCM 5. Post-Construction Stormwater Management in New Development and Redevelopment**

Were any changes made to MCM 5 during the reporting period?  Yes  No

**E.5.A.i**

Were any changes to 4.5.A made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for 4.5.A evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for 4.5.A successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for 4.5.A determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.5.A.ii**

Were any changes to E.5.A.ii made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.5.A.ii evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.5.A.ii successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.5.A.ii determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**E.5.A.iii**

Were any changes to E.5.A.iii made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for E.5.A.iii evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for E.5.A.iii successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for E.5.A.iii determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**MCM 6. Pollution Prevention/Good Housekeeping for Municipal Operations**

Were any changes made to MCM 6 during the reporting period?  Yes  No

**4.6.A**

Were any changes to 4.6.A made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for 4.6.A evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for 4.6.A successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for 4.6.A determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**4.6.B**

Were any changes to 4.6.B made during reporting period?  Yes  No If **YES**, include an attachment describing changes.

Were all BMPs for 4.6.B evaluated during reporting period?  Yes  No If **NO**, include an attachment describing what BMPs were not evaluated and why.

Were the measurable goals for all BMPs for 4.6.B successfully reached?  Yes  No

If **NO**, were the measurable goals evaluated/modified in an effort for success in the next reporting period?  Yes  No

Were the BMPs for 4.6.B determined effective/successful for this reporting period?  Yes  No

If **NO**, were the BMPs determined to be ineffective/unsuccessful evaluated for modification or replacement?  Yes  No

If **YES**, include an attachment describing how the BMP will be modified or replaced.

If **NO**, include an attachment describing why the ineffective/unsuccessful BMPs were not evaluated for modification or replacement.

**Part E – WATER SAMPLE(S) ANALYSIS**

PARAMETER OR INDICATOR	FREQUENCY or DATE (Ongoing monitoring, single event)	RESULT	DRY WEATHER SAMPLE?	WET WEATHER SAMPLE?
N/A			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

1. Are any of the parameters being sampled due to the MS4 being subject to an established or approved Total Maximum Daily Load?

Yes  No

If yes, indicate the parameter/pollutant.

2. Does the data support water quality attainment or support trend data toward water quality attainment?

Yes  No

If yes, describe.

**Part F – TOTAL MAXIMUM DAILY LOAD (TMDL) ASSUMPTIONS AND REQUIREMENTS ATTAINMENT PLAN (ARAP)**

1. Is your MS4 subject to an established or approved TMDL? If no, indicate "No" below and do not complete any other portion of the TMDL Assumptions and Requirements Attainment Plan portion of this report.  Yes  No

2. Has your TMDL ARAP been completed and submitted? If no, provide a summary as an attachment on the progress toward submitting and implementing the TMDL Assumptions and Requirements Attainment Plan.  Yes  No

4. Does the TMDL ARAP incorporate Integrated Planning? If yes, provide a summary of the status of the Integrated Plan.

Yes  No



**PART G – SUBMIT REPORT TO:**

The facility must register in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due. Registration and other information regarding MoGEM can be found at; <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>.

Information about the eDMR system can be found at <https://dnr.mo.gov/env/wpp/edmr.htm>.

To access the eDMR system, use: <https://apps5.mo.gov/mogems/welcome.action>.

For assistance using the eDMR system, contact [edmr@dnr.mo.gov](mailto:edmr@dnr.mo.gov) or call 855-789-3889 or 573-526-2082.

**PART H - CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OR PERMITTEE (LEGALLY RESPONSIBLE PERSON)

See attached signature pages for Part H certification

DATE SIGNED

See attached

NAME (PRINTED OR TYPED)

See attached

TITLE

See attached

**Part H - CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OR PERMITTEE (LEGALLY RESPONSIBLE PERSON)

DATE SIGNED

4/26/23

NAME (PRINTED OR TYPED)


TITLE

Bill Florea

Director, Resource Management

**Part H - CERTIFICATION**

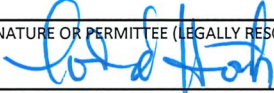
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OR PERMITTEE (LEGALLY RESPONSIBLE PERSON) 	DATE SIGNED 4-27-23
NAME (PRINTED OR TYPED) David A. Sorrell, P.E.	TITLE Director, Utilities

**Part H - CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OR PERMITTEE (LEGALLY RESPONSIBLE PERSON)



DATE SIGNED

4-27-2023

NAME (PRINTED OR TYPED)

Todd Houts

TITLE

Director, Environmental Health & Safety

# Stormwater Annual Report

## Columbia/Boone County/University of Missouri

### Small MS4 Co-Permit MO-0136557

January 01, 2022 – December 31, 2022

## C. SWMP Report Progress and Compliance

---

### *1. Describe your stormwater program's efforts toward compliance with your MS4 permit and SWMP requirements.*

The City of Columbia (City), Boone County (County) and the University of Missouri (MU) have worked hard throughout the year to realize the stormwater goals outlined in the SWMP. Explanations of the work completed for each Minimum Control Measure (MCM) are described below.

#### **MCM 1: Public Education and Outreach**

The City, County and MU employ staff to provide stormwater public education and outreach programs that address the community. The co-permittees have approximately twelve staff members that work closely together to transcend jurisdictional boundaries in favor of a watershed-based approach. This demonstrates a significant commitment to stormwater education activities and the co-permittee's overall goal of educating their citizens to reduce pollutants entering receiving waters to the maximum extent practicable (MEP). The co-permittees are dedicated to preserving the water quality in the community to protect, maintain and enhance the immediate and long-term health, safety, and general welfare of their citizens.

The co-permittees are working together to implement a public education program focused on stormwater discharges and their relative impacts on water quality, as well as informing the public of measures they can take to reduce pollutants in stormwater runoff. The target audiences continue to be students in each sector (elementary, high school and university), faculty, staff, contractors, developers, engineers, inspectors, interest groups, event participants, and the general public. Target pollution sources continue to be pet waste, yard maintenance, winter road treatment and storage, land disturbance, household hazardous waste, private sanitary sewer systems, swimming pools, fats, oils and grease, and industrial and agricultural activities.

Raising citizens' understanding and awareness of stormwater impacts and issues is the primary goal of MCM 1 and the permittee's level of commitment to education and outreach programs is significant. Many citizens had some type of direct contact with the stormwater outreach program during 2022. Many more people had contact through social or traditional media outlets.

One event that the co-permittees would like to highlight is the City's first interdepartmental MS4 meeting. On November 30, 2022, the Stormwater Utility hosted 25 employees from eight different City departments. The City MS4 technician gave a presentation on the MS4 program, including the six MCMs and a review of the City's stormwater ordinances. The City found this meeting beneficial, as it provided an opportunity for various departments to meet and discuss stormwater issues. The City plans to hold a meeting every year to discuss various SWMP topics.

For this reporting period, the co-permittees implemented/conducted/continued the following:

The City continued to work with a wide variety of groups to create a holistic stormwater education program that educates about the benefits of improved stormwater quality and provides specific techniques to improve stormwater quality while raising overall awareness of stormwater quality issues. Educational information provided to the community included:

- All City employees received pollution prevention educational training upon hire during new employee orientation. This pollution prevention education is also included in the employee handbook.
- The City continued its employee stormwater training which requires all employees attend on a bi-yearly (two-year rotation) basis. This year employee training was administered virtually through various YouTube videos made available to all staff. An all-employee email was distributed that contained links to the online training videos as well as good housekeeping tips that could be reviewed at staff meetings.
- City staff used city social media sites such as Facebook, YouTube, City Source articles, and press releases to inform the public about events, activities, and helpful BMP tips.
- City staff also participated in interviews regarding watersheds with reporters for a local newspaper.
- The City Storm Water Utility Website was kept up to date with new resources and/or updated information.

Outreach activities for the City of Columbia included:

- Continued partnership with River Relief summer camp program.
- Continued presentations to local groups, businesses, and organizations on stormwater protection and BMPs around the community.
- Presented the classroom activity "Streams in the Classroom".
- Tours of the City's 3M Hinkson/Flat Branch Wetland outdoor classroom with local schools, community groups and organizations.
- Facilitated stream and roadside litter pickups throughout the community.
- Implemented a storm drain marker program that mailed markers to participants' homes for use on storm drains in their local neighborhoods.

Boone County stormwater presentations were provided to three local school districts and one university, resulting in approximately 1,648 interactions with students:

- Partnered with the Columbia Audubon Society and the Centralia 6<sup>th</sup> Grade for a "Day at the Stream" at Wild Haven Nature Area.

- Presented a week-long activity using the stream table to 6<sup>th</sup>, 7<sup>th</sup>, & 8<sup>th</sup> grades at Centralia Middle School.
- Presented the classroom activity “Who Polluted...” to Southern Boone County 2nd Grade.
- Presented the classroom activity “Who Polluted...” to Centralia Intermediate 5th Grade.
- The County and City of Columbia Stormwater Educators were guest panelists for Benton's 2<sup>nd</sup> and 5<sup>th</sup>-grade classes. Students presented research projects focusing on the school's bees and invasive species.
- Stream monitoring event with Rock Bridge High School Environmental Club at Three Creeks Park.
- Informational booth discussing agricultural impacts on streams and soil health at Two Mile Prairie School.
- Enviroscape Presentations occurred at the following schools:
  - Atelier Elementary
  - Grant Elementary
  - Benton Elementary 5<sup>th</sup> Grade
  - Benton Elementary 4<sup>th</sup> Grade
- Partnered with the Missouri Department of Natural Resources for a stream monitoring program for MIZZOU Journalism Field Day.
- The County and City of Columbia Stormwater Educators worked with a Mizzou film creation class to produce a public service announcement focused on litter around the community.
- Guest Lectured for Mizzou's Honor College about human impacts on the environment and how those impacts affect people at different scales.
- Partnered with Rock Bridge Memorial State Park Interpretive Program focused on connecting students to the park, cave systems, streams, and ecosystems. Multiple programs occurred:
  - Beulah Ralph Elementary School - Connor’s Cave
  - Shephard Boulevard Elementary
  - Cedar Ridge Elementary
- Hosted 3M Wetland Tour for Columbia School District elementary students.





Boone County provided 19 stormwater education and outreach events to the public, resulting in approximately 2,017 interactions with the community:

- Partnered with MO Soybean Association and MO Corn Growers Association for a Soil Health Field Day at Bay Farm.
- Coordinated and presented an Urban Riparian Corridor Workshop.
- Hosted an informational booth at the MO Soy Crops and Conservation Fall Field Day at Bay Farms.
- Hosted Listening Session for Agricultural Producers at the Bob LeMone Building in Hallsville.
- Hosted a virtual film showing of “The Human Element.”
- Hosted a virtual, interactive panel discussion based on the virtual film showing of “The Human Element.”
- Hosted two interactive and one informational booth at the Rock Bridge State Park Water Festival.
- Hosted “Get the Scoop on The State of Missouri’s Updated Land Disturbance General Permit” Lunch & Learn.
- Partnered with the City of Columbia to host a Stormwater Best Management Practices (BMP) Inspection Training for contractors and engineers.
- Partnered with the Southern Boone Area YMCA to provide stormwater education activities for their after-school program.
- Hosted a 3M Wetland Tour for middle school Stream Scientists and their families.
- Partnered with the City of Columbia to host the “Build a Park” event.
- Partnered with Columbia STEM Alliance, Columbia Office of Sustainability, and Columbia Public Schools for the STEM Alliance Engineering Contest.
- Partnered with the STEM Summer program “The Art of Streams and Litter” for middle school students.
- Partnered with the STEMettes Summer program- “The Art of the Water Cycle” for middle school students.
- Presented at the Missouri River Adventure Camp.
- Presented at Missouri Water and Environment Association (MWEA) Fall Conference
- Hosted an interactive educational booth at the Columbia Elementary STEM Night.
- Partnered with Rock Bridge Memorial State Park Interpretive Program focused on connecting people to the park, cave systems, streams, and ecosystems



Social media continued to be a tool to involve and engage the public with information, events and activities related to stormwater. The websites listed below educated the community about the impacts of stormwater runoff, permits and inspection requirements, and general watershed information. The Hinkson Creek Collaborative Adaptive Management (CAM) and Greater Bonne Femme Watershed websites provided project updates on a regular basis.

- City of Columbia Stormwater Website: [www.como.gov/utilities/columbias-stormwater-utility/](http://www.como.gov/utilities/columbias-stormwater-utility/) - 328 visits in 2022
- Boone County Stormwater Website: [www.showmeboone.com/stormwater](http://www.showmeboone.com/stormwater) - 13,653 visits



- University of Missouri Stormwater Website: <https://ehs.missouri.edu/env/stormwater>
- Hinkson Creek CAM Website: [www.helpthehinkson.org](http://www.helpthehinkson.org) – 5,863 visits
- Hinkson Creek Physical Habitat GIS Viewer:  
[https://maps.showmeboone.com/viewers/RM\\_Hinkson\\_GIS\\_Technical\\_Report\\_Final\\_2013/](https://maps.showmeboone.com/viewers/RM_Hinkson_GIS_Technical_Report_Final_2013/) – 5 visits
- Bonne Femme Watershed Website: [www.cavewatershed.org](http://www.cavewatershed.org) – 3,100 visits
- City of Columbia Facebook Page: [www.facebook.com/ColumbiaSewerandStormwater](http://www.facebook.com/ColumbiaSewerandStormwater)
- Boone County Stormwater Facebook Page: [www.facebook.com/boonecountymostormwater](http://www.facebook.com/boonecountymostormwater) - 12,056 views
- City of Columbia YouTube Channel:
- Boone County Stormwater YouTube Channel:  
[www.youtube.com/channel/UCrd\\_RaCJ73N442kfWGfa1FA](http://www.youtube.com/channel/UCrd_RaCJ73N442kfWGfa1FA) - 259 views

The City of Columbia and Boone County worked together to develop and promote the following websites, which are hosted by the City of Columbia:

- Litter Prevention Website: <https://sites.google.com/como.gov/litter/home>
- The Water Cycle Website: <https://sites.google.com/como.gov/water-cycle/home>

Each semester, the University of Missouri conducts courses as part of its curriculum in a number of disciplines that concentrate on, or touch upon, issues of water quality and/or environmental management practices. This continued for both the winter and fall semester of 2022. Each course instructs between five and 300 students. Following is a list of those courses:

AG SM 4420	Surface Water Management
BIOL EN 4150	Soil and Water Conservation Engineering
BIOL EN 4250	Irrigation and Drainage Engineering
BIOL EN 4350	Watershed Modeling Using GIS
CHEM 4280	Environmental Chemistry
CH ENG 4220	Hazardous Waste Management
CH ENG 4285	Pollution Prevention
CV ENG 3200	Fundamentals of Environmental Engineering
CV ENG 3400	Fundamentals of Geotechnical Engineering
CV ENG 3702	Fundamentals of Water Resource engineering
CV ENG 4420	Hazardous Waste management
CV ENG 4230	Introduction to Water Quality
CV ENG 4240	Water Quality Analysis
CV ENG 4245	Environmental Chemistry for Engineers
CV ENG 4250	Environmental Regulatory Compliance
CV ENG 4260	Environmental Public Policy
CV ENG 4286	Environmental Sustainability
CV ENG 4730	Hydraulic Design
CV ENG 4980	Civil Engineering Systems Design
CV ENG 4990	Undergraduate Research in Civil and Environmental Engineering
ENV SC 1100	Introduction to Environmental Science
ENV SC 2001	Topics in Environmental Science
ENV SC 2600	Sustainability Foundations: An Introduction to Sustainability

ENV SC 3085	Problems in Environmental Science
ENV SC 3250	Pollutant Fate and Transport
ENV SC 3290	Soils and the Environment
ENV SC 3330	Environmental Land Use Management
ENV SC 4200	Stream Ecology and Hydrology
ENV SC 4305	Environmental Soil Physics
ENV SC 4306	Environmental Soil Physics Laboratory
ENV SC 4318	Environmental Soil Chemistry
ENV SC 4320	Hydrologic and Water Quality Modeling
ENV SC 4396	Agroforestry for Watershed Restoration
ENV SC 4400W	Environmental Law, Policy, and Justice
ENV SC 4600	Sustainability Science Problem Solving
ENV SC 4940	Environmental Science Internship
Forest 4320	Forest Ecology
Forest 4390	Watershed Management and Water Quality
GEOG 2660	Environmental Geography
GEOG 4630	River and Stream dynamics
GEOL 1200	Environmental Geology with Laboratory
GEOL 2400	Surficial Earth Processes and Products with Laboratory
GEOL 4100	Groundwater Hydrology
LAW 5700	Land Use Controls
NAT R 3400	Water Quality and Natural Resource Management
NAT R 4024	Foundations of Environmental Education
PLNT S 4720	Aquatic Entomology
PRST 4250	Parks, Health and Wellness
SOIL 2100	Introduction to Soils
SOIL 2106	Soil Science Laboratory

MU Extension conducted the *Natural Lawn Care* course in the Fall of 2022. The course is designed to help residents be more environmentally friendly by taking them through a series of best management practices to reduce chemical usage around the yard.

MU's Campus Facilities department continued their periodic update of the MU Campus Stormwater Master Plan. The periodic updates allow for more flexibility to better address the needs of an ever-changing campus. The plan provides an adaptable framework that enables the campus to improve stormwater quality, maintain regulatory compliance, and sustain water resource stewardship. The MU Stormwater Master Plan which was completed in 2012 and publicly released in 2013.

## MCM 2: Public Involvement and Participation

Providing opportunity for citizen input and participation in stormwater matters is the primary goal of MCM 2. The City's, County's, and MU's commitment to public involvement and public participation programs was tailored to provide ample opportunity for public involvement and participation and to increase the understanding of stormwater-related impacts and issues.

The public has the opportunity to be involved in various stormwater quality awareness and improvement activities. Furthermore, an avenue for participation and involvement is interaction through social media.

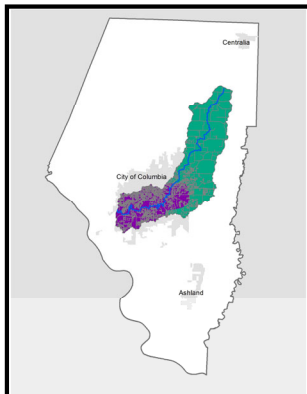
In 2022, the co-permittees made significant changes to their Stormwater Management Plan (SWMP). A 30-day combined public notice period was held. Each co-permittee advertised the public notice through press releases and on their respective websites, which allowed comments to be submitted electronically. Four comments were received and were addressed within 30 days of receipt. At the end of the public notice period, an Interested Parties Meeting was held at Columbia City Hall regarding the draft SWMP. Five members of the community attended the meeting.

The City of Columbia and County of Boone submitted the draft SWMP to the Columbia City Council and Boone County Board of Commissioners for approval after the public comment period. MU submitted the draft SWMP to MU Environmental Health and Safety administration and professionals for approval. Once approvals were given, the co-permittees submitted the revised SWMP to the Missouri Department of Natural Resources (MDNR) for approval. MDNR approved the SWMP on April 8, 2022.

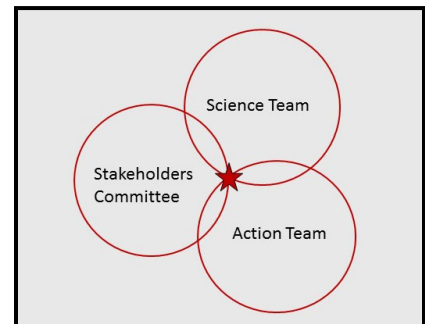
All three co-permittees provide a publicly available mechanism to take public inquiries, concerns or information about stormwater and stormwater related topics. This mechanism is a web-based public comment submission platform located on each co-permittee's website. In addition, the City of Columbia's general contact phone number allows citizens to call in with stormwater comments or questions, directing them toward the appropriate staff for response.

- City of Columbia's stormwater website: [www.como.gov/utilities/columbias-stormwater-utility/](http://www.como.gov/utilities/columbias-stormwater-utility/)
- Boone County's stormwater website: [www.showmeboone.com/stormwater](http://www.showmeboone.com/stormwater)
- University of Missouri's stormwater website: <https://ehs.missouri.edu/env/stormwater>

### Hinkson Creek Collaborative Adaptive Management



The co-permittees continued to provide opportunities for the Stakeholder Committee, Action Team, and Science Team to meet and support the collaborative adaptive management (CAM) process for the Hinkson Creek Watershed. CAM is a science-driven, stakeholder-based process for decision-making, while dealing with the scientific unknowns inherent in many physical and biological systems. It uses a process to make changes and then to determine the effect of those changes. The Stakeholder Committee, Action Team, and



Science Team were formed to support the CAM process by synthesizing complex ecological, technical, political, and economic variables to affect significant water quality improvements to Hinkson Creek. The committees each meet multiple times per year for approximately 1.5 - 2 hours per meeting with up to 15 people at any given meeting. The success of the CAM process continued throughout 2022, as demonstrated by sustained participation of team members and the riparian subcommittee at meetings and events, as well as the newly formed Chloride Task Force.

### **Current CAM Projects**

- **Synoptic Sampling:**  
Synoptic sampling is a method of looking at different stream conditions such as nutrient concentrations, temperature, specific conductivity and pH at numerous locations along the stream during the same day. This method of sampling is different from previous monitoring efforts on Hinkson Creek that have either been in specific locations over a long time series (sensors deployed in the stream) or at specific locations during different times of the year (macroinvertebrate sampling by the Missouri Department of Natural Resources in the spring and fall at specific monitoring locations). The Hinkson Creek CAM partners funded a project with Dr. Alba Argerich and her students at the University of Missouri, School of Natural Resources for synoptic sampling in Hinkson Creek from 2020-2022. A full report on the results of the synoptic sampling is expected in 2023.
- **Comprehensive Chemical Sampling:**  
The Hinkson Creek CAM partners funded a project for the United States Geological Survey/ Columbia Environmental Research Center to collect water and sediment samples from Hinkson Creek and major tributaries in the spring and fall of 2022. The samples are being analyzed for the presence of various chemical compounds that may be contributing to the impairment of aquatic life communities in Hinkson Creek. Preliminary results of the analyses are expected in the spring of 2023.
- **Chloride Task Force:**  
A Chloride Task Force was created in 2022 to help direct the CAM process as to how to best address the impact of chloride from road salt on the streams. The team consists of experts from academia, local government, and private businesses to help shape an achievable and beneficial path into the future for best management practices for salt application. The initial meeting was held in August 2022. The task force plans to meet for eight monthly sessions. To ensure the success of the task force, the members established the following Mission Statement:

“The Chloride Task Force will be successful if the team develops an interdisciplinary understanding of the actions and motivations driving the use of chloride-based deicers in the watershed and the resulting impacts of chloride on water quality, infrastructure, ecosystem, and human safety. The goal of the Task Force is to supply a path forward to expand community members' understanding of chloride impacts, and Best Management Practices applicators can adopt.”

The CAM process for the Hinkson Total Maximum Daily Load (TMDL) adheres to all "Sunshine Law" regulations for notification of public meetings and has increased stormwater-related communication between the involved individuals and the organizations they represent. It addresses the Hinkson watershed, the largest watershed in the MS4 area, which is appropriate to this measure. It provides a

near monthly opportunity for the public and local policy makers to engage in stormwater issues within our MS4.

All reports presented to the CAM Stakeholders can be found at <http://www.helpthehinkson.org/CAMInformation.htm>.

Reports and data will be used by the MS4 partners to guide future decisions to reduce impairments in Hinkson Creek.

### **Our Columbia Waters Integrated Management Plan**

In 2019, the Missouri Department of Natural Resources acknowledged the City of Columbia's Wastewater and Stormwater Integrated Management Plan (IMP). The goal of the IMP is to develop adaptable and affordable long-term recommendations that meet Columbia's wastewater and stormwater management needs and address Clean Water Act obligations to protect and improve our community waterways. As the City begins implementing the IMP, public input and participation will be key as this is a community-driven process.

In 2022, the City completed the following MS4 Program Enhancement actions as identified in the IMP 5-year Action Plan.

- Published a stormwater article in the City Source newsletter in February 2022, May 2022, June 2022, and August 2022.
- Inspected 182,328 feet of existing sewer line for damage.
- Completed 28 illicit discharge investigations.
- Completed 281 outfall inspections.

### **Climate Action & Adaptation Plan (CAAP)**

On June 17, 2017, Columbia City council passed Resolution R-83-17A, reaffirming the commitment of the City of Columbia to take action to reduce climate pollution and authorized participation in the Global Covenant of Mayors for Climate & Energy. In February 2018, the Mayor appointed 15 community members to the Mayor's Task Force on Climate Action and Adaptation Planning. The Mayor's Task Force along with City staff was tasked with developing the goals and objectives to be included in the City's Climate Action & Adaptation Plan (CAAP). Two of the goals identified in the plan are to improve stormwater management and minimize risks to flood-prone areas, which both align with the goals of the permitted MS4. The CAAP was adopted by the City Council on June 17, 2019.

City Council received a report at their October 7, 2019 meeting for the planned strategic priority issues of the CAAP. At the same meeting, City Council approved the creation of a Climate & Environment Commission. The purpose of the Commission is to advise City staff on reporting to City Council the implementation activities of the CAAP, act as a primary liaison for outreach and awareness on the CAAP throughout the community, provide input on evaluating additional opportunities for mitigation and resilience actions in Columbia, and advise City Council on environmental issues, as directs. The commission is comprised of 15 members appointed by City Council.

The City of Columbia engages in multiple planning processes in the normal course of business. Concurrent to the Climate Action & Adaptation Plan process, community input was and will continue to be reviewed from the following efforts:

- City of Columbia Strategic Plan
- City of Columbia Vision Zero Plan
- Community Development Consolidated Plan
- Columbia Utilities Our Columbia Waters Integrated Management Plan
- Columbia Utilities Integrated Water Resources Plan
- Columbia Utilities Integrated Electric Resource and Master Plan
- CATSO Long Range Transportation Plan
- Columbia / Boone County Public Health & Human Services Community Health Improvement Plan

The Columbia City Council and Planning and Zoning Commission continued to meet at their regularly scheduled times. Meetings are open to the public and development and redevelopment plans are discussed.

The City continued to garner volunteer participation and involvement of diverse groups through programs like TreeKeepers, composting workshops, Household Hazardous Waste Program, Adopt-A-Spot, and a variety of formal and informal cleanup events. Citizens volunteered more than 8.75 hours as participants in the Adopt-A-Rain Garden Program to maintain the rain gardens in public rights of way and involve the community in stormwater retrofits to improve water quality. The City website has information about these volunteer opportunities which are available to all residents including those at MU and the County.

The City continued to utilize volunteers to organize and host a monthly stream clean up within the watersheds. This group of volunteers, previously known as the Columbia Crawdads, renamed to Litter Team, acts as volunteer educators and volunteered more than 237.8 hours in 2022.

The City continued to engage participation and public involvement by the following:

- Total trash pickup efforts totaled 9,026.4 hours from 3,428 individuals with 5,230 bags of litter collected.
- Regularly scheduled monthly stream cleanup activities.
- Maintain 2 active rain garden locations through an effort called the Adopt-A-Rain Garden Program. 7 people volunteered 8.75 hours of service picking up 14 bags of trash in this program.
- 145 people attended a compost class, and 45 compost bins were sold/given out/distributed collectively over 10 workshops.

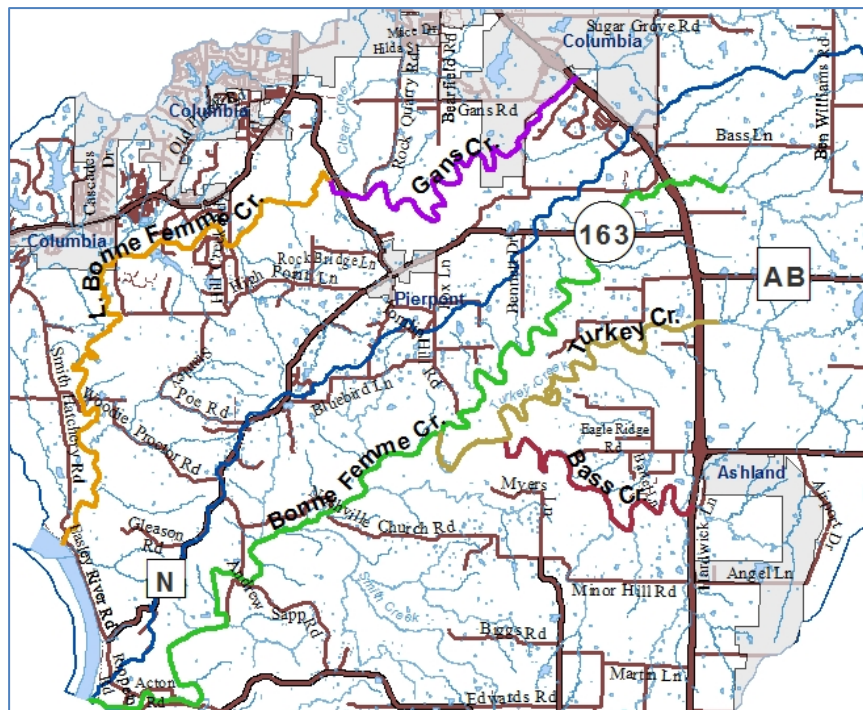
Boone County Planning and Zoning meetings continued to meet on the 3<sup>rd</sup> Thursday of the month. The P & Z Commission acts as an advisory commission to the County Commission on matters of land use. These meetings are open to the public.

### Greater Bonne Femme Watershed Project



The Bonne Femme Watershed Project is the revitalization and continuation of several projects from the past that sought to protect and conserve water quality in the Little Bonne Femme and Bonne Femme Watersheds (known together as the Greater Bonne Femme Watershed) in Boone County. The current project includes the development of a watershed-based plan (WBP) for the Greater Bonne Femme Watershed, as well as a stormwater best management practice (BMP) demonstration project (bioretention basins on E. Meyer Industrial Drive) and an outreach initiative to inform local stakeholders of the need for the current

planning and future implementation process. The WBP will consist of nine specific elements required by U.S. EPA; approval of the plan by EPA and the Missouri Department of Natural Resources will provide eligibility for future funding to address water quality concerns identified in the plan. The previous watershed project, which concluded in 2007, resulted in the Bonne Femme Watershed Plan. The plan may be viewed in its entirety on [www.cavewatershed.org](http://www.cavewatershed.org). The map below shows much of the watershed with roads marked for reference. The five streams highlighted with bright colors show reaches that are impaired because *E. coli* levels in the water, on average (calculated as a geomean during the recreational season which runs from April through October of each year), exceed the water quality standards set by USEPA and MDNR and codified in state law.



The blue line marks the division between the Bonne Femme and Little Bonne Femme watersheds. The impairment in the watershed is of concern as some of these stream reaches are also classified as outstanding state resource waters, known for clarity and quality of habitat for aquatic life.



Boone County stormwater staff continued to work with the Missouri Department of Natural Resources and project partners to develop a 9-element plan for recovery of stream water quality and protection of outstanding state resource waters in the Greater Bonne Femme Watershed. A final draft of the 9-element plan was submitted to MDNR and the Environmental Protection Agency in July 2022. Additional revisions are required before EPA will accept the plan, and a final approved version is expected in 2023.

Boone County also provided the following public involvement opportunities:

- 10 Storm drain marking events
- 3 Greater Bonne Femme Watershed bioretention basin volunteer workdays



MU's master planning process continued to be an open, transparent process allowing participation of the campus "public". Begun more than 30 years ago, MU's master planning effort addresses current and future needs while remaining mindful of MU's commitment to environmental stewardship. MU students also engaged in stormwater related activities in 2022 through groups such as:

- Greeks Go Green
- Journal of Environmental and Sustainability Law
- Missouri Chapter of the Fisheries and Aquatic Society
- Missouri Water Environment Association
- Mizzou Limnology Club
- Mizzou Tigers Stream Team
- Mizzou Water and Environmental Technologists
- Mizzou Student Group of US Green Building Council
- MU Agricultural Systems Management Club
- MU Agroforestry and Forestry Graduate Student Association
- MU Environmental Law Society
- MU Environmental Leadership Office
- MU Environmental Science Club
- MU Forestry Club
- MU Geology Club
- MU Geological Graduate Society
- MU Horticulture Club
- MU Student Chapter of the Soil and Water Conservation Society
- MU Sustainability Office
- Science, Health and Environmental Journalism at Mizzou
- Student Environmental Design Association
- Sustain Mizzou
- University of Missouri Agronomy Club



**Stormwater Coordination Committee Meetings**

Staff from the University of Missouri, City of Columbia, and Boone County met six times in 2022 to coordinate and work on stormwater activities. These included joint clean-up events, public service announcements, Hinkson Creek TMDL CAM, social media, volunteer activities and annual reporting to MDNR.

### MCM 3: Illicit Discharge Detection and Elimination (IDDE)

Illicit discharges enter the system through either direct or indirect entry. Direct entry is any connection into the stormwater system from another non-stormwater pipe, most commonly sanitary sewer pipe. These connections can be direct pipe connections or direct discharges into an open channel or stream. Indirect entry is any non-stormwater flow that enters the system through storm drain inlets or pipe joints. Examples of indirect entry include groundwater seepage, illegal dumping, spills (typically from vehicular accidents) and other outdoor washing and irrigation activities. A robust program to detect and address indirect wastewater connections is underway. The necessary legal measures are in place to prohibit and enforce illicit discharges. Addressing indirect wastewater connections and educating the public continue to be primary activities for this measure.

The co-permittees all maintain storm sewer maps, which are reviewed annually and updated as necessary. All maps are GIS-based. The City's map is available on the city's website at [www.como.gov/wp-content/uploads/2021/05/MS-4-Outfalls-flattened.pdf](http://www.como.gov/wp-content/uploads/2021/05/MS-4-Outfalls-flattened.pdf)

Boone County and the City of Columbia each have Illicit Discharge ordinances in place. The ordinances can be found on each entity's respective website. Ordinances are reviewed annually and updated as needed. The City and County's Illicit Discharge Detection and Elimination Ordinances, coupled with education and outreach efforts, have proven particularly successful in the reporting of illegal discharges or dumping into the storm drainage system. The City maintains a 24-hour response telephone number for illicit discharge reports and provides a telephone number on their storm drain labels. Boone County supports a web-based reporting system to log citizen complaints. IDDE reports are thoroughly investigated and resolved in accordance with the MS4 permit.

MU's Department of Environmental Health and Safety (EHS) creates policies, programs, and guidance to assist the campus in complying with regulations. A number of overlapping mechanisms effectively monitor and control discharges on the MU campus, including the Stormwater Management Plan, Stormwater Pollution Prevention Plans for land disturbance sites, the Spill Prevention Countermeasures and Control Plans, and stormwater discharge NPDES permits. Construction and demolition projects receive the daily oversight of a MU Construction Project Manager or Construction Engineer, in addition to receiving MU building permit inspections. MU Employees are provided training and have mechanisms to report discharges, including discharges to the stormwater system, to EHS. The awareness of the campus community has been heightened, as evidenced by feedback from the annual training and inspection activities throughout the year. MU's 24-hour emergency response process also includes reporting of illicit discharge events.

The co-permittees continued to identify high priority areas based on the following criteria: stormwater runoff that is creating a threat to the public; causing deterioration to infrastructure; infrastructure that has exceeded life expectancy or shows evidence of failure; or is the source of numerous complaints. Projects that address the above are all subjected to an economic analysis and appropriation availability.

The City performs frequent inspections to detect and address non-stormwater discharges in areas where reports have occurred historically, such as below the downtown area. As failures in the sanitary sewer system can ultimately infiltrate the storm sewer system, actively examining the sanitary system prevents

incidental non-stormwater discharges. The City sanitary system has been divided into multiple priority areas based on inflow and infiltration (I&I). Methods to evaluate integrity include smoke testing, building inspections, CCTV inspections and dye water testing. Removing stormwater from the sanitary sewer system prevents overflows which cause raw sewage to enter the waterways. In 2022, the City:

- Completed over 190,705 feet of CCTV inspection for new and existing sewer main.
- Completed over 46,200 feet of CCTV inspection for new and existing stormwater main.
- Replaced 1,454 feet of failing storm pipe and replaced or built 18 storm structures.

Through the City's Annual Sanitary Sewer Main and Manhole Rehabilitation projects, thousands of feet of sanitary sewer pipe have been lined, eliminating the potential for exfiltration of sewage. Additionally, hundreds of lateral connections have been repaired in lower lying areas, also reducing the potential for exfiltration of sewage to drainage pathways. In 2022, the City rehabilitated approximately:

- 69,600 linear feet of sewer line
- 284 sewer manholes

The sewer main throughout the City was rehabilitated due to both structural deficiencies and inflow and infiltration reduction.

The City completed construction of eight Private Common Collector Elimination projects in 2022:

- PCCE #8 Thilly Lathrop Westmount Phase 5
- PCCE #3 Stewart Ridge Medavista Phases 4A and 4B
- PCCE #18 Spring Valley Rd
- PCCE #21 Stanford Dr
- PCCE #16 Bingham Ridgeley Phases 3 and 5
- PCCE #25 Glenwood Dr

The goal of these projects is to install new public sanitary sewer mains to replace the existing private collection systems that are failing and are a potential source of exfiltration to local waterways.

Both the City Stormwater Utility and Community Development department receive citizen complaints via phone, email, and website for Stormwater discharge and construction discharge. Complaints are addressed in a timely manner. Storm Water Utility received 28 illicit discharge calls in 2022 and completed those illicit discharge investigations.

The City continues its grease trap inspection program to ensure restaurant grease traps are properly cleaned, maintained, and inspected on a regular basis. This activity will reduce the potential of sanitary sewer overflows (SSO) into streams and their tributaries. In 2022, 768 inspections were performed with two letters of warning or notices of violation issued and plans for 61 new grease traps were reviewed.

In 2019, the City hired an MS4 Technician to support the MS4 program with a focus on IDDE and to conduct stream walks and outfall inspections in all City streams within the next 5 years. This was an identified action in the Five-Year Action Plan of the Columbia Wastewater and Stormwater Integrated Management Plan (IMP). The MS4 Technician worked with other City Staff to develop an ArcGIS application to aid in the completion of dry weather inspections of outfalls. In 2022, the City revised its outfall map as part of the permit renewal process. Using the updated map, the City completed 281 outfall inspections in 2022.

The County's storm system consists mostly of open swales and as such, the traditional model of using a camera to inspect line integrity is not appropriate. Therefore, the County relies mainly on on-site visual inspection and citizen notification as mentioned in the previous section. The County did not inspect any MS4 outfalls in 2022.

Boone County maintains a Spill Prevention Control Countermeasure (SPCC) Plan for the Road & Bridge Facility. The plan is intended to minimize the potential for the facility to adversely impact its environment and for the facility to attain and maintain compliance with EPA standards for oil pollution prevention and response. The plan outlines the procedures, methods, and equipment used at the facility to comply with EPA oil spill prevention control and countermeasures standards and inspection, training, and record-keeping requirements.

The County utilizes a web-based public comment submission platform to report illicit discharges and other stormwater-related issues. The County monitors the submission platform daily and responds to all comments/concerns within 24-business hours. Depending on the location and nature of the concern, the County will either respond to the issue or coordinate the response effort with the relevant co-permittee or agency having jurisdiction. In 2022, one illicit discharge complaint was received. An investigation was conducted and resolved.

MU continues to review and update as needed a storm sewer map showing the entire MU MS4 system. MU Campus Facilities divided their sanitary sewer system into five zones, A-E. One of the five zones is inspected each year, completing an inspection of the entire system every five years. The inspection program includes camera verification and inspections for defects and infiltration. In 2022, Campus Facilities completed visual inspection of Rotation B.

MU continues to update its storm and sanitary sewer maps and continues to be available to investigate illicit discharge complaints 24/7. Both stormwater and non-stormwater discharges are readily recognized by the campus and local community due to a strong awareness program, as well as active monitoring by campus staff. Stormwater released from petroleum storage tank secondary containment is inspected prior to release in accordance with the Spill Prevention Control and Countermeasures Plan.

MU maintains Spill Prevention Control and Countermeasure (SPCC) plans for their facilities in the MS4 area for which a plan is required. The plans are intended to minimize the potential for the facility to adversely impact its environment and for the facility to attain and maintain compliance with EPA standards for oil pollution prevention and response. The plans outline the procedures, methods, and equipment used at the facility to comply with EPA oil spill prevention control and countermeasures standards and inspection, training, and record-keeping requirements.

MU has divided its sanitary sewer system into five zones, A-E. One Zone is inspected annually including camera verification and inspections for defects and infiltration. The process has been expanded to verify the connections of internal floor drains over a five-year period. In 2022, MU Campus Facilities completed visual inspection of Rotation A. Facility Operations had 676.2 hours of camera verification time involved with the Rotation B inspection. This included inspection of 3,360 feet of sanitary sewer pipe and 14,025 feet of storm drainpipe. Any debris in the system that was encountered was water-jetted to the nearest manhole and removed. A total of 57,860 feet of pipe (45,370 feet of sanitary pipe

and 12,490 feet of storm pipe) was jetted during this rotation. Following is a description of replacements, repairs, and assignments completed in 2022:

- A total of 140 feet of new storm pipe and 60 feet of sanitary pipe was added to the system due to repairs, upgrades, or new construction.

While the process is different among the co-permittees, new buildings are 100% inspected for illicit connections and there are building code requirements and on-site sewage treatment regulations (if applicable) in place for new construction. These mechanisms prevent creation of new illicit discharges and help bring existing discharge systems into compliance. Each new building, whether residential, office or commercial in Columbia or Boone County, is inspected by City, County or MU staff including a plumbing inspection prior to pouring of the lower level floor. This plumbing inspection occurs on each new building constructed in Columbia, as well as on any remodeling work. The County permitting process also includes verification of connection to an approved wastewater system with inspections by Resource Management staff or Boone County Regional Sewer District staff.

The co-permittees collaborated with the Mid-Missouri Solid Waste Management District to host a Boone County Recycling Collection event that was held on May 7, 2022 that collected tires and e-waste. This same collection event is scheduled tentatively for May 6, 2023.

## Ambient Water Quality Monitoring Opportunities

### Hinkson Creek USGS Stream Gauge

In 2020, the City worked in cooperation with the USGS Missouri Water Science Center to provide funding for the Hinkson Creek stream gauge located at South Providence Road in Columbia, Missouri. The stream gauge provides daily streamflow data that is available publicly on the USGS Water Resources website: [https://waterdata.usgs.gov/nwis/uv?site\\_no=06910230](https://waterdata.usgs.gov/nwis/uv?site_no=06910230)

### Missouri Department of Agriculture Countywide Chemical Sampling Project



The Missouri Department of Agriculture awarded funding to Boone County in partnership with the University of Missouri to evaluate concentration and risk of seventeen pesticides, herbicides, and related metabolites in streams throughout Boone County. Grab samples of stream water were collected from streams around Boone County in the fall of 2022 and will be collected again in spring 2023. Sample locations were chosen based on land use characteristics, stream order, accessibility, and other watershed characteristics. Water samples will be analyzed by the bioanalytical laboratory at the University of Missouri. Concentrations of pesticides, herbicides and related metabolites will be quantified by using a mass spectrometer – a device that can identify the presence and quantities of constituents using light frequencies after analytes are added to the stream water. Other water quality parameters will be analyzed including chloride, nitrogen and phosphorus, and signs

of urbanization and fertilizer use will also be assessed. Health risks of the detected compounds will be modeled.

A final report will be provided at the conclusion of the project at the end of June 2023. After analysis each sampling season, Boone County will post the sampling sites and data on an interactive map on the stormwater page of the Boone County website. The map is in the development phase. We hope to have it live on the Boone County Stormwater webpage in 2023.

### **Lakes of Missouri Volunteer Program (LMVP) Sampling**

Boone County continued to participate in the Lakes of Missouri Volunteer Program (LMVP). The LMVP started in 1992 as an effort to get citizens involved in the lake water quality monitoring. The goals of the LMVP are 1. Determine the current water quality based on productivity of Missouri's lakes, 2. Monitor for changes in water quality over time, and 3. Educate the public about the lake ecology and water quality issues. Staff at Boone County continued sampling at Tri City Lake and Lick Creek Lake this season. Staff collected six (6) samples between June and September. By participating in this effort, Boone County receives free sampling equipment and information on the status of the lakes in Boone County.

### **Boone County Stream Team**

The Boone County Stream Team hosted a water quality monitoring blitz at Rock Bridge Memorial State Park in the Spring of 2022. We were unable to conduct the fall monitoring blitz this year due to drought conditions and lack of stream flow. Continuing to collect the water quality data at these sites over time helps to inform our understanding of water quality changes in the Greater Bonne Femme Watershed. These semi-annual blitz events have provided an opportunity for field training for Missouri Stream Team water quality volunteers, and we are excited to see new Stream Teams formed by these volunteers.



## **MCM 4: Construction Site Stormwater Runoff Control**

The co-permittees believe that the chosen BMPs are appropriate and have furthered the goals of reducing the discharge of pollutants to the maximum extent practicable. Due to the ongoing growth in Columbia with vacant land and farms being converted into residential, office and commercial developments, the need for a program to control construction site stormwater runoff is essential. All co-permittees have programs that provide for a thorough plan review of all proposed land disturbance activities. All disturbed sites are inspected often, and progress continues to be made with the development community.

The result of growth policies implemented by Columbia and Boone County is that most of the urban development in the area occurs within the city limits of Columbia. Much of the development that occurs in the County is rural in nature. The BMPs identified are very appropriate and essential to protect downstream areas as development and construction continue to expand into the unincorporated areas of the County. Boone County Public Works has a Road Regulation Manual which requires all land disturbance related to road building to follow practices necessary to prevent erosion and sediment loss from leaving the site.

MU EHS works closely with Campus Facilities - Planning Design and Construction (CF-PDC) department, providing guidance on stormwater management to architects and engineers. Any specific requirements are included in the bid and contract documents. Waterways and stormwater inlets are aggressively protected from the release of sediment, debris, or petroleum products. During each construction project, the MU Project Manager and/or Construction Inspector inspects the site both weekly and after precipitation events to make sure stormwater controls are in place and working as designed. In addition, EHS and Campus Facilities conduct a comprehensive joint audit of all permitted construction sites once a year.

The co-permittees' land disturbance ordinances, design manuals and master plan have been very successful in controlling the generation of nonpoint source pollution from construction sites from improper handling and usage of nutrients and toxic substances as well as preventing the movement of toxic substances from construction sites.

The co-permittees require submittal of Stormwater Pollution Prevention Plans (SWPPPs)/soil erosion control plans for all construction projects. All SWPPPs/soil erosion control plans are reviewed for conformance with regulatory requirements and required design policies, practices, and procedures. This is an ongoing goal.

The co-permittees continue to administer a program to inspect construction sites and effectively implement required erosion control practices on a routine and post-rainfall basis. The co-permittees also continue to administer a program to enforce construction site Erosion and Sediment Control (ESC) measures on permitted construction projects to remain in compliance with regulatory requirements. These are ongoing requirements.

The City Community Development Department performs inspections of active private sites at least weekly, and notices of violation are issued as necessary. The Storm Water Utility responds to storm drainage complaints. Public improvement projects are inspected by their respective departments



regularly and weekly at a minimum. Commercial and development sites were inspected at least weekly or greater. A total of 29 1<sup>st</sup> Notice of Violation was issued, four 2<sup>nd</sup> Notice of Violation was issued, and three 3<sup>rd</sup> Notice of Violation was issued for 2022.

A link on the City's website provides citizens the opportunity to report a stormwater concern. Depending on the concern received, responses are provided from the City's Community Development Department, City Storm Water Utility or one of the other co-permittees, depending on the issue and appropriate jurisdiction.

All information regarding ordinances, regulations, enforcement, site plan review, inspection, policies, and procedures with regard to construction site runoff control for private development in the City can be found on the City's website. City regulations require soil erosion control plans for all land disturbance activities greater than an acre. City regulation requires erosion and sediment control for all disturbed sites, including those less than one acre. The Community Development Department tracks plan reviews and site inspections for private construction and development sites.

For City public improvement projects, there is a rigorous public involvement process. As part of the Citywide SWPPP, for larger improvement projects, an individual SWPPP is prepared and included in the construction documents for improvements that disturb more than an acre. All City improvement projects are inspected by City personnel. For maintenance and operations work, employees are being educated on proper erosion and sediment control to meet the City's general SWPPP permit.

Boone County continues to implement and enforce the Stormwater Ordinance. To ensure construction sites are managed properly within the County, the County implements plan review, permitting, inspection, and complaint response. Owners/Developers/Contractors follow general requirements laid out in Section 28.5 of the Boone County Zoning Regulations. Private entities are required to submit a Boone County Land Disturbance Permit, Stormwater Pollution Prevention Plan (SWPPP), erosion and sediment control plans, erosion and sediment control cost analysis for security deposit determination, and a Missouri Department of Natural Resources State Operating Permit for review and approval by County staff before construction may begin. Once the project is approved, a preconstruction meeting is held at the construction site with the owner, design professional, contractor, and site inspectors to discuss any special site features such as environmentally sensitive areas, steep slopes, stream buffer, etc., erosion and sediment control requirements, good housekeeping, and inspection procedures. The same guideline is followed for public land disturbance activities conducted by the County.

The County continues to work with its inspections staff to improve procedures for the pre-construction meetings and final inspections, as well as administer a program to inspect construction sites and effectively implement required erosion and sediment control practices on a routine and post-rainfall basis. Annual training for inspection staff on enforcement procedures and follow-up documentation is conducted. Additionally, the County will continue to administer a program to enforce construction site erosion and sediment control measures on permitted construction projects in compliance with regulatory requirements. Inspection staff performed 120 inspections in 2022. Four Notice of Violation letters were issued. All were resolved within their compliance timeline.

The County utilizes an electronic submission system for the public to submit concerns,



complaints, or comments on any construction projects. The electronic submission system is located on the County's stormwater webpage in the sidebar of the home page with a link to "*Report Storm Drainage Problems.*" The County reviews all environmental concerns, complaints, or comments received by the public within 24 business hours of receipt, and provides an investigative response to submission, if deemed necessary, within 48 hours of submission (72 hours if submission occurred over a weekend or holiday). The County supplies a follow up response to the submitter to let them know that the complaint/concern was received within 24 hours, and if requested, a follow up once the review/investigation has been completed. The public may also contact the Resource Management Department by phone to report a stormwater complaint/concern. If complaints are phoned in, all information is entered into the online reporting system by staff for tracking purposes.

At MU, all construction projects are designed and reviewed by the MU's CF-PDC department using the PDC "Sustainable Design Policy." This policy incorporates sustainability principles and concepts in the design of all facilities and infrastructure projects to the fullest extent possible, while being consistent with budget constraints, appropriate life cycle cost analysis, and customer priorities. The policy directs MU to meet or exceed MDNR best management practices for erosion and sedimentation control standards and implement innovative stormwater management. The Consultant Procedures and Design Guidelines is available on the University of Missouri Facility Planning and Development Website and contains a collection of information that is updated quarterly as necessary.

In addition to prescribed weekly/post-rain event inspections, internal audits were conducted by MU EHS environmental compliance staff and the campus construction inspector. It was determined that the requirements of the land disturbance permit were successfully implemented and the sites well-managed. Trained and experienced personnel manage the documentation, conduct weekly inspections, and implement the conditions of the permit in the field. There is excellent coordination between the personnel of Planning, Design & Construction, Landscape Services and EHS. BMPs were found to meet the objective of protecting water quality to the maximum extent practicable. These results demonstrate a solid commitment to erosion control, good cooperation, and expedient corrective action for deficiencies.

MU delegates authority to Environmental Health and Safety to implement compliance with the requirements of MCM4. This delegation of authority is found in Section 7:001 (Delegation of Responsibility) of the University of Missouri Business Policy and Procedures manual. This policy was last updated on 12/20/2021.

## MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

The co-permittees believe that the chosen BMPs are appropriate and have furthered the goals of reducing the discharge of pollutants to the maximum extent practicable. Each of the co-permittees has very different issues to address. The City is largely developed, but significant residential and commercial development is occurring on the fringes. The County is largely undeveloped, but there are widely scattered pockets of residential development. MU is largely developed. While there is occasionally new construction on previously undeveloped property, redevelopment or reconstruction of existing historical buildings is more common.

The co-permittees continue to maintain ordinances and other applicable controls to address stormwater runoff from new development and redevelopment areas. These mechanisms are reviewed regularly for effectiveness and updated as necessary.

The Boone County and the City of Columbia continue to implement stream buffer ordinances to protect sensitive waterways from stormwater runoff. The ongoing goal of implementation is being met.

The co-permittees continue to identify structural and non-structural strategies to improve the quality of stormwater runoff from new development and redevelopment. This is an ongoing process for all permittees.

The City of Columbia Stormwater Management and Water Quality Manual that was adopted in March 2007 provides sufficient flexibility to allow stormwater management plans to be tailored to specific conditions in various Columbia watersheds for both development and redevelopment projects. The manual will continue to be reviewed and updated as necessary. The City's Community Development Department enforces the City's Stream Buffer Ordinance and stormwater quality management for new developments. The Community Development Department also has covenants and maintenance agreements for post-construction BMPs recorded. The City's Stormwater Utility receives and tracks annual inspection information for the post-construction BMPs. In 2022, 35 newly installed privately owned post construction stormwater BMPs were installed through permits with BSD.

The City continues to update mapping of all public and private BMPs in a GIS database. City continues to develop an operation and maintenance schedule for City owned BMPs and partner with volunteers to leverage more education opportunities. A GIS based map and notification process to track public and private BMP inspections continues to be refined to ensure long-term operation and maintenance of BMP's.

In 2019, the City's MS4 Technician worked with internal staff to develop an ArcGIS application to aid in the submission and tracking of private BMPs annual inspections electronically. Historically, all inspections were handled using PDF forms. The goal of the project was to develop a system for accepting BMP inspections online and increase staff efficiency on inspections of City-owned BMPs. The application was beta tested by internal staff responsible for the inspection and maintenance of City owned BMPs in 2019, 2020, and 2021. The City implemented use of the application for the private BMPs in 2022. Positive feedback was obtained by users regarding usability and a couple changes will be made before the 2023 inspection window.

In 2022, the City continued its efforts to establish native plant prairie areas in City rights of way and undeveloped City property including areas owned by the Sewer Utility, Parks and Recreation, and Public Works.

The County's Stormwater Ordinance has provisions in place to protect environmentally sensitive areas, minimize the creation of stormwater pollution, utilize best management practices that effectively remove stormwater pollution, and attempt to maintain pre-development runoff conditions. The ordinance requires a Stormwater Maintenance Agreement (and stormwater easement for off-site facilities) be recorded with all projects requiring a Stormwater Management Plan. The maintenance agreement describes the property owner's maintenance and inspection procedures for all permanent stormwater BMPs and follows the project in perpetuity. Boone County Stormwater Maintenance Agreements are recorded with the Boone County Recorder of Deeds. Owner/operators are required to conduct yearly self-inspections and file their report with Boone County Resource Management. The maintenance agreement also grants the County permission to inspect the BMPs, and to repair BMPs at the owner's expense, should the owner fail to maintain the BMP. These stormwater easements and maintenance agreements are required to be in place prior to the recording of the final plat. These regulations are reviewed every two years for effectiveness.

The County tracks all installed public and private stormwater quality BMPs for new and redevelopment projects since the stormwater ordinance went into effect in 2010 in a GIS database. Data tracked for each BMP includes runoff reduction volume, contributing drainage area and contributing impervious area. Privately owned BMPs are required self-inspect annually. The inspection report and photographs are to be submitted to the County by June 1 each year. Private owners shall retain these records for at least five (5) years. Any maintenance items are typically prompted by these annual inspections and must be addressed within thirty (30) days or other time frame mutually agreed to between the Director of Resource Management and the responsible party. In 2022, 15 privately owned post-construction BMPs were installed through permits issued by Resource Management. Eleven required maintenance.

County-owned BMPs are inspected annually by staff and maintenance is performed as necessary.

Boone County's stream buffer regulations provide requirements for developing near streams to protect sensitive waterways from stormwater runoff. These regulations are reviewed every two years for effectiveness.

The County's stormwater design manual continues to address post-construction stormwater runoff and water quality management procedures. Structural and non-structural strategies are continually identified to improve the quality of stormwater runoff from new development and redevelopment. The stormwater design manual is reviewed every two years for effectiveness.

MU continues to establish and maintain an inventory of all permanent structural and non-structural BMPs for post-construction stormwater management. This includes an inspection schedule for all post-construction BMPs as identified in the BMP inventory.

MU maintains a Campus Master Plan, which includes a Stormwater Master Plan, which guides development on campus. EHS actively participates in the design process, providing recommendations on

post-construction stormwater management to architects and engineers. The post-construction stormwater management design usually relies upon a combination of structural and non-structural BMPs appropriate to the MU community.

MU's Sustainability Policy dictates that master planning principles be established for development phasing, campus densities, land use, and conservation patterns that will provide a rigorous framework for determining where, when, and how to locate new facilities. The preservation of green and open spaces is a high priority achieved using BMPs.

For this reporting period, the co-permittees implemented/conducted the following:

MU's stormwater guidelines and Stormwater Master Plan were completed in late 2012 and were presented publicly in 2013. The stormwater guidelines and Master Plan are updated regularly and are available for viewing on the MU website.

BMPs that were added to the MU campus and properties recently include: 1) a new stormwater detention facility at the UM Library depository building; 2) a stormwater volume storage area at the new Next Gen Precision Health Building which prevents additional runoff but also reduces the predevelopment (pre-Next Gen) runoff; and 3) a system to capture stormwater from pavement runoff and diverts it into planting beds for use as irrigation at the reconstructed School of Nursing building.

As part of the University of Missouri's officially adopted Sustainability Policy Statement (<https://sustainability.missouri.edu/about/mu-sustainability-policy>), the campus observes sustainable best practices in campus construction and procurement. The University of Missouri pursues a LEED certified-level for New Construction and Major Renovations (LEED-NC) on projects that are eligible for this version of certification. For those projects that are ineligible for certification under LEED-NC, the University of Missouri's Sustainable Design Guidelines (SDG) are applied. Based on LEED-NC, the MU SDG sets goals for design and construction, providing a consistent approach to developing sustainable buildings on campus.

The University of Missouri (MU) pursues LEED certification on all new construction or major renovation eligible projects by incorporating sustainable building practices into the projects. MU currently has fourteen (14) LEED Certified-level or greater projects: The Missouri Orthopedic Institute, MU Hospital Patient Care Tower (including green roof areas and pervious pavement), Animal Resource Center (including bioretention and stormwater research), Woman's and Children's Hospital South Pavilion renovation, Gwynn Hall renovation, Swallow Hall renovation, Gateway Hall residential housing (including green roof areas and bioretention), Johnston and Wolpers Hall residential housing renovation, Mizzou Softball Stadium, Patient-Centered Care Learning Center (including stormwater detention), Stewart Hall Renovation (including bioretention), and the Bluford & Brooks Residence Halls (including pervious pavement and green-roof-ready area). Of these, five (5) buildings across MU's campus have received a LEED Platinum rating from the US Green Building Council (USGBC) (Johnston Hall, Wolpers Hall, Bluford Hall, Brooks Hall, and the Patient-Centered Care Learning Center); six buildings have received a gold LEED rating (Patient Care Tower, Gwynn Hall, Swallow Hall, Gateway Hall, Mizzou Softball Stadium, and Stewart Hall); and one has received a silver LEED rating (Women's and Children's Hospital). For projects that do not meet the project size and scope requirements for LEED, the University uses a custom set of sustainability guidelines developed specifically for the MU campus.

Monitoring is not required under this MCM. Instead, the co-permittees must assume the strategies in the International BMP Database have already been vetted for effectiveness.

## MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations

The co-permittees believe that the chosen BMPs are appropriate and have furthered the goals of reducing the discharge of pollutants to the maximum extent practicable. The three co-permittees have developed their pollution prevention/good housekeeping control measures after a thorough review of all their operations which are affected by stormwater run-off or which affect stormwater runoff. The City and County interviewed operational personnel in all divisions and departments of each entity to tailor the program for each unique entity. MU tapped into their existing hazardous materials program which contains comprehensive data on the types of materials being used on campus as well as the persons using them.

The City's municipal operations, including Public Works, Utilities, and Parks and Recreation are very broad in scope and nature. These operations are carried out in a professional manner and operations staff training has always included elements of pollution prevention pertinent to each department, such as the proper disposal of transformer oil in the electric department. This good housekeeping training BMP augments the existing professionalism, broadens it, and brings focus to preventing stormwater pollution in particular. Therefore, this BMP is effective. In addition to the good housekeeping training, stormwater staff attends the Risk Management Safety Audits of City-owned facilities to detect and correct any potential sources of stormwater pollution.

The County conducts street sweeping after "chip seal" operations to remove loose gravel and oil.

Boone County collects and recycles used oil from vehicle maintenance at the Road and Bridge Storage Shed located at 5551 South Tom Bass Road. The County provides a covered storage area and secondary containment for used oil drums. The facility burns used oil in the heating furnace for the shop. During the warm season, oil drums may be picked up and recycled off premises. Used oil and antifreeze collection and recycling procedures are included in the training programs.

As a regulated Large Quantity Generator, MU must follow strict guidelines regarding management of unwanted chemicals, including used oil from all University operations. MU faculty, staff, and students were provided the means to properly dispose of hazardous materials during calendar year 2022. 118,270 pounds of hazardous materials were collected during 2022.

The co-permittees continue to schedule and conduct pollution prevention training for municipal staff. Education includes steps that can be taken to prevent or reduce pollutant runoff from municipal operations. This is an ongoing program for all permittees.

The co-permittees collaborated with the Mid-Missouri Solid Waste Management District to host a Boone County Recycling Collection event that was held on May 7, 2022 that collected tires and e-waste. This same collection event is scheduled tentatively for May 6, 2023.

The City continued to sponsor Household Hazardous Waste Collections on the first and third Saturday of April through November at their 1313 Lakeview Ave facility. The total collections properly disposed of:

- 4,138 gallons of oil
- 4,940 gallons of paint were diverted

- 66.58 tons of household hazardous waste collected and diverted from landfill
- 802 gallons of antifreeze
- 478 lead acid batteries
- 575 gallons of oil/antifreeze mix
- 788 gallons of gasoline
- 640 volunteer hours (15 collection events held)
- There were 4,061 cars serviced in total

Note that one collection event in June was cancelled due to the Juneteenth holiday.

The Boone County Sheriff's Office, in partnership with the Ashland, Columbia, Centralia, Hallsville, University of Missouri, and Veteran's Administration Police Departments, conducted Prescription Drug Take Back events at multiple locations in April and October 2022. These events coincided with the National Drug Take Back events sponsored by the Drug Enforcement Agency. 940 pounds of prescription drugs were collected from Boone County residents.

All have developed an operation and maintenance program with the ultimate goal of preventing pollutant runoff from municipal operations to the maximum extent practicable.

City BMPs include street sweeping programs and training for employees. It is recognized that training is essential for City workers and ongoing discussions of stormwater issues take place in employee safety meetings. New employee training for every City employee includes stormwater and good housekeeping training. The City has included pollution prevention education into the employee handbook. Stormwater Utility Educator trains personnel in each City Department about pollution prevention and good housekeeping.

- The City's street sweeping program continues to be an aggressive and effective BMP which picks up many pollutants, including soluble pollutants, before they are mobilized by stormwater. It would be difficult or impossible to remove from runoff with other structural BMPs.
- There are 1,077.55 striped lane miles of 12' or wider streets owned and maintained by the City.
- The Central Business District is swept every 8 weeks; Saturday and Sunday when MU has home football games.
- All other streets are swept every four months on a routine schedule.
- Streets are also swept as soon as practicable after snow events.
- Public Works continues to refine its street maintenance operations to minimize loose gravel.
- The street sweeping team (including 4 sweepers) averaged 23.9 miles per day on 289 unique days, with a total of 6,911.8 miles swept in 2022.
- Stormwater Utility staff attend safety audits of City-owned facilities to identify any deficiencies related to good housekeeping and stormwater management on site.

The City would like to highlight the training conducted during the reporting period:

- The City continued its employee stormwater training which requires all employees attend on a bi-yearly (two-year rotation) basis. This year employee training was administered virtually through various YouTube videos made available to all staff. An all-employee email was distributed that contained links to the online training videos as well as good housekeeping tips that could be reviewed at staff meetings.

- City staff attended the numerous webinars and virtual trainings on stormwater topics. These topics included water quality BMP's, flood mitigation solutions, stormwater purification, pre-sto geosystems, efficient design solutions for storm sewer systems, etc.

Boone County Road and Bridge maintenance/material storage facility and operations is reviewed for compliance annually. The operation activities and procedures are reviewed annually, and training is provided to staff concerning hazardous materials handling, pesticide handling and spill response. This training is also applied to operations & maintenance of other facilities, infrastructure, etc. for which the County is responsible. Additionally, Boone County follows procedures listed in their Spill Prevention Control and Countermeasures (SPCC) plans for their South Facility and Hallsville Facility. Boone County also requires all new municipal development disturbing one acre or more, or redevelopment creating 3,000 square feet or more of impervious surface to provide water quality treatment BMPs.

Boone County would like to highlight the training conducted and received during this last calendar year:

- **MDC Stream Workshop:** The Stormwater Educator attended this three-day workshop hosted by the Missouri Department of Conservation, learning how to understand and manage instream and riparian habitats in Missouri.
- **Certified Interpretive Guide (NAI):** The Stormwater Educator received her certification as an interpretive guide. The Interpretive Guide program combines both the theoretical foundations of the profession with practical skills in delivering quality interpretive programming to visitors.
- **Continuous Living Cover for Water Quality Workshop:** This workshop included presentations covering riparian and upland buffers, cover crops, and other perennial agroforestry plantings and benefits to ecological and economic outcomes.
- **REGFORM Conference:** Stormwater staff attended Missouri REGFORM to learn about stormwater rulings and other stormwater-related topics.
- **US EPA Watershed Academy Webcast:** The Stormwater Educator attended the webcast, which focused on addressing and managing plastic pollution.
- **Departmental Stormwater Fact Sheet:** Facilities and Road & Bridge staff received a factsheet about proper stormwater practices and how they can have a positive impact on waterways.
- **Building Inspector and County Planner Training:** Staff received training on how to conduct land disturbance inspections and County sinkhole regulations.
- **Climate Intersections Conference:** The Urban Hydrologist attended a weeklong conference in Duluth, MN to learn how water professionals can work with local communities effectively to foster resilience and equity in a changing climate.
- **River Soundings Workshop:** Stormwater staff attended this workshop in St. Charles, MO, which included panel discussions on issues related to big rivers and the Missouri River in particular.
- **MWEA Fall Conference:** The Urban Hydrologist attended this one-day conference covering wastewater and stormwater issues.
- **Certified Professional in Stormwater Management:** The Stormwater Coordinator completed the CPMSM course and test in late 2021 and received her certification in 2022. this certification is intended for staff with experience in and responsibilities for coordination of National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) stormwater quality programs.
- **Webinars:** Staff attended approximately 35 webinars.



MU's non-structural BMPs, which center around training for employees, have been selected for fleet, chemical and waste facilities with a focus on hazardous chemicals, petroleum products, pesticides and infectious materials. Other non-structural BMPs address maintenance activities at the MU golf course, various landscape issues, and litter control.

MU's Department of Environmental Health and Safety is charged with environmental compliance and response to spills. EHS maintains trained personnel (currently six HAZWOPER trained personnel) and adequate supplies to respond to incidents. EHS coordinates remediation activities as appropriate.

MU has also chosen to highlight training during the reporting period:

- Spill, Prevention, Control and Countermeasures (SPCC) (EHS600): The SPCC Coordinator and all MU Campus oil-handling personnel are trained annually in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules and regulations; general facility operations; and the contents of the SPCC Plan. Used oil collection and recycling procedures are included in the training program. A total of 139 Individuals from numerous departments on and off campus within the MS4 permit area received SPCC training in 2022.
- Laboratory Hazards (EHS301): 1,083 individuals received this training in 2022.
- Working Safely (EHS302): 1,047 individuals received this training in 2022.
- Laboratory Safety (EHS303): 1,021 individuals received this training in 2022.
- Hazard Communication (EHS304): 1,010 individuals received this training in 2022.
- MU Specific Chemical Safety Training (EHS305): 50 individuals received this training in 2022.
- Two MU EHS staff members attended the annual REGFORM Missouri Water Seminar in 2022.

Used oil and antifreeze collection and recycling procedures are included in each of the co-permittees training programs.

The co-permittees collaborated with the Mid-Missouri Solid Waste Management District to host a Boone County Recycling Collection event that was held on May 7, 2022 that collected tires and e-waste. This same collection event is scheduled tentatively for May 6, 2023.

The co-permittees maintain the following Missouri State Operating Permits to reduce and/or eliminate pollutants from areas that the permittees operate:

City of Columbia:

General Operating Permit #MOR100032 – Land Disturbance Permit  
Missouri State Operating Permit #MOR80F011 – Columbia Regional Airport  
Missouri State Operating Permit #MO0112640 – Columbia Landfill and Yard Waste Compost  
Missouri State Operating Permit #MO0004979 – Columbia Municipal Power Plant  
Missouri State Operating Permit #MO0092924 – Columbia Regional Airport WWTF  
Missouri State Operating Permit #MO0097837 – Columbia WWTP  
Missouri State Operating Permit #MO0136034 – Columbia Water Treatment Plant

Boone County:

General Operating Permit #MOR100049 – Land Disturbance Permit  
General Operating Permit #MOG750030 – No Discharge

MU:

General Operating Permit #MOR100039 - Land Disturbance Permit

General Operating Permit #MOG823021 – No Discharge

General Permit #MO-G350238 - Discharge Permit

**2. *BMPs implemented by government entity***

No BMPs or MCMs were implemented by governmental entities other than those who are a party to this MS4 permit during the reporting period.

**3. *Proposed changes to the program area and documented SWMP (MCM 2)***

The co-permittees updated the July 2020 SWMP to reflect the requirements of their current Missouri State Operating Permit No. MO-0136557. The SWMP was approved by the Department of Natural Resources' Municipal Separate Storm Sewer System (MS4) Program on April 8, 2022, and will be reviewed again in 2025, in preparation for the upcoming permit renewal, and as needed.

**4. *Effective BMPs evaluated during the reporting period***

See Part D Iterative Process Evaluation in the attached table.

**5. *Water samples collected and analyzed during the covered reporting period by the permitted MS4 or on behalf of the permitted MS4***

No water samples were collected by, or on behalf of, the permitted MS4 during this reporting period.

Stormwater Management Plan

MCM 1: Public Education and Outreach									
Permit Section	Permit Requirement	BMP Number	BMP Description	BMP Purpose	Goal/Expected Result of BMP	Responsible Permittee	Measurable Goals & Milestones by Permit Year	Part D Iterative Process Evaluation	
							Permit Year 2 2022	BMP Evaluation	Effective BMP Criteria
1.A.i	Identify target audiences.	1	Identify target audiences and/or pollutants or sources of pollution the program is designed to address.	Create and maintain a public that is conscientious of the impacts that their behaviors have on local watersheds in order to reduce pollution from residential and commercial/industrial activities.	Provide permittees with list of target audiences and potential sources of pollution for use in facilitating educational opportunities.	All	None	Are the target audience lists being kept up-to-date, and audiences educated on the identified pollutant?	The lists are up-to-date. Consistent ongoing identification of these target audiences / potential sources of pollutants continues.
		2	Maintain a list of all K-12 public and private schools.	Create and maintain a public that is conscientious of the impacts that their behaviors have on local watersheds in order to reduce pollution and become stewards of their natural resources.	Maintain a list of schools and contacts for grade-school educational opportunities.	City, County	Review and update school list and contact information	Is the school contact list up-to-date?	This list is up-to-date. Consistent ongoing identification of this target audience continues.
1.A.ii	Distribute appropriate educational materials and/or media to the target audience(s) using methods and procedures determined by the MS4 Operators.	3	Maintain an education and outreach program to educate strategically targeted audiences about annually selected topics that are pertinent and timely to local water quality issues.	Provide nonpoint source pollution and water quality awareness in the community.	Hold outreach opportunities to increase awareness and promote positive behavior changes in the MS4 communities.	All	Compile a list of all education and outreach programs conducted throughout the year.	Did the permittees provide education and outreach programs and compile a list of those activities?	Numerous stormwater education and outreach activities were provided in 2022. A list was compiled for each program including the number of attendees at each.
		4	Develop and distribute stormwater education and outreach materials. (These may include: brochures, newsletters, fact sheets, door hangers, press releases, signage, PSAs)	Increase awareness and positive behavior changes in the MS4 communities by developing and distributing stormwater education and outreach materials.	Provide non-point source pollution and water quality awareness in the MS4 communities.	City	Educate at least 20 people through conversation, educational materials, and a survey at a minimum of two events.	Were two events held and at least 20 people educated each year?	Visited three local schools, where 120 students were educated about stormwater issues.
							Publish one stormwater-related article in the City Source newsletter annually.	Was a stormwater-related article published in the City Source newsletter?	Four stormwater-related articles were published in the City Source Newsletter in 2022.
						County	Various stormwater and stream buffer brochures are updated and furnished quarterly at the Boone County Resource Management office, and annually at Boone County Road and Bridge and Rock Bridge Memorial State Park.	Were brochures furnished yearly quarterly at the Resource Management office? Were brochures furnished annually to Road and Bridge and Rock Bridge Memorial State Park?	Brochures were refilled quarterly at the Resource Management Office and information about road salt was made available during the winter. Brochures were refilled annually at the Road and Bridge and Rock Bridge Memorial State Park offices. Storm drain brochures and storm drain coasters were distributed to 5 restaurants
		MU	Develops and updates educational materials as necessary.	Were materials developed and updated as necessary?	Curriculum materials for the fifty courses in disciplines that deal with issues of water quality were updated as necessary (see BMP 5)				
		5	Conduct education and outreach activities.	Increase awareness and positive behavior changes in the MS4 communities by holding a stormwater education event in at a minimum of two classrooms each year.	Provide non-point source pollution and water quality awareness in the MS4 communities by holding a stormwater education event in at a minimum of two classrooms each year.	City, County	Educate at least 20 people through conversation, educational materials, and a survey at a minimum of ten events.	Were ten events held and at least 20 people educated each year?	The City held 10 stormwater education events, resulting in approximately 250 interactions with the community. The County held 19 stormwater education events, resulting in approximately 2,017 interactions with the community.
						County	Provide stormwater education to a minimum of two K-12 classrooms	At which schools were the presentations held? Is there an increasing number of students being educated each year?	Centralia Intermediate and Middle Schools, Southern Boone Primary School, Cedar Ridge, Shepard Blvd, Benton, Atlier, Grant, Beulah Ralph, Two Mile Prairie Elementary Schools, and Rock Bridge High School.
						Host a minimum of two Lunch & Learn training sessions	Were a minimum of two Lunch and Learns held each year? Were questions and comments addressed?	Two lunch and learns were held in 2022. During these trainings, time for questions, comments, and follow-up information was provided.	
			Increase awareness and positive behavior changes in the student community by conducting college-level courses on stormwater/water quality issues.	Conduct courses dealing with stormwater/water quality issues.	MU	Conduct a minimum of 5 courses that educate students on stormwater issues and/or water quality.	Were 5 courses conducted to educate students on stormwater/water quality issues?	The University of Missouri conducts courses as part of its curriculum in a number of disciplines that deal with issues of water quality and/or environmental management practices. A total of 50 courses were available for the winter and fall semester of 2022. Each course instructs between 5 and 300 students.	
6	Maintain Hinkson Creek Physical Habitat GIS Data Viewer			Increase awareness of the Hinkson Creek Watershed.	County	Maintain GIS viewer; Review and update as needed	Was the GIS viewer maintained and available to the public?	The GIS viewer is up-to-date and available for viewing at <a href="http://www.helpthehinkson.com">www.helpthehinkson.com</a> . The GIS viewer had 5 visitors in 2022	
7	Maintain and review dedicated stormwater resource websites and social media platforms.			Educate the community about the impacts of stormwater runoff, permit and inspection, requirements, and general watershed information.	All	Maintain and review stormwater resource websites and social media platforms.	Are all websites and social media platforms being maintained?	All websites and social media platforms are maintained. A list of websites and platforms can be found in Part C's narrative.	

1.A.iii	Create opportunities for residents to participate in the implementation of stormwater controls.	8	Provide the public with proper, publicly announced disposal opportunities for household hazardous waste to minimize the presence of these chemicals in local waterways.	Prevent disposal of hazardous waste in local waterways and increase awareness and promote positive behavior changes	Provide safe disposal of hazardous waste materials by holding HHW events.	All	Hold co-permittee coordinated Household Hazardous Waste collection event.	Was the annual event held? How much waste was collected?	The Annual Household Hazardous Waste collection event was held May 7, 2022. 27.8 tons of e-waste and 19.1 tons of tires were collected.
						City	Continue twice a month City of Columbia Household Hazardous Waste Collection Program April - November	Were twice a month HHW collections held? How much waste was collected?	HHW collections were held twice a month from April through November. Over the 15 collection events, approximately 173.5 tons were collected, with 66.5 tons diverted from the landfill.
						County	Annual prescription drug take-back event hosted by Boone County Sheriff's Office	Was the annual prescription drug take-back event held? How much waste was collected?	Two prescription drug take-back events were held. 940 lbs. of no longer needed/ wanted medication was collected.
						MU	Provide MU faculty, staff, and students with the means to properly dispose of hazardous materials	Did MU provide faculty, staff, and students with the means to properly dispose of hazardous materials? How much waste was collected?	MU faculty, staff and students were provided the means to properly dispose of hazardous materials during calendar year 2022. 118,270 pounds of hazardous materials were collected during 2022.
		Maintain the MU EHS website, which provides information on proper handling and disposal methods for hazardous materials	Was the website maintained and information up to date?	The MU EHS website was maintained and the information was up to date during calendar year 2022.					
		9	Continue to implement and maintain public involvement/participation activities to engage citizens and continue to form partnerships that reach a diverse audience.	Engage citizens and form partnerships to reach a diverse audience.	Raise awareness and positive behavior changes by continuing to implement and maintain public involvement/participation activities.	All	Track number of volunteers/ volunteer organizations for public involvement/ participation activities	What activities and how many volunteers participated?	City: In 2022, there were 3,428 volunteers that provided 9,026 hours of service. These volunteers picked up 5,230 bags of trash. County: In 2022, there were 64 volunteers, 1-Wild Haven day at the stream, 1-Rock Bridge Memorial State Park Water Quality Monitoring Events 3-Biorentention workdays MU participation numbers are imbedded with City and County numbers.
							Advertise the Storm Drain Marking Program twice a year. Track the number of storm drains marked.	Were storm drains marked? How many?	City: Staff installed approximately 75 markers at various locations throughout Columbia. County: Ten storm drain markers were distributed in 2022. At MU, approximately 100 storm drain markers were installed at various locations on MU property in 2022.
							City/County	Perform maintenance on damaged or missing signs.	Were signs installed? How many?
	County						Host a stream monitoring blitz.	Was each year's Measurable Goal met?	The spring stream monitoring blitz was held at Rock Bridge Memorial State Park. The fall blitz was cancelled due to drought conditions.
						Promote the Adopt-A-Road Program.	Was the program promoted? How many road segments were adopted?	25 roads were adopted in 2022.	
	MU					Promote clean-up opportunities for student groups and organizations.	Were clean-up opportunities promoted? How many student groups or organizations participated?	Clean-up opportunities were promoted. Several student groups and organizations participated in clean-up events.	

MCM 2: Public Involvement and Participation									
Permit Section	Permit Requirement	BMP Number	BMP Description	BMP Purpose	Goal/Expected Result of BMP	Responsible Permittee	Measurable Goals & Milestones by Permit Year	Part D Iterative Process Evaluation	
							Permit Year 2 2022	BMP Evaluation	Effective BMP Criteria
2.A	Develop and implement a comprehensive public participation program that provides opportunities for public participation in the development, implementation and review of the permittee's Stormwater Management Program.	1	Develop and implement a comprehensive public participation program that provides opportunities for public participation in the development, implementation, and review of the Stormwater Management Program.	Provide opportunities for public input concerning the Stormwater Management Program and the stormwater management plan.	Provide participation opportunities to interested citizens.	All	Hold public meetings to receive input on the proposed SWMP.	Was a public meeting held? Did the MS4 Operators receive public comments?	The Columbia City Council held public hearing on March 7, 2022 to allow for public comment. Two council members had questions and comments, which were addressed at the meeting. Public comment was available, but no one from the public made comments.  Boone County Commission approved the proposed SWMP on March 24, 2022. No public comments were received at that time.  MU approved the proposed SWMP on March 24, 2022. No public comments were received.
							Provide opportunities for CAM committees to meet and support the CAM process for Hinkson Creek Watershed.	Are regular CAM Stakeholder, Action, and Science Team meetings held? Are proposals for action items being implemented?	In 2022, the CAM Stakeholders met 4 times; Action Team met 11 times; Science Team met 9 times; Riparian Subcommittee met 7 times; Chloride Task Force met 4 times. Proposals are being implemented.
							Hold SCC meetings to discuss progress of the stormwater management program.	Did the SCC meet each year? How many times?	The SCC met six times in 2022.
2.A	Develop and implement a comprehensive public participation program that provides opportunities for public participation in the development, implementation and review of the permittee's Stormwater Management Program.	1	Develop and implement a comprehensive public participation program that provides opportunities for public participation in the development, implementation, and review of the Stormwater Management Program.	Provide opportunities for public input concerning the Stormwater Management Program and the stormwater management plan.	Provide participation opportunities to interested citizens.	City	Provide opportunities for the City of Columbia CAAP Climate & Environment Commission to meet.	Has the City made progress towards the CAAP stormwater goals? If so, how?	The City has made progress towards the CAAP goals. A preliminary Erosion and Sediment Control has been developed. The Hinkson Stream Bank Stabilization project has been completed in conjunction with the CAM committee. The City has evaluated all CMP pipes 36" and larger under arterial and collector-classified roadways. The City has received ARPA funding of \$796,446.25 to line 20 CMP pipes under arterial and collector-classified roadways.
							Provide opportunities for public input and participation during the implementation phase of the IMP.	Has the City made progress towards the IMP stormwater goals? If so, how?	Progress towards CAAP goals includes obtaining ARPA funding of \$2,219,928.20 for the Calvert Drive detention basin project within the Hinkson watershed. This project will help reduce flooding in the associated area. ARPA funding for the Nebraska Ave box culvert replacement project was also obtained for \$619,660.60. The Quail Drive, Bray Avenue, and Hickman, 6th & 7th projects also helped improve stormwater management. All of these project are fulfilling the goals set out specifically in the Natural Resources section of the CAAP.
2.B	Follow public notice procedures outlined in the Missouri Department of Natural Resources General Operating Permit MO-0136557.	2	Hold a thirty (30) day public notice period for review of the Stormwater Management Program and Plan.	Provide opportunity for public input concerning the Stormwater Management Program and Plan.	Comply with permit public notice requirements.	All	Hold public notice period for SWMP review.	Was the public notice held for 30 days?	The public notice was held for over 30 days, from December 17, 2021 through January 26, 2022.
		3	Post draft SWMP to each MS4 Operators public website with a way to submit public comments.	Provide citizen access to comment on the SWMP.	Comply with permit public notice requirements.	Each	Post the draft SWMP to the designated website and collect public comments.	Have all comments received been responded to?	The draft SWMP was posted to all three co-permittee's websites. Four comments were received via email. All comments were addressed.
2.C	Hold a public information meeting to provide information on and describe the contents of the proposed Stormwater management Program and Plan.	4	Hold a public information meeting to provide information on, and describe the contents of, the proposed Stormwater Management Program and Plan.	Provide opportunity for citizens to comment on the SWMP.	Comply with permit requirements for public meetings.	All	Hold a public information meeting on the proposed SWMP and Plan.	Was a public information meeting held? How many people attended the meeting? Were comments given at the meeting?	A public information meeting was held on January 19, 2022 at Columbia City Hall. Five members of the public attended the public information meeting. The co-permittees received two comments at the meeting.
2.D	The MS4 Operators shall each have a publicly available mechanism to take public inquiries, concerns, or take information about stormwater and stormwater related topics.	5	Provide dedicated MS4 stormwater websites to provide a mechanism to take public inquiries, concerns, or information about stormwater and stormwater related topics.	Provide a mechanism to take public inquiries, concerns, or information about stormwater and related topics.	Greater ability on the part of the MS4 partners to respond to stormwater inquiries.	Each	Maintain stormwater websites	Were stormwater websites maintained?	All websites and social media platforms are maintained. A list of websites and platforms can be found in Part C's narrative.
2.E	Not Applicable								
2.F	A representative of each MS4 Operator shall report to the designated entity of each MS4 Operator at a minimum annually.	6	A representative of each MS4 Operator shall report to the designated entity of each MS4 Operator.	Allows representatives of the MS4 Operators to give a report on the status of and compliance with the SWMP.	Comply with permit requirements for reporting.	City	Submit SWMP annual report to Columbia City Council	Was the annual report submitted to the Columbia City Council?	The SWMP annual report was submitted to the Columbia City Council on June 6, 2022.
						County	Submit SWMP annual report to Boone County Board of Commissioners	Was the annual report submitted to the Boone County Board of Commissioners?	The annual report was not submitted to the Boone County Commission. This was an oversight. The annual report will be submitted in 2023.
						MU	Submit SWMP annual report to MU EHS administration	Was the annual report submitted to MU EHS administration?	The annual report was submitted to MU EHS administration in 2022.

MCM 3: Illicit Discharge Detection & Elimination (IDDE)										
Permit Section	Permit Requirement	BMP Number	BMP Description	BMP Purpose	Goal/Expected Result of BMP	Responsible Permittee	Measurable Goals & Milestones by Permit Year	Part D Iterative Process Evaluation		
							Permit Year 2 2022	BMP Evaluation	Effective BMP Criteria	
3.A	Develop, implement, and enforce a program to detect and eliminate illicit discharges.		Permit requirement is addressed in section 3.B, 3.C and 3.D				Permit requirement is addressed in section 3.B, 3.C and 3.D		Permit requirement is addressed in section 3.B, 3.C and 3.D	
3.B	The MS4 Operators shall maintain a stormwater sewer map.	1	Maintain stormwater drainage system map(s) showing all outfalls, pipes, inlets, associated attributes, and receiving streams.	Document the location of all new and existing MS4 stormwater outfalls, pipes, inlets, and their associated attributes for locational and logistical reference.	To have a maintained, updated and accurate map	City	Review and update map	Were storm sewer maps reviewed and are they up-to-date?	The MS4 stormwater map is reviewed and edited as needed.	
						County	Review and update map		The County's storm sewer map was reviewed. Based on the DNR MCM3 training received in November, updates need to be made. A work order was placed for locating additional outfalls.	
						MU	Review and update map		The MU storm drain map is up-to-date and is reviewed and edited as needed.	
3.C	The MS4 Operators shall effectively prohibit non-stormwater discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions. The prohibition shall be through ordinance or other regulatory mechanism, to the extent allowable under State or local law.	2	Effectively prohibit, through IDDE ordinance or other IDDE regulatory mechanisms, non-stormwater discharges into stormwater drainage system and implement appropriate enforcement procedures/actions.	Maintain water quality standards	Ordinance compliance and enforcement	All	Document and track IDDE Ordinance/ Regulatory Mechanism enforcements and actions taken	Were enforcement actions tracked and resolved and regulatory mechanisms updated as necessary?	The City documents all IDDE complaints in a City database. The MS4 technician noted any important information and how it was resolved. The MS4 meeting (November 30) allowed City staff to review and discuss the IDDE ordinances and regulatory mechanisms.	
							Review IDDE Ordinances/ Regulatory Mechanisms. Update as necessary.		The County tracked and documented all IDDE complaints. All complaints were resolved. The County reviewed their IDDE ordinance and is in the process of updating. No enforcement actions were needed and regulatory mechanisms were updated as needed.	
3.C	The MS4 Operators shall effectively prohibit non-stormwater discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions. The prohibition shall be through ordinance or other regulatory mechanism, to the extent allowable under State or local law.	3	Maintain plan to detect and address non-stormwater discharges.	Implement plan to detect and address non-stormwater discharges.	Timely elimination of incidental non-stormwater discharges and take enforcement action as necessary	All	Inspect 20% of MS4 outfalls	Was the inspection goal for each year met?	The City did not meet its goal for the year. 281 outfalls were inspected in 2022 which is approximately 60% of the yearly goal of 460 inspections. However, in the previous two years the City inspected more than 20% of all outfalls, resulting in a 3-year average close to the 20% benchmark. The County did not meet its goal for the year. No outfalls were inspected. 40% will be inspected in 2023. MU met its goal of inspecting 20% of its outfalls in 2022.	
							Conduct detection activities as necessary.		Were detection activities conducted as necessary?	The City investigates non-stormwater discharges through public complaints, outfall inspections and routine observation by City staff. Detection activities were conducted and resolved. Detection activities were conducted and resolved.
							Track non-stormwater discharges reported by the public through provided outlets		Were non-stormwater discharges reported by the public tracked? How many?	The City tracked non-stormwater discharges. There were 28 incidences reported by the public that the City investigated and resolved. In the County, one non-stormwater discharge was reported. The County investigated and resolved this issue. No non-stormwater discharges were reported by the public through provided outlets.
3.D	The MS4 Operators shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.	4	Inform public employees, businesses, and the general public of the hazards associated with illegal discharges and improper disposal of waste.	Educate the public about the hazards associated with illicit discharges.	Increased public understanding about the hazards of illicit discharges by distribution of communication materials.	All	Distribute communication materials to target audiences.	Were communication materials distributed to target audiences?	The MS4 technician distributed informational flyers as needed. The flyers cover topics including yard waste disposal, pool discharges and copies of the City's IDDE ordinance. The stormwater educator included IDDE information during storm drain marking activities. See efforts conducted by the City.	

MCM 4: Construction Site Stormwater Runoff Control									
Permit Section	Permit Requirement	BMP Number	BMP Description	BMP Purpose	Goal/Expected Result of BMP	Responsible Permittee	Measurable Goals & Milestones by Permit Year	Part D Iterative Process Evaluation	
							Permit Year 2 2022	BMP Evaluation	Effective BMP Criteria
4.A	Enforce a program to reduce pollutants in any stormwater runoff to their small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre.	1	Enforce a program to reduce pollutants from construction activities that result in a land disturbance of greater than or equal to one acre.	Ensure co-permittee land disturbance programs are implemented so that proper mechanisms are utilized to control runoff from construction sites disturbing greater than one acre.	Reduce pollution caused by construction site activities	All	Track site inspections and enforcement actions.	How many site inspections were performed? How many enforcement actions were taken?	The City conducted 1,578 building and site inspections. The inspections include a review of the erosion and sediment control. There were 29 first Notice of Violation (NOV), 4 second NOV's, and 3 third NOV's.  Inspection staff conducted 120 site inspections. Four NOV's were issued.  MU conducted 391 weekly and post-rain event inspections in 2022. Six NOV's were issued and subsequently resolved.
4.B.i	An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law.	2	Maintain regulatory mechanisms for active land disturbance projects.	Ensure co-permittee land disturbance programs are implemented so that proper mechanisms are utilized to control runoff from construction sites disturbing greater than one acre.	Control of erosion and sediment runoff, and sanctions for non-compliance	All	Conduct review of ordinance/ regulatory mechanism	Was the review of the ordinance/regulatory mechanism conducted?	The City held a MS4 meeting on November 30, 2022 to discuss City ordinance as they relate to the MS4 program. There were no comments from the other City departments.  The County started reviewing/revising their stormwater regulations. Adoption of the revised ordinance is planned for 2023.  MU delegates authority to Environmental Health and Safety to implement compliance with the requirements of MCM4. This delegation of authority is found in Section 7:001 (Delegation of Responsibility) of the University of Missouri Business Policy and Procedures manual. This policy was last updated on 12/20/2021 and is reviewed as needed. MUs stormwater guidelines and Stormwater Master Plan were completed in late 2012 (and presented publicly in 2013 and 2015) and are reviewed annually.
							Track number of land disturbance permits issued	Were the number of land disturbance permits tracked? How many permits were issued?	The City issued 36 land disturbance permits in 2022.  Boone County issued 31 land disturbance permits and 10 stormwater discharge permits in 2022.  MU added three projects to its land disturbance permit during 2022.
4.B.ii	Requirements for construction site operators to implement appropriate erosion and sediment control best management practices.	3	Maintain written procedures for construction site operators to implement appropriate erosion and sediment control best management practices.	Minimize soil erosion and sedimentation caused by construction site activities.	Reduce sediment loss from construction site activities by maintaining written procedures for construction site operators	County, MU	Review ordinance/ regulatory mechanisms and stormwater design manuals	Was the review of the ordinance/regulatory mechanism and/or stormwater design manual conducted?	The County started reviewing/revising their stormwater regulations. Adoption of the revised ordinance is planned for 2023. The Stormwater Design Manual was reviewed.  MU delegates authority to Environmental Health and Safety to implement compliance with the requirements of MCM4. This delegation of authority is found in Section 7:001 (Delegation of Responsibility) of the University of Missouri Business Policy and Procedures manual. This policy was last updated on 12/20/2021 and is reviewed as needed. MUs stormwater guidelines and Stormwater Master Plan were completed in late 2012 (and presented publicly in 2013 and 2015) and are reviewed annually.
							City	Hold internal City meeting with affected departments to discuss manual.	Was the draft developed?
4.B.iii	Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.	4	Require construction site operators to control waste and erosion on construction sites by requiring a Stormwater Pollution Prevention Plan (SWPPP) and soil erosion control plans.	Control and/or prevent waste and erosion on construction sites.	Contain waste on-site through BMPs as specified in the SWPPP	All	Review SWPPP and/or site plan submittals	How many SWPPPs and/or site plans were submitted and reviewed?	36 SWPPPs and 77 site plans were submitted and reviewed.  Boone County reviewed 5 SWPPPs. 31 site plans were reviewed.  MU reviewed SWPPP's for three LDP eligible projects.
4.B.iv	Procedures for site plan review which incorporate consideration of potential water quality impacts.	5	Implement procedures for site plan review.	Require pre-construction planning.	Prevent adverse impacts to water quality by ensuring BMPs are properly installed and maintained.	All	Follow site plan evaluation procedures.	Were site plan evaluation procedures followed?	City site plan procedures were followed. The Building & Site department has a checklist to follow to ensure adequate BMPs.  County site plan procedures were followed. Four Notice of Violation letters were issued. All violations were resolved.  All MU site plan procedures were followed.
4.B.v	Procedures for receipt and considerations of information submitted by the public.	6	Maintain procedures for receipt and consideration of information submitted by the public. Maintain websites and hotline phone numbers.	Allow the general public a method for submitting comments/complaints.	Provide timely response to comments/complaints.	All	Record the number of complaints submitted, findings, and actions taken	How many comments/concerns were responded to?	The City's MS4 technician logged 174 complaints/concerns in a database. All of these were responded to.  14 complaints/concerns were registered with Boone County. All were investigated.  No concerns were reported.



4.B.vi	Procedures for site-inspection and enforcement of control measures.	7	Implement inspection procedures for land disturbance sites.	Ensure appropriate erosion and sediment control BMPs are being used.	Ensure proper use of construction site BMPs.	All	Track number of site inspections performed	How many site inspections were performed?	The City conducted 1,578 erosion control inspections. County staff conducted 120 site inspections. MU: MU conducted 391 site inspections in 2022.
						All	Maintain and implement inspection checklists	Are site inspection records available?	City site inspection records are available from the Building and Site department upon request. County inspection records are available upon request. MU inspection records are available on request.
						All	Track number of violations issued.	How many violations were issued? Were violations addressed in a timely manner?	The City issued 29 first Notice of Violation (NOV), 4 second NOVs, and 3 third NOVs. All violations are addressed in a timely manner. In the County, 4 NOVs were issued. All were addressed within their timeline for compliance. MU issued six NOVs in 2022; all were addressed in a timely manner.
		8	Implement procedures for enforcement actions	Provide authority to enforce the rules, laws, regulations, and policies put in place to ensure proper use of BMPs.	Follow enforcement procedures.	All	Track number of violations issued.	How many violations were issued? Were violations addressed in a timely manner?	The City issued 29 first Notice of Violation (NOV), 4 second NOVs, and 3 third NOVs. All violations are addressed in a timely manner. In the County, 4 NOVs were issued. All were addressed within their timeline for compliance. MU issued six NOVs in 2022; all were addressed in a timely manner.
						All	Track number of violations issued.	How many violations were issued? Were violations addressed in a timely manner?	The City issued 29 first Notice of Violation (NOV), 4 second NOVs, and 3 third NOVs. All violations are addressed in a timely manner. In the County, 4 NOVs were issued. All were addressed within their timeline for compliance. MU issued six NOVs in 2022; all were addressed in a timely manner.
						All	Track number of violations issued.	How many violations were issued? Were violations addressed in a timely manner?	The City issued 29 first Notice of Violation (NOV), 4 second NOVs, and 3 third NOVs. All violations are addressed in a timely manner. In the County, 4 NOVs were issued. All were addressed within their timeline for compliance. MU issued six NOVs in 2022; all were addressed in a timely manner.



**MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment**

Permit Section	Permit Requirement	BMP Number	BMP Description	BMP Purpose	Goal/Expected Result of BMP	Responsible Permittee	Measurable Goals & Milestones by Permit Year	Part D Iterative Process Evaluation	
							Permit Year 2 2022	BMP Evaluation	Effective BMP Criteria
5.A.i	Strategies which include a combination of structural and/or non-structural best management practices appropriate for the MS4 community.	1	Identify and develop strategies including structural and/or non-structural BMPs to improve quality of stormwater runoff.	Develop strategies that are practical and effective.	Reduce post-construction stormwater site runoff.	All	Implement and track water quality improvement projects, BMP monitoring projects, etc.	How many projects were implemented?	34 new privately owned/maintained BMPs and 3 City owned/maintained BMPs were added to our BMP database in 2022. 15 private BMPs were installed on 10 sites.
							Add new BMPs to inventory as needed.	Are the total number of private BMPs increasing each year?	This is a decrease as there were 43 private and 8 City BMPs added in 2021. 2022 saw an increase in installed BMPs. 13 private BMPs were installed on 8 sites in 2021. MU added BMPs in 2022.
5.A.i	Strategies which include a combination of structural and/or non-structural best management practices appropriate for the MS4 community.	1	Identify and develop strategies including structural and/or non-structural BMPs to improve quality of stormwater runoff.	Develop strategies that are practical and effective.	Reduce post-construction stormwater site runoff.	MU	Pursue LEED certification on all new construction or major renovation-eligible projects.	Was LEED certification pursued on all eligible projects?	The University of Missouri (MU) pursues LEED certification on all new construction or major renovation eligible projects by incorporating sustainable building practices into the projects. MU currently has fourteen (14) LEED Certified-level or greater projects.
						City, County	Track permits for installation of private BMPs	How many permits were issued?	There were 35 permits issued for privately owned BMPs. 10 permits were issued for privately owned BMPs.
		2	Maintain stormwater quality manual or equivalent	Develop strategies that are practical and effective	Reduce post-construction stormwater site runoff	All	Review stormwater design manual or equivalent; update as necessary	Have the stormwater design manuals, or equivalent, been reviewed?	The City reviewed its stormwater design manual and found no changes needed at this time. The County is reviewing and revising its stormwater design manual in conjunction with its stormwater ordinance. MU reviewed its stormwater design manual and found no changes needed at this time.
5.A.ii	An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State or local law.	3	Maintain stormwater ordinance(s) or other regulatory mechanism(s) to address post-construction runoff	Protect stormwater from post-construction site runoff	Reduce post-construction stormwater site runoff	All	Review stormwater ordinance(s) or other regulatory mechanism(s); update as necessary	Were the ordinances or regulatory mechanisms reviewed, and did they ensure compliance? Do the ordinances or regulatory mechanisms need to be updated?	The City held a MS4 meeting on November 30, 2022 to discuss City stormwater ordinances. There were no comments from the other City departments. The County is reviewing and revising its stormwater ordinance. Adoption of the revised ordinance is scheduled for 2023. Ordinances and regulatory mechanisms were reviewed in 2022. No updates were required.
5.A.iii	Ensure adequate long-term operating and maintenance of BMPs owned or operated by the MS4 Operators and, to the extent possible, privately owned BMPs.	4	Ensure adequate long-term operation and maintenance of BMPs by maintaining an operation and maintenance schedule of post-construction BMPs	Maintain inventory, maintenance and inspection schedules of BMPs	Reduce post-construction stormwater site runoff by prolonging the usefulness of installed BMPs	All	Maintain an inventory, maintenance schedule and inspection schedule of post-construction BMPs	Was the inventory maintained and maintenance/inspection schedules kept?	The City maintained its inventory of City-owned post-construction BMPs. The City inspected its BMPs per the inspection schedule (late fall/winter). The County maintained and updated its GIS database for public and privately owned BMPs. Post-construction BMPs were self-inspected per the inspection schedule (spring). MU maintained an inventory of its BMPs. BMP maintenance is currently routine while a regular schedule being developed.
							Track maintenance of all structural and non-structural BMPs	Are post-construction BMPs being maintained?	The City was not able to maintain 100% of its BMPs due to limited resources and being under-staffed. The City is working to create a budget for BMP maintenance within the next few years. Private BMP's are being maintained and maintenance needs addressed in a timely manner tracked by self-inspection annual reports to the City. County: All County-maintained BMPs are in good repair. Self-inspection reports were sent to privately owned BMPs. 11 required maintenance. Post-construction BMPs are being maintained.
		Ensure BMPs are constructed and maintained to function as designed	City	Inspect all City BMPs; maintain as necessary	Were all City BMPs inspected and maintenance issues (if any) fixed?	All the City BMPs were inspected. However, the maintenance was not completed on all BMPs due to limited resources and being under-staffed.			
				All private BMPs inspected and reported to City by owner or owner's representative.	Were all private BMPs inspected and maintenance issues (if any) fixed?	100% of all private BMPs were inspected and maintenance issues addressed.			
			County	Inspect all County BMPs; maintain as necessary	Were all County BMPs inspected and maintenance issues (if any) fixed?	County BMPs were inspected. No maintenance issues.			
				All private BMPs inspected and reported to County by owner or owner's representative.	Were all private County BMPs inspected and maintenance issues (if any) fixed?	All privately owned BMPs were inspected. 11 required maintenance and are working through their approved timeline for completion.			
MU	Landscape Services and Campus Facilities perform routine maintenance on all stormwater BMPs.	Was routine maintenance performed?	At MU, routine maintenance of BMPs was performed during 2022.						

MCM 6: Pollution Prevention/Good Housekeeping											
Permit Section	Permit Requirement	BMP Number	BMP Description	BMP Purpose	Goal/Expected Result of BMP	Responsible Permittee	Measurable Goals & Milestones by Permit Year	Part D Iterative Process Evaluation			
							Permit Year 2 2022	BMP Evaluation	Effective BMP Criteria		
6.A	The MS4 Operators shall develop or maintain controls for reducing or eliminating the discharge of floatables and pollutants from areas owned or operated by the MS4 Operator.	1	Maintain operation and maintenance schedule for operation and maintenance program.	Prevent, reduce and/or eliminate floatables and pollution from municipal or similar operation activities	Have a written operation and maintenance schedule or controls in place.	All	Review of Hazardous Material Management and SPCC programs; update as necessary	Is employee training documentation available?	City employee SPCC and hazardous material training was documented and is available.		
									County employee SPCC training was documented and is available upon request.		
									MU employee SPCC and hazardous material training was documented and is available.		
						City	Participate in facility safety audits	Were safety inspection audits completed on time? Were all comments and concerns addressed in a timely manner?	Facility inspections are held at least once a month at City-owned facilities. Any concerns noted are required to be addressed within 30 days of the facility report.		
							Hold SPCC discussion with facility managers	What changes were made to address SPCC deficiencies? Do facility managers have their own BMPs for SPCC?	The City held a MS4 meeting on November 30, 2022 to discuss each department's SPCC plan.		
6.B	The MS4 Operators shall maintain an employee training program for MS4 staff.	2	Identify employee groups who have the potential to impact stormwater quality	Prevent and reduce stormwater pollution from municipal operations through employee training	Obtain improved employee understanding of pollution prevention and housekeeping practices	City	Train all new employees as part of the onboarding process	Were all new employees trained? If so, how many?	All new City employees were trained on SPCC for municipal operations during the onboarding process.		
								All City employees receive MS4 training	How many employees have been trained?	Over 90% of all City employees completed the MS4 - Pollution Prevention training videos.	
								County	Maintain a list of employee groups trained	How many employees have been trained?	405 County employees were sent two stormwater newsletters, 22 Road & Bridge employees received information about stormwater BMPs, and 5 inspectors and 2 planners were trained in land disturbance inspections & sinkhole protection.
										Is the list up-to-date? How many employees were added to the list?	One new planner and three new land disturbance inspectors were added. The IT department maintains the All County employee list and fluctuates with hiring changes.
					MU	Identify employees who handle hazardous materials and/or petroleum products	Were employees identified and have they been trained?	At MU, employees who handle hazardous materials and/or petroleum products were identified and trained in 2022.			
					City, County	Train impacted municipal staff/employees	How many employees have been trained?	Over 90% of all City employees completed the MS4 - Pollution Prevention training videos.			
								427 County employees, including Road & Bridge and Resource Management staff, were trained.			
								MU	Train impacted staff, faculty, and students	Were staff, faculty and students trained? How many?	At MU, 139 individuals received SPCC training in 2022 and 5,184 individuals received training through six different laboratory safety or chemical handling training courses in 2022.
						Each	Review training presentation(s); update as necessary	Are training presentations up-to-date? What modifications (if any) were made to the trainings?	The training presentations are up-to-date. No modifications were made.		
		4	Review and update pollution prevention/good housekeeping training presentation(s)	Ensure training is up to date and relevant	Train staff on pollution prevention/good housekeeping practices						