



FALL 2021

ST. LOUIS COUNTY PHASE II STORMWATER MANAGEMENT PLAN

*FOURTH TERM PERMIT
2021-2026
MOR040005*

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Contact Information

The person primarily responsible for the SWMP is the MSD Program Manager for Environmental Compliance Programs. Contact information is as follows:

Jason Peterein, P.E.
Program Manager – Environmental Compliance Programs
Metropolitan St. Louis Sewer District
Phone: (314) 436-8714 / Email: jtpete@stlmsd.com

Secondary Contact:
Roland Biehl
Environmental Specialist
Metropolitan St. Louis Sewer District
Phone: (314) 436-8715 / Email: rabieh@stlmsd.com

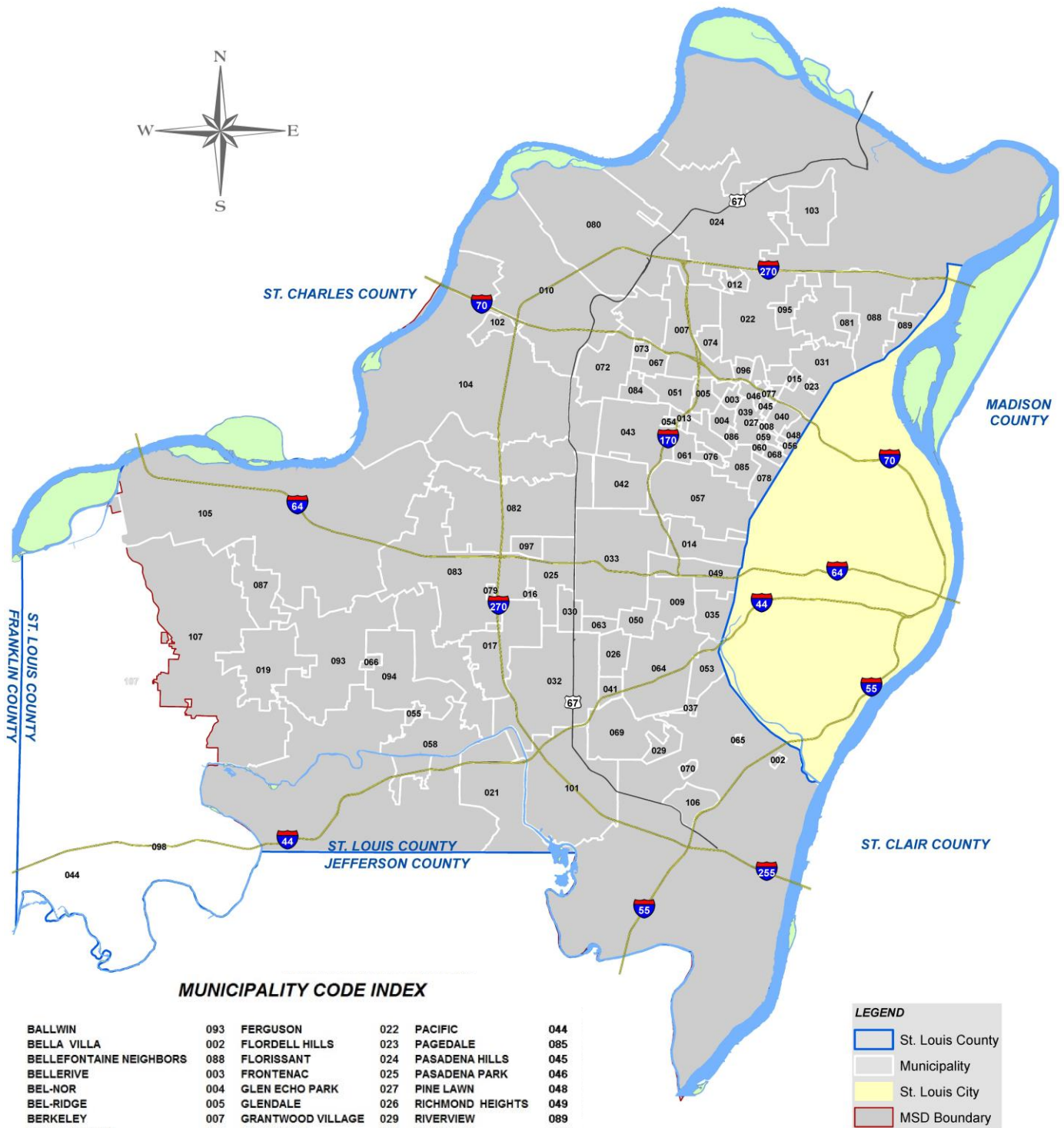
Regulatory and Background Information

The 1999 Phase II Stormwater Regulations were promulgated to provide appropriate stormwater management for political subdivisions in urbanized areas which were exempted under the 1990 (Phase I) regulations. Appendix 6, Governmental Entities Located Fully or Partially Within an Urbanized Area, of the preamble to the USEPA's December 8, 1999 rule listed most of the political subdivisions in St. Louis County as entities requiring a Phase II NPDES Permit.

Missouri's Phase II Stormwater Regulations for small MS4s are contained in 10 CSR 20-6.200. The statute allows regulated Small MS4s to seek coverage under a general permit or under a site-specific permit. During previous MS4 permit terms, MSD and the other regulated political subdivisions in St. Louis County have received the general permit. While MSD and each political subdivision that is regulated by the Phase II regulations and located within MSD's boundaries will receive its own operating permit, all have agreed to coordinate permit compliance activities as co-permittees for this fourth permit term. The co-permittee strategy encourages cooperation among municipal governments, a watershed approach to reducing pollution, and the sharing of responsibilities.

Figure 1 shows the St. Louis County municipalities and MSD's boundaries. MSD's boundaries cover approximately 525 square miles and will henceforth be referred to as the "Plan Area." Although there are ninety municipalities located within MSD's county service area, only fifty-nine and the St. Louis County received the MS4 permit. Two municipalities in St. Louis County, Pacific and Eureka, are located outside of MSD's service area and are not part of the co-permittee group. **Appendix A** lists the 61 permitted entities in the group.

Figure 1, Co-Permittees Defined



Co-permittee	How Many
Municipalities	59
St. Louis County	1
MSD	1
Total	61

St. Louis County stormwater drains into three major watersheds: the Mississippi River, the Meramec River, and the Missouri River. All stormwater runoff from the County ultimately enters the Mississippi River. The Mississippi River forms the eastern boundary of the southernmost and northernmost portions of the Plan Area with the remainder entering the western boundary of the City of St. Louis and its combined sewer system. The Meramec River generally forms the southern boundary of the Plan Area except for a portion in the west of the County where the border includes land south of the Meramec River that is drained by its tributaries. The Missouri River forms the northern boundary of the Plan Area. Many small tributaries feed into each of these three major rivers. Figure 2 shows the location of stream watersheds that are tributary to the major watersheds of the Plan Area.

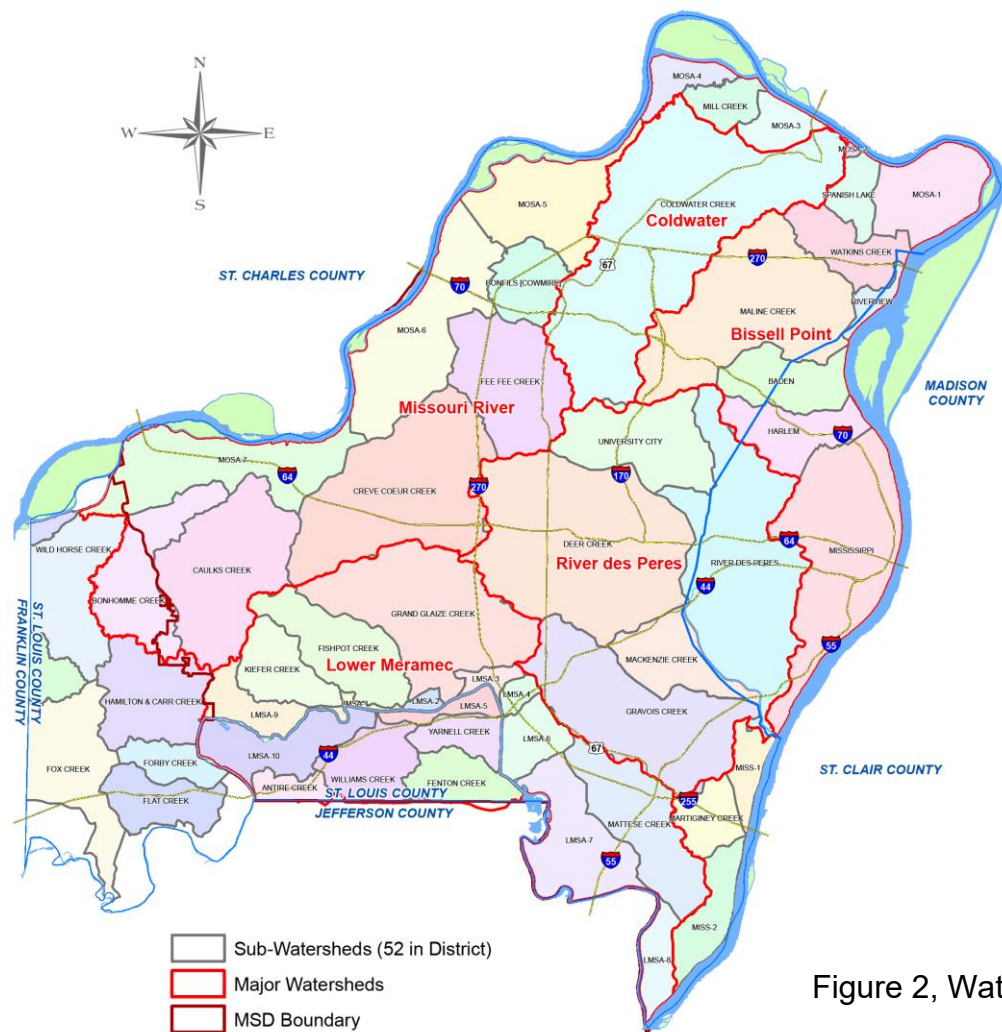


Figure 2, Watersheds

Watershed Water Quality and TMDL Information

Section 303(d) of the Federal Clean Water Act requires states to identify water bodies that do not meet water quality standards (impaired waters) after applying the existing regulations. The following table shows Plan Area water bodies with segments on the 2020 303(d) listing.

2020 303(d) Listing

Waterbody	Bacteria (E Coli)	Chloride	Other
Antire Creek	X		
Bee Tree Lake			Mercury
Black Creek		X	
Bonhomme Creek	X		
Coldwater Creek		X	
Creve Coeur Creek		X	
Deer Creek		X	
Engelholm Creek	X		
Fee Fee Creek	X	X	
Fenton Creek	X	X	
Fishpot Creek		X	
Grand Glaize Creek	X	X	Mercury
Gravois Creek		X	
Gravois Creek Tributary	X		
Keifer Creek	X		
Maline Creek	X	X	
Martigney Creek	X		
Mattese Creek	X		
Meramec River			Lead
River des Peres	X	X	
River des Peres Tributary	X	X	
Simpson Park Lake			chlorophyll-a
Spring Branch	X		
Sugar Creek	X		
Two mile Creek	X		
Watkins Creek		X	
Watkins Creek Tributary	X		
Wildhorse Creek	X		
Williams Creek	X		

TMDLs exist for waterbodies located within the MS4 plan area. The following table summarizes the TMDLs that apply to the plan area according to waterbody, waterbody ID, pollutant of concern, and the EPA approval date for the TMDL:

Waterbody Name	Waterbody ID	Pollutant of Concern	EPA Approval Date
Coldwater Creek	1706	Bacteria (E. coli)	7/13/2016
Creve Coeur Creek	1703	Bacteria (E. coli)	7/13/2016
Deer & Black Creek	3825, 3826	Bacteria (E. coli)	6/26/2019
Fee Fee Creek	1704	Bacteria (E. coli)	10/14/2020
Fishpot Creek	2186	Bacteria (E. coli)	7/13/2016
Gravois Creek	1712, 1713	Bacteria (E. coli)	1/16/2018
Maline Creek	1709	Bacteria (E. coli)	4/25/2018
Watkins Creek	1708	Bacteria (E. coli)	7/13/2016

To address the TMDLs, Assumptions, Requirements, Attainment Plans (ARAPs) for the waterbodies within the plan area have been approved, are under MDNR review, or are under development. The following table summarizes the status of each ARAP for watersheds with a TMDL:

Waterbody Name	ARAP Status
Coldwater Creek	Developed. Approved by MDNR on 8/14/2019.
Creve Coeur Creek	Developed. Approved by MDNR on 8/14/2019.
Deer & Black Creek	Under development for submittal to MDNR on or before 12/26/2021.
Fee Fee Creek	Under development for submittal to MDNR on or before 4/14/2023.
Fishpot Creek	Developed. Approved by MDNR on 8/14/2019.
Gravois Creek	Developed and under MDNR review. Submitted to MDNR for review on 7/8/2020.
Maline Creek	Developed and under MDNR review. Submitted to MDNR for review on 10/21/2019.
Watkins Creek	Approved by MDNR on 8/14/2019.

Each TMDL ARAP is a separate, stand-alone document, consisting of detailed activities and schedules that are relevant to the TMDL. However, it is noted that the BMP activities across the six minimum control measures within this Stormwater Management Plan also supplement the TMDL ARAPs, as specified in the approved

TMDL ARAP. Thus, the development and implementation status of each ARAP is reported annually in conjunction with the Stormwater Management Plan. Approved ARAPs are posted on the MSD Project Clear website and can be accessed at the following link: <https://msdprojectclear.org/what-we-do/stormwater-management/tmdl-araps/>

Co-Permittee Information

MSD is recognized as the coordinating authority of the SWMP under the St. Louis Metropolitan Small MS4 Stormwater Permit, MO-R040005. Each co-permittee has been assigned responsibility for specific BMPs to comply with the six MCMs related to their governmental purpose. For example,

- Public Education and Outreach (MCM 1) on stormwater impacts and Public Involvement and Participation (MCM 2) can best be coordinated by the MSD, with specific tasks performed with municipal support.
- Since MSD already has responsibility to operate and maintain the separate storm sewer systems in the county, it carries the bulk of the responsibility to comply with the requirements of MCM 3, Illicit Discharge Detection and Elimination.
- St. Louis County and municipalities, who operate land disturbance programs, are largely responsible for implementing BMPs to control pollution from land disturbance activities and compliance with MCM 4 requirements. As coordinating authority, MSD's role is to help facilitate the compliance efforts of St. Louis County and the municipalities with respect to MCM 4.
- For MCM 5, because MSD is the recognized continuing authority for public sewer extensions within its jurisdictional boundaries and has overall plan review responsibilities for stormwater management, it is responsible for post-construction structural BMPs. St. Louis County and municipalities, who maintain land use and zoning authority, are responsible for implementing post-construction nonstructural BMPs that need to be implemented in conjunction with MSD's efforts.
- All co-permittees are responsible for ensuring their own municipal operations comply with requirements under MCM 6, Pollution Prevention/Good Housekeeping for Municipal Operations

Contact information for each co-permittee is listed in **Appendix B**

Stormwater Program Review and BMP Iterative Process

The permit requires that the permittees shall conduct, at minimum, an annual review of their Stormwater Management Program. MSD and the co-permittees evaluate the Stormwater Management Program and all BMPs in the SWMP annually for effectiveness and to identify areas for improvement. The information that is collected and used to serve as a basis for this evaluation is described and outlined in the measurable goals, milestones and evaluation criteria outlined in **BMP Tables 1, 2, 3, 4, 5, and 6** found at the end of each section of this plan pertaining to the six minimum control measures of the permit.

The strategy for evaluating the effectiveness of the Stormwater Management Plan is based upon assessing performance characteristics in three categories: Program Operations and Activities, Social Indicators, and Water Quality Data Analysis. A description of each category follows:

- Program Operations and Activities - assessing stormwater program operations and activities verifies basic compliance with permit requirements and, more importantly, documents that tangible efforts have been made to reduce the impacts of urban stormwater. Metrics are collected for each BMP on an annual basis and tracked as the permit term progresses. Trends are established and analyzed, with success gauged on evidence of positive trends and outcomes (i.e. achieving the expected result of the BMP, achieving expected or increasing social media hits, reductions in citizen complaints compared to inspection and enforcement activities, number of MCM 5 inspections compared to enforcement actions, etc.)
- Evaluating Social Indicators – Monitoring and tracking yearly MCM 1 and MCM 2 BMPs, such as counting education activities attendance and education material distribution, tracking stream cleanup event participation and comparing to measurements in changes in knowledge and behavior of people through third party surveys.
- Water Quality Data Analysis – monitoring for pollutants associated with sources identified in MCM 1 of the Stormwater Management Plan are performed monthly at 34 locations within the plan area. For example, monitoring results will be compared to MCM 3 channel inspection findings to identify pollutant sources. The 303(d) list is also monitored, with de-listings occurring due to a water meeting water quality standards being an indicator of success.

These three categories evaluated across each of the Minimum Control Measure BMPs provides a holistic assessment of the overall effectiveness of the Stormwater Management Plan. This assessment will then be utilized to refine Stormwater Management Plans proposed for future permit terms.

MCM 1: Public Education and Outreach on Stormwater Impacts

Permit Requirements

The permittee shall implement a public education program to distribute educational materials to the community and/or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

4.1.A *Identify target audiences and explain why the target audiences are likely to have significant stormwater pollution impacts in the SWMP;*

4.1.B *Identify target pollutants and/or sources of pollution that the permittee's education program is designed to address and how those pollutants/ sources relate to the specific target audience(s); and*

4.1.C *Develop or utilize appropriate educational BMPs (materials, events, activities, etc.) to be used in conjunction with the target pollutants and target audiences. Explain opportunities about the BMPs and how the BMPs inform and educate target audiences to reduce pollutants in stormwater runoff.*

BMP Table 1 describes each programmatic BMP, purpose, milestone, measurable, and evaluation criteria designed to address 4.1.A and 4.1.C. Target pollutants, sources of pollution, target audiences, and potential stormwater pollution impacts in 4.1.A and 4.1.B are addressed in the table below. Educational materials used in conjunction with the BMPs in BMP Table 1 and target audiences are available on MSDs website at <https://msdprojectclear.org/what-we-do/stormwater-management/help/>

Target Pollutants and Sources of Pollution	Target Audiences	Potential Stormwater Impacts
Pet Waste bacteria, ammonia, oxygen demand, and nutrients (nitrogen).	Pet owners, pet adoption facilities	Pet waste left on the ground pollutes stormwater when it rains or snows.
Yard Management fertilizers (nutrients), chemicals/toxics, yard waste	Homeowners, commercial property owners and managers, contractors, lawn care companies	Yard waste such as leaves, grass clippings, weeds, brush, and small twigs that are disposed of along a creek or in a storm drain is a cause of erosion and can negatively impact water quality. Yard waste decaying in creeks also decomposes and creates low dissolved oxygen, releases nutrients (nitrogen and

Target Pollutants and Sources of Pollution	Target Audiences	Potential Stormwater Impacts
Yard Management fertilizers (nutrients), chemicals/toxics, yard waste <i>(continued)</i>	Homeowners, commercial property owners and managers, contractors, lawn care companies <i>(continued)</i>	phosphorus), and elevates suspended solids. Stormwater containing fertilizers and pesticides from incorrect application and/or improper storage can also cause environmental problems (e.g., toxicity to aquatic life). Good management of fertilizers application is consistent with the goals of Missouri's Nutrient Reduction Strategy.
Individual Sewage Disposal System Bacteria, viruses, nutrients, ammonia	Residential homeowners, commercial property owners, contractors	Commonly known as septic systems, these systems are designed to hold, treat, and dispose of household wastewater. Systems that are not properly installed and regularly serviced allow bacteria, viruses, nutrients, and ammonia to enter groundwater and streams.
Winter Deicing and Storage Activities Chloride	Residential property owners, commercial property owners, property managers, contractors	Significant levels of salt (e.g., sodium chloride and calcium chloride) in waters can occur when salt is applied on roads, parking lots and driveways during deicing activities. Chloride is highly soluble and very mobile in water. High levels of chloride are toxic to aquatic life.
Household Hazardous Waste Chemicals, hazardous substances	Residential property owners	Many products around the home are hazardous because they contain chemicals that are toxic, corrosive, flammable, or reactive. Though usually safe if used according to the directions, when these products are no longer usable or wanted, they become household hazardous waste. If dumped onto the ground or poured into the storm sewer, household hazardous waste can contaminate groundwater and streams.
Land Disturbance Sediment, suspended solids, nutrients	Contractors, Design Professionals	Land disturbance is dredging, clearing, grading, excavating, transporting or filling from construction activities including but not limited to subdivisions, shopping centers, and road projects. Sediment is the primary pollutant from land disturbance activities.

Target Pollutants and Sources of Pollution	Target Audiences	Potential Stormwater Impacts
Fats, Oils, and Grease	Residential property owners commercial property owners	Fats, oil, and grease (FOG) are found in common foods and food ingredients such as meat, fish, butter, cooking oil, gravy, sauces, mayonnaise, and food scraps. There are also “hidden oils,” such as salad dressing, syrup, batter and cheese. When FOG is poured down the drain, it can form blockages that restrict wastewater flow, eventually causing a blockage. Blockages can cause sewer overflows that pollute streams.
Swimming Pools	Residential property owners commercial property owners	Discharges (drains, overflows, and filter backwash water) of chlorinated pool water and saltwater to a storm sewer or stream contain pollutants such as elevated suspended solids, chlorides, and abnormal pH. These pollutants impact many species of aquatic life.
Industrial Activities	Commercial and Industrial property owners	Stormwater runoff from industrial facilities can easily become polluted by metals, chemicals, sediment, fertilizers, and trash. When exposed to the atmosphere, many industrial activities contribute to stormwater pollution (such as metal grinding and polishing, vehicle/equipment maintenance, improper disposal of hazardous waste, and more). Wastes, residues, and byproducts from these activities can enter storm drains and streams harming aquatic life and impacting water quality.

MSD and the co-permittees serve a wide variety of stakeholders and have developed a variety of brochures that are designed to target messaging in a relevant and meaningful way based on the nature of the stakeholder, pollutant, and interaction with the stakeholder. The following documents are representative of the types of brochures containing stormwater messaging relevant to the pollutants and activities noted above:

["Clean Water – You Can Make a Difference Protecting our Waterways"](#)
["Keeping Pollutants Out of Stormwater – A Homeowner's Guide"](#)
["Pet Waste – Help Protect Water Quality in St. Louis"](#)
["Yard Waste and Our Environment"](#)
["Understanding Stormwater Runoff – A Guide to Help Businesses Keep Pollutants Out of Our Creeks"](#)
["Stormwater Pollution Found in Your Area" \(Door Hanger\)](#)
["Household Grease Management" \(Door Hanger\)](#)
["Household Hazardous Waste" \(weblink to St. Louis County Household Hazardous Waste Dropoff Locations\)](#)

In addition to brochures, clean water messaging is provided by MSD via social media postings at the following sites:

Facebook

<https://www.facebook.com/MSDProjectClear>

Twitter

<https://twitter.com/MSDProjectClear>

Instagram

<https://www.instagram.com/MSDProjectClear/>

YouTube

<https://www.youtube.com/channel/UCVKv7MnuCrNME6KFBpswkmw>

Nextdoor

<https://nextdoor.com/agency-detail/mo/st-louis-county/metropolitan-st-louis-sewer-district-2/>

MSD's website also provides a gateway to other clean water messaging at the following sites:

Stormwater Management

<https://msdprojectclear.org/what-we-do/stormwater-management/>

Rainscaping

<https://msdprojectclear.org/what-we-do/rainscaping/>

Community and Education

<https://msdprojectclear.org/community-education/>

Videos consisting of targeted messaging relevant to stakeholders and the SWMP are also utilized via social media and at events. Representative videos and messaging that are utilized to educate the public about the Stormwater Management Plan and stormwater quality issues consist of:

“Take it Easy on the Salt”

<https://vimeo.com/505354276>

“The FOG Before Christmas”

<https://vimeo.com/492479968>

“Keep Yard Waste Out of the Sewers”

<https://vimeo.com/453717341>

“Only Rain to the Storm Drain”

<https://vimeo.com/453716319>

“Operation Clean Stream”

<https://vimeo.com/357586838>

“MSD Sewer Patrol Household Chemicals”

<https://vimeo.com/334975553>

“MSD Day in the Life”

<https://vimeo.com/239146532>

“What it Takes to Make a Successful Stormwater Management Program”

<https://vimeo.com/465900877>

The materials presented in this section are representative of messaging and outlets that are utilized to engage the public about stormwater quality issues and the Stormwater Management Plan. This material, including messaging mediums, may be modified or replaced throughout the permit term at the discretion of the permittees.

Descriptions of BMPs, actions, measurable goals, milestones, expected results, and evaluation criteria to comply with the permit requirements 4.1.A thru 4.1.C are provided in **BMP Table 1**.

Permit Section	BMP Table 1		Best Management Practice (BMP)			Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM1 4.1.A	MSD	1	Query MSD Environmental Compliance Pretreatment Information Management System for active industrial entities.	Maintain list of active industrial entities who could have a significant stormwater impact.	Provide co-permittees with a list of industrial stormwater sources.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	List updated, distributed, and filed. Each annual report documents annual measurable goals and milestones completed. Evaluate audience identification trend by end of permit term.	Measurable goals and milestones completed and consistent ongoing identification trend of this target audience throughout plan area continues.
	MSD	2	Query MSD Environmental Compliance Pretreatment Information Management System for approved commercial haul-waste vendors.	Maintain list of active commercial individual waste haulers who could have a significant stormwater impact.	Provide co-permittees with a list of waste haulers.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	List updated, distributed, and filed. Each annual report documents annual measurable goals and milestones completed. Evaluate audience identification trend by end of permit term.	Measurable goals and milestones completed and consistent ongoing identification trend of this target audience throughout plan area continues.
	MSD	3	Query MSD Asset Management System for list of active food service and restaurant establishment facilities.	Maintain list of active food service and restaurant establishments who could have a significant stormwater impact.	Provide co-permittees with a list of food service and restaurant establishments.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	List updated, distributed, and filed. Each annual report documents annual measurable goals and milestones completed. Evaluate audience identification trend by end of permit term.	Measurable goals and milestones completed and consistent ongoing identification trend of this target audience throughout plan area continues.
	MSD	4	Survey trade associations (such as Home Builders Association, Associated General Contractors, American Society of Civil Engineers, and Property Managers) involved with land disturbance, land development, and property management activities.	Maintain list of trade associations with members that could have a significant stormwater impact.	Provide co-permittees with list of trade associations.	Develop list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	List updated, distributed, and filed. Each annual report documents annual measurable goals and milestones completed. Evaluate audience identification trend by end of permit term.	Measurable goals and milestones completed and consistent ongoing identification trend of this target audience throughout plan area continues.
	All	5	Query municipal building permit databases for active major land disturbance contractors.	Maintain list of contractors that could have a significant stormwater impact.	Provide co-permittees with a list of contractors who are currently engaged in major land disturbance activities.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	Update list and distribute to co-permittees by end of plan year.	List updated, distributed, and filed. Each annual report documents annual measurable goals and milestones completed. Evaluate audience identification trend by end of permit term.	Measurable goals and milestones completed and consistent ongoing identification trend of this target audience throughout plan area continues.
	MSD	6	Collect stormwater education survey.	Survey water quality and nonpoint source pollution awareness and behaviors, and identify target audiences for future SWMP revisions.	Monitor trends in public water quality awareness in service area.	None	None	None	Develop survey questions, complete third party survey, record and analyze findings.	None	Awareness baseline developed. 2025 annual report documents 2025 goal completed. Evaluate awareness and behavior changes.	2025 Measurable goals and milestones completed and survey tracks awareness and behavior changes.

Permit Section	Best Management Practice (BMP)					Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM1 4.1.A	MSD	7	Maintain a database of all K-12 public and private school districts in plan area.	Foster nonpoint source pollution and water quality awareness in community.	Maintain a comprehensive database of schools and contacts, which could be information outlets.	Maintain database of schools, identifying those providing stormwater education, and designated contacts.	Maintain database of schools, identifying those providing stormwater education, and designated contacts.	Maintain database of schools, identifying those providing stormwater education, and designated contacts.	Maintain database of schools, identifying those providing stormwater education, and designated contacts. Develop GIS map of the database schools and school system locations	Maintain database and map of schools, identifying those providing stormwater education, and designated contacts.	Database developed. Track schools providing stormwater education. Each annual report documents annual measurable goals and milestones completed. Evaluate audience identification trend throughout Plan Area by end of permit term.	Measurable goals and milestones completed and consistent ongoing identification of this target audience throughout plan area continues.
MCM1 4.1.B	See SWMP Narrative MCM1 Section											
MCM1 4.1.C	MSD	8	Develop and distribute stormwater messages for MSD bills and websites. Topics would include littering, pet waste, yard management (including nutrient application), individual sewage disposal systems, winter deicing, swimming pools, and household hazardous waste.	Reach plan area customers with concise messages on MSD bills and websites.	Greater awareness of best practices to protect water quality.	Maintain Phase II Stormwater Management Plan MSD website pages. Maintain message library. Distribute messages on MSD bills and websites. Record number of MSD bills mailed and website pages views/hits.	Maintain Phase II Stormwater Management Plan MSD website pages. Maintain message library. Distribute messages on MSD bills and websites. Record number of MSD bills mailed and website pages views/hits.	Maintain Phase II Stormwater Management Plan MSD website pages. Maintain message library. Distribute messages on MSD bills and websites. Record number of MSD bills mailed and website pages views/hits.	Maintain Phase II Stormwater Management Plan MSD website pages. Maintain message library. Distribute messages on MSD bills and websites. Record number of MSD bills mailed and website pages views/hits.	Maintain Phase II Stormwater Management Plan MSD website pages. Maintain message library. Distribute messages on MSD bills and websites. Record number of MSD bills mailed and website pages views/hits.	Messages maintained and representative copies of bills filed. Each annual report documents annual measurable goals and milestones completed. Evaluate messaging trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed and overall positive change in behavior identified.
	MSD	9	Maintain and provide library of stormwater education materials.	Provide brochures, flyers, and other media that can be used at public events and upon request.	Provide education to various audiences.	Update existing educational materials that address general awareness and pollutant sources in the SWMP for target audiences, individuals, and households.	Maintain adequate supply of existing educational materials that address general awareness and pollutant sources in the SWMP for target audiences, individuals, and households.	Maintain adequate supply of existing educational materials that address general awareness and pollutant sources in the SWMP for target audiences, individuals, and households.	Maintain adequate supply of existing educational materials that address general awareness and pollutant sources in the SWMP for target audiences, individuals, and households.	Maintain adequate supply of existing educational materials that address general awareness and pollutant sources in the SWMP for target audiences, individuals, and households.	Materials updated, developed, and available for distribution. Each annual report documents annual measurable goals and milestones completed. Evaluate material availability trend by end of permit term.	Measurable goals and milestones completed and material covers all pollutants/sources.
	MSD	10	Provide presentations and educational materials to families and homeowners.	Foster nonpoint source pollution and water quality awareness in community.	Increase awareness and positive behavior change.	Provide pet waste brochures to St. Louis County Animal Control quarterly. St. Louis Animal Control distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis County Animal Control quarterly. St. Louis Animal Control distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis County Animal Control quarterly. St. Louis Animal Control distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis County Animal Control quarterly. St. Louis Animal Control distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis County Animal Control quarterly. St. Louis Animal Control distributes pet waste brochures during adoptions.	Track number of brochures provided to St. Louis County Animal Control. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution trend and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent trend of education material distribution, and positive change in behavior identified.

Permit Section	Best Management Practice (BMP)					Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM1 4.1.C	MSD	10	Provide presentations and educational materials to families and homeowners.	Foster nonpoint source pollution and water quality awareness in community.	Increase awareness and positive behavior change.	Provide pet waste brochures to St. Louis humane society quarterly. Humane Society distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis humane society quarterly. Humane Society distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis humane society quarterly. Humane Society distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis humane society quarterly. Humane Society distributes pet waste brochures during adoptions.	Provide pet waste brochures to St. Louis humane society quarterly. Humane Society distributes pet waste brochures during adoptions.	Track number of brochures provided to St. Louis Humane Society. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution trend and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent trend of education material distribution, and positive change in behavior identified.
						Partner with environmental organization (such as the Missouri Botanical Garden Earthways Center) to offer at least two education events on stormwater management. Record class attendance.	Partner with environmental organization (such as the Missouri Botanical Garden Earthways Center) to offer at least two education events on stormwater management. Record class attendance.	Partner with environmental organization (such as the Missouri Botanical Garden Earthways Center) to offer at least two education events on stormwater management. Record class attendance.	Partner with environmental organization (such as the Missouri Botanical Garden Earthways Center) to offer at least two education events on stormwater management. Record class attendance.	Partner with environmental organization (such as the Missouri Botanical Garden Earthways Center) to offer at least two education events on stormwater management. Record class attendance.	Classes completed and attendance tracked. Each annual report documents annual measurable goals and milestones completed. Evaluate events/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of attendees per class and positive change in behavior identified.
						Partner with environmental organization (such as St. Louis Audubon Society Bring Conservation Home) to: 1) support distribution of education material and 2) provide stormwater management education to landowners. Record education material distributed.	Partner with environmental organization (such as St. Louis Audubon Society Bring Conservation Home) to: 1) support distribution of education material and 2) provide stormwater management education to landowners. Record education material distributed.	Partner with environmental organization (such as St. Louis Audubon Society Bring Conservation Home) to: 1) support distribution of education material and 2) provide stormwater management education to landowners. Record education material distributed.	Partner with environmental organization (such as St. Louis Audubon Society Bring Conservation Home) to: 1) support distribution of education material and 2) provide stormwater management education to landowners. Record education material distributed.	Partner with environmental organization (such as St. Louis Audubon Society Bring Conservation Home) to: 1) support distribution of education material and 2) provide stormwater management education to landowners. Record education material distributed.	Education completed. Track type and number of material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
	St. Louis County and Municipalities	11	Post pet waste signs in parks.	Foster nonpoint source pollution and water quality awareness in community.	Increase awareness and positive behavior change.	Post pet waste signs in each city and St. Louis County owned park. Record and report on number of pet waste signs posted.	Post pet waste signs in each city and St. Louis County owned park. Record and report on number of pet waste signs posted.	Post pet waste signs in each city and St. Louis County owned park. Record and report on number of pet waste signs posted.	Post pet waste signs in each city and St. Louis County owned park. Record and report on number of pet waste signs posted.	Post pet waste signs in each city and St. Louis County owned park. Record and report on number of pet waste signs posted.	Track number of parks and posted pet waste signs. Each annual report documents annual measurable goals and milestones completed. Evaluate numbers of posted signs and parks by end of permit term. Evaluate public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of posted signs and parks, and positive change in behavior identified.
	MSD	12	Maintain database of community partners with water pollution education interests.	Know partners that can work with MSD to Foster nonpoint source pollution and water quality awareness in community. See MCM 2 for utilization.	Provide participation opportunities, in MCM2, to individuals and groups.	Update database of individuals, partners, and activities. Distribute activities list to individuals and groups.	Update database of individuals, partners, and activities. Distribute activities list to individuals and groups.	Update database of individuals, partners, and activities. Distribute activities list to individuals and groups.	Update database of individuals, partners, and activities. Distribute activities list to individuals and groups.	Update database of individuals, partners, and activities. Distribute activities list to individuals and groups.	List updated, distributed and filed. See also material distribution and presentation BMPs. Each annual report documents annual measurable goals and milestones completed. Evaluate partner identification and activity notifications trends by end of permit term. Evaluate public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of partners and notifications continues, and positive change in behavior identified.
	MSD	13	Provide educational materials to industrial entities, waste haulers, and food service and restaurant establishments.	Foster nonpoint source pollution and water quality awareness in community	Increase awareness and positive behavior change.	Provide educational materials to industrial entities and waste haulers. Distribute fats, oils, and grease brochure at MSD food service and restaurant establishment inspections. Distribute IDD brochure at MSD, pretreatment inspections. Record number of material distributed.	Provide educational materials to industrial entities and waste haulers. Distribute fats, oils, and grease brochure at MSD food service and restaurant establishment inspections. Distribute IDD brochure at MSD, pretreatment inspections. Record number of material distributed.	Provide educational materials to industrial entities and waste haulers. Distribute fats, oils, and grease brochure at MSD food service and restaurant establishment inspections. Distribute IDD brochure at MSD, pretreatment inspections. Record number of material distributed.	Provide educational materials to industrial entities and waste haulers. Distribute fats, oils, and grease brochure at MSD food service and restaurant establishment inspections. Distribute IDD brochure at MSD, pretreatment inspections. Record number of material distributed.	Provide educational materials to industrial entities and waste haulers. Distribute fats, oils, and grease brochure at MSD food service and restaurant establishment inspections. Distribute IDD brochure at MSD, pretreatment inspections. Record number of material distributed.	Material distribution completed. Track number of material distributed each year. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM1 4.1.C	MSD	14	Provide presentations and educational materials to trade associations, schools, and watershed groups.	Foster nonpoint source pollution and water quality awareness in community.	Increase awareness and positive behavior change within trade associations that is topical to their industry.	Permittee group will offer one meeting with trade associations. Record materials distributed.	Permittee group will offer one meeting with trade associations. Record materials distributed.	Permittee group will offer one meeting with trade associations. Record materials distributed.	Permittee group will offer one meeting with trade associations. Record materials distributed.	Permittee group will offer one meeting with trade associations. Record materials distributed.	Offer meetings completed. Track number of meetings and material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate audience attendance and impressions trends by end of permit term. Evaluate public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
	All				Increase awareness and positive behavior change.	MSD will distribute education material at a minimum 6 requested presentations or information booths. Record event material distributed and attendance. All permittees that distribute material at events will report material distributed and estimated attendance.	MSD will distribute education material at a minimum 6 requested presentations or information booths. Record event material distributed and attendance. All permittees that distribute material at events will report material distributed and estimated attendance.	MSD will distribute education material at a minimum 6 requested presentations or information booths. Record event material distributed and attendance. All permittees that distribute material at events will report material distributed and estimated attendance.	MSD will distribute education material at a minimum 6 requested presentations or information booths. Record event material distributed and attendance. All permittees that distribute material at events will report material distributed and estimated attendance.	MSD will distribute education material at a minimum 6 requested presentations or information booths. Record event material distributed and attendance. All permittees that distribute material at events will report material distributed and estimated attendance.	Events completed. Track number of events and material distributed. Records saved in copermittees files. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
	MSD	15	Partner with community organizations to provide stormwater information to a broad audience.	Foster nonpoint source pollution and water quality awareness in community.	Increase awareness and positive behavior change.	Develop and distribute stormwater information at a St. Louis area sports venue.	Develop and distribute stormwater information at a St. Louis area sports venue.	Develop and distribute stormwater information at a St. Louis area sports venue.	Develop and distribute stormwater information at a St. Louis area sports venue.	Develop and distribute stormwater information at a St. Louis area sports venue.	Track type and number of material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
						Host Information booth and record what and how many material distributed at St. Louis Earth Day in Forest Park.	Host Information booth and record what and how many material distributed at St. Louis Earth Day in Forest Park.	Host Information booth and record what and how many material distributed at St. Louis Earth Day in Forest Park.	Host Information booth and record what and how many material distributed at St. Louis Earth Day in Forest Park.	Host Information booth and record what and how many material distributed at St. Louis Earth Day in Forest Park.	Track type and number of material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
						Host Information booth and record what and how many material distributed at St. Louis Home and Garden Show.	Host Information booth and record what and how many material distributed at St. Louis Home and Garden Show.	Host Information booth and record what and how many material distributed at St. Louis Home and Garden Show.	Host Information booth and record what and how many material distributed at St. Louis Home and Garden Show.	Host Information booth and record what and how many material distributed at St. Louis Home and Garden Show.	Track type and number of material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
						Develop and distribute stormwater information at a St. Louis area amusement or recreation venue.	Develop and distribute stormwater information at a St. Louis area amusement or recreation venue.	Develop and distribute stormwater information at a St. Louis area amusement or recreation venue.	Develop and distribute stormwater information at a St. Louis area amusement or recreation venue.	Develop and distribute stormwater information at a St. Louis area amusement or recreation venue.	Track type and number of material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate material distribution/impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
	MSD	16	Advertise videos to be utilized in social media platforms.	Utilize concise messages that can be used on MSD and partner social media platforms.	Provide education to broad audiences	Provide or purchase minimum 10,000 spots per year. Record number of plays.	Provide or purchase minimum 10,000 spots per year. Record number of plays.	Provide or purchase minimum 10,000 spots per year. Record number of plays.	Provide or purchase minimum 10,000 spots per year. Record number of plays.	Provide or purchase minimum 10,000 spots per year. Record number of plays.	Track number of online plays. Each annual report documents annual measurable goals and milestones completed. Evaluate impressions trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of plays and positive change in behavior identified.

Permit Section	Best Management Practice (BMP)					Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM1 4.1.C	All	17	Participate in at least one cleanup event annually.	Foster nonpoint source pollution and water quality awareness in community.	Prevent disposal of wastes in waterways. Increase awareness and positive behavior change.	Co-permittee group will provide equipment, in-kind sponsorship, staff support, and/or financial sponsorship, for Confluence Trash Bash, River des Peres Trash Bash, and Operation Clean Stream. Record participation activity.	Co-permittee group will provide equipment, in-kind sponsorship, staff support, and/or financial sponsorship, for Confluence Trash Bash, River des Peres Trash Bash, and Operation Clean Stream. Record participation activity.	Co-permittee group will provide equipment, in-kind sponsorship, staff support, and/or financial sponsorship, for Confluence Trash Bash, River des Peres Trash Bash, and Operation Clean Stream. Record participation activity.	Co-permittee group will provide equipment, in-kind sponsorship, staff support, and/or financial sponsorship, for Confluence Trash Bash, River des Peres Trash Bash, and Operation Clean Stream. Record participation activity.	Co-permittee group will provide equipment, in-kind sponsorship, staff support, and/or financial sponsorship, for Confluence Trash Bash, River des Peres Trash Bash, and Operation Clean Stream. Record participation activity.	Clean-ups completed. Track number of participants and waste amounts collected. Each annual report documents annual measurable goals and milestones completed. Evaluate trash collected and participation trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, positive trends of trash collected and participation, and positive change in behavior identified
	St. Louis County	18	Continue to operate two household hazardous waste drop-off facilities.	Provide safe and economical outlet for household hazardous waste disposal	Prevent disposal of wastes in waterways. Increase awareness and positive behavior change.	Operate the two household hazardous waste drop-off facilities and record participation and the amount of household hazardous waste collected.	Operate the two household hazardous waste drop-off facilities and record participation and the amount of household hazardous waste collected.	Operate the two household hazardous waste drop-off facilities and record participation and the amount of household hazardous waste collected.	Operate the two household hazardous waste drop-off facilities and record participation and the amount of household hazardous waste collected.	Operate the two household hazardous waste drop-off facilities and record participation and the amount of household hazardous waste collected.	Two locations remain open. Track number of participants, waste amounts collected. Each annual report documents annual measurable goals and milestones completed. Evaluate trash collection and participation trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, positive trends of trash collection and participation, and positive change in behavior identified.
	MSD	19	Provide training to educators, watershed group members, and others on how to use the Enviroscape® watershed models.	Engage citizen volunteers on how to educate students on sources of pollution and best practices, providing additional resources.	Provide additional resources/labor who can help with education on sources of stormwater pollution and best practices	Provide or partner with environmental organization to provide an annual workshop on how to use the model. Record number of classes completed, attendance, and attendee locations	Provide or partner with environmental organization to provide an annual workshop on how to use the model. Record number of classes completed, attendance, and attendee locations	Provide or partner with environmental organization to provide an annual workshop on how to use the model. Record number of classes completed, attendance, and attendee locations	Provide or partner with environmental organization to provide an annual workshop on how to use the model. Record number of classes completed, attendance, and attendee locations	Provide or partner with environmental organization to provide an annual workshop on how to use the model. Record number of classes completed, attendance, and attendee locations	Classes completed and track attendance. Each annual report documents annual measurable goals and milestones completed. Evaluate events and attendance trends by end of permit term. Evaluate locations and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of attendees per class throughout the Plan Area, and positive change in behavior identified.
	MSD	20	Provide Enviroscape ® watershed models for community use.	Foster nonpoint source pollution and water quality awareness in community.	Provide opportunity to increase awareness and positive behavior change.	Target 50 presentations, maintain reservation tracking database, and record presentations attendance and locations	Target 50 presentations, maintain reservation tracking database, and record presentations attendance and locations	Target 50 presentations, maintain reservation tracking database, and record presentations attendance and locations	Target 50 presentations, maintain reservation tracking database, and record presentations attendance and locations	Target 50 presentations, maintain reservation tracking database, and record presentations attendance and locations	Each annual report documents annual measurable goals and milestones completed. Evaluate presentations trends, attendance trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed. Consistent/increasing trends of presentations and impressions throughout plan area. Positive change in behavior identified.
	MSD	21	Provide storm drain marker instructions and equipment to citizen volunteers.	Foster nonpoint source pollution and water quality awareness in community.	Provide opportunity to increase awareness and positive behavior change.	Target 500 markers applied and record how many projects completed (markers and door hangers).	Target 500 markers applied and record how many projects completed (markers and door hangers).	Target 500 markers applied and record how many projects completed (markers and door hangers).	Target 500 markers applied and record how many projects completed (markers and door hangers).	Target 500 markers applied and record how many projects completed (markers and door hangers).	Track number of markers and door hangers placed and their locations. Each annual report documents annual measurable goals and milestones completed. Evaluate marker application trends, door hanger distribution trends, and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed. Consistent/increasing trend of marking/door hanger applications and positive change in behavior identified.
	MSD	22	Develop storm drain marking GIS map.	Maintain map of marked inlets.	Provide tool to facilitate participation opportunities.	Maintain GIS map layer and record labeled inlets.	Maintain GIS map layer and record labeled inlets.	Maintain GIS map layer and record labeled inlets.	Maintain GIS map layer and record labeled inlets.	Maintain GIS map layer and record labeled inlets.	GIS map layer completed for use to direct public where they can label inlets. Each annual report documents annual measurable goals and milestones completed. Evaluate marker application locations and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed. Consistent/increasing trend of marking applications throughout entire Plan Area and positive change in behavior identified.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM1 4.1.C	MSD	23	Provide resources, as available, to residential, institutional, and commercial landowners and citizen volunteer organizations that promote green infrastructure and other healthy water programming.	Foster nonpoint source pollution and water quality awareness in community.	Provide tools to facilitate education, increase awareness, and positive behavior change.	Update resource library of existing material (i.e., BMP O&M series brochures, websites). Distribute education material upon request via presentations/information booths and mailings. Record what, when, and who material distributed to.	Maintain resource library of existing material (i.e., BMP O&M series brochures, websites). Distribute education material upon request via presentations/information booths and mailings. Record what, when, and who material distributed to.	Maintain resource library of existing material (i.e., BMP O&M series brochures, websites). Distribute education material upon request via presentations/information booths and mailings. Record what, when, and who material distributed to.	Maintain resource library of existing material (i.e., BMP O&M series brochures, websites). Distribute education material upon request via presentations/information booths and mailings. Record what, when, and who material distributed to.	Maintain resource library of existing material (i.e., BMP O&M series brochures, websites). Distribute education material upon request via presentations/information booths and mailings. Record what, when, and who material distributed to.	Resource library maintained and track number of material distributed. Each annual report documents annual measurable goals and milestones completed. Evaluate material availability trends, material distribution trends, and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of education material distribution, and positive change in behavior identified.
					Provide opportunity to increase awareness and positive behavior change.	Provide rainscaping small grants program and record rainscaping projects approved and installed.	Provide rainscaping small grants program and record rainscaping projects approved and installed.	Provide rainscaping small grants program and record rainscaping projects approved and installed.	Provide rainscaping small grants program and record rainscaping projects approved and installed.	Provide rainscaping small grants program and record rainscaping projects approved and installed.	Track number of rainscaping projects approved and installed. Each annual report documents annual measurable goals and milestones completed. Evaluate projects approval and installation trends by end of permit term.	Measurable goals and milestones completed and consistent trend of projects approved and installed.

MCM 2: Public Involvement/Participation in Program Development

Permit Requirements

The permittee shall implement a public involvement/participation program that reaches out and engages the public in the development and implementation of the permittee's Stormwater Management Program.

4.2.A *The permittee shall hold a public notice period for a minimum of thirty (30) days on the draft SWMP. The permittee shall respond to public comments received during the public notice period. The permittee shall retain copies of any public comments and responses, for a minimum of three years.*

MSD advertised the public notice of the SWMP on the MSD Project Clear webpage (<https://msdprojectclear.org/>) with the disclaimer that the draft SWMP will be posted for review and public comment for 30 days. MSD also advertised the public notice period thru its social media outlets on Facebook and Twitter. MSD collected comments by submission through an email address posted on the public notice (ms4swmp@stlmsd.com) as well as a mail-in option with the address posted on the website, social media, and email communications. MSD compiled and responded to all comments submitted by the public within 30 days after the public comment period. Comments submitted by the public and the corresponding responses are retained by the MSD for at least 3 years.

MSD held the public notice period for the draft SWMP January 25, 2021 – February 25, 2021.

4.2.B *The permittee shall hold a public hearing regarding the proposed Stormwater Management Program and Plan within the MS4 service area. Public notice of the public hearing shall be given at least thirty (30) days before the hearing. Public notice of the hearing may be given at the same time as public notice of the draft SWMP and the two notices may be combined.*

MSD held a public hearing for the proposed SWMP on February 25, 2021 from 10:00 A.M. to 12:00 P.M. Public notice to announce the hearing was concurrent with the timelines and methods described for the public comment period for the SWMP noted in 4.2.A. Due to COVID-19 restrictions, the meeting was held virtually via ZOOM. One comment was received from the public, and it was supportive of the SWMP.

4.2.C *The permittee shall have a publicly available method to accept public inquiries or concerns, and to take information provided by the public about stormwater and stormwater related topics. This method, or a combination of methods, shall cover all MCMs.*

MSD operates a 24/7 customer service hotline that customers can call at (314) 768-6260 to report emergencies, illicit discharges, other stormwater related issues, as well as to request information. As an alternative, an online form may be completed at the following link: <https://msdprojectclear.org/contact-us/>

As the coordinating entity for the St. Louis County MS4, MSD primarily accepts public inquiries or concerns, and information provided by the public about stormwater and stormwater related topics. Based on the nature of the concern, MSD either responds to the issue or information request, or coordinates the response effort with the relevant co-permittee or agency having jurisdiction.

Finally, MSD maintains a website at <https://msdprojectclear.org/what-we-do/stormwater-management/phase-ii-stormwater-management-plan/> which provides citizens access to information regarding the Phase II Stormwater Management Program and the SWMP.

4.2.D If the permittee utilizes a stormwater management panel or committee, the permittee shall provide opportunities for citizen representatives on the panel or committee.

MSD, St. Louis County, and the co-permittees utilize a steering committee comprised of representatives from municipalities and citizen stakeholder groups. The steering committee meets twice a year and is also invited to attend an annual administration workshop that MSD facilitates for all co-permittees. Steering Committee membership is voluntary, and members are recruited by MSD. MSD polls the co-permittees and local stakeholders for interest in participating on the Steering Committee. Those who respond with a willingness to commit to service on the Steering Committee become members, with membership lasting for the length of the permit term. At the time of the SWMP development, the steering committee comprises of representatives from the following entities:

- Metropolitan St. Louis Sewer District
- St. Louis County Department of Planning
- St. Louis County Department of Public Works
- City of Hanley Hills
- City of University City
- City of Chesterfield
- City of Florissant
- City of Ladue
- City of Hazelwood
- East-West Gateway Council of Governments
- Home Builder's Association
- Missouri Coalition for the Environment
- Great Rivers Greenway
- The Open Space Council

In addition to the steering committee, invitations were sent to The Deer Creek Watershed Alliance, the Missouri Department of Natural Resources, the River Des Peres Watershed Coalition, Shaw Nature, St. Louis University, and the Nature Conservancy.

Descriptions of BMPs, actions, measurable goals, milestones, expected results, and evaluation criteria to comply with the permit requirements 4.2.A thru 4.2.D are provided in **BMP Table 2**.

Permit Section	BMP Table 2 Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM2 4.2.A	MSD	24	Post SWMP on MSD's website for 30 days. Announce the SWMP is available to review, using e-mail and social media.	Provide opportunity for input on the SWMP.	Comply with permit requirement for public notice.	None	None	None	5th term SWMP posted on MSD stormwater section and social media platforms for 30 days. SWMP e-mailed to stakeholders.	None	SWMP e-mailed and posted on MSD website/social media platforms. Record all comments to the SWMP. 2025 annual report documents 2025 goal completed.	Measurable goals and milestones completed
MCM2 4.2.B	MSD	25	Hold a publicly accessible meeting at MSD's office. Provide 30 days advance notice on MSD's website and by e-mail.	Provide opportunity for input on the SWMP.	Comply with permit requirement for public meeting.	None	None	None	5th term SWMP public meeting notice posted on MSD stormwater section 30 days before meeting.	None	SWMP meeting announcement posted on MSD website. File meeting minutes. 2025 annual report documents 2025 measurable goals and milestones completed.	Measurable goals and milestones completed
MCM2 4.2.C	See BMP Numbers 8, 31, and 46											
MCM2 4.2.D	MSD	26	Invite citizens to provide representation on the steering committee, with goal of including 2 citizens on steering committee	Provide opportunity for input on the SWMP	Provide participation opportunities to interested citizens.	Steering committee meets twice a year and is also invited to attend an annual administration workshop that MSD facilitates for all co-permittees.	Steering committee meets twice a year and is also invited to attend an annual administration workshop that MSD facilitates for all co-permittees.	Steering committee meets twice a year and is also invited to attend an annual administration workshop that MSD facilitates for all co-permittees.	Steering committee meets twice a year and is also invited to attend an annual administration workshop that MSD facilitates for all co-permittees. Send a letter or e-mail invitation to at least 10 citizen contacts. Based on interest, select 2 parties to participate on the committee.	Steering committee meets twice a year and is also invited to attend an annual administration workshop that MSD facilitates for all co-permittees.	SWMP notification opportunities developed. Meetings completed. Annual report documents measurable goals and milestones completed.	Measurable goals and milestones completed.

MCM 3: Illicit Discharge Detection and Elimination

Permit Requirements

The permittee shall implement and enforce a program to detect and eliminate illicit discharges (as defined in 10 CSR 20-6.200 at 40 CFR 122.26(b)(2)) into the permittee's regulated MS4.

4.3.A *Develop and maintain an up to date storm sewer system map, show the location of all outfalls, the names and location of all waters of the state that receive discharges from those outfalls, and the boundary of the regulated MS4 area.*

1. A description of the sources of information or procedures used for the map(s), how the permittee plans to verify the outfall locations with field surveys, and how the map will be regularly updated shall be included in the SWMP.

2. The permittee shall make the map and any accompanying necessary information available to the Department upon request.

The stormwater system within the MSD service area consists of man-made facilities, structures, and natural watercourses used for collecting and conducting stormwater to, through and from drainage areas to the points of final outlet including, but not limited to, any and all of the following: sewers, pipes, inlets, conduits and appurtenant features, canals, creeks, channels, catch basins, ditches, streams, rivers, gulches, gullies, flumes, culverts, siphons, retention or detention basins, dams, floodwalls, levees, and pumping stations (as defined by MSD Ordinance 14393). MSD maps the entire stormwater system using a geographic information system (GIS) that is available to the Department upon request.

The source of GIS information comes from previously acquired sewer districts and as-built surveys that are provided after the completion of development projects and capital improvement projects. Updates are also made as a result of investigations by MSD Operations and Engineering staff, as well as channel surveys completed under MSD's Illicit Discharge Detection and Elimination program. Field reconnaissance and data collection procedures are detailed in [MSD's MS4 Illicit Discharge Investigations Standard Operating Procedure](#).

4.3.B. *To the extent allowable under state, or local law, through ordinance(s), or other regulatory mechanism(s), the permittee shall effectively prohibit, unauthorized non-storm water discharges into the storm sewer system and implement appropriate enforcement procedures and actions. Identify in the SWMP the regulatory mechanism(s) the permittee will use to effectively prohibit illicit discharges into the MS4 by including a link to or a copy of the relevant sections.*

MSD utilizes provisions in its sewer use ordinances to prohibit illicit discharges into the stormwater system. [MSD Ordinance No. 15048](#) is used as the legal enforcement tool to control such discharges. Article IV of the ordinance establishes control of discharges to separate storm sewers and watercourses. Article VI establishes the authority to prohibit or regulate discharges, and Article IX outlines enforcement powers.

4.3.C *Develop and implement a plan to detect and address unauthorized non-storm water discharges, including illegal dumping, to the system. An explanation of these strategies shall be included in the SWMP with:*

- 1. Applicable response timelines;*
- 2. Procedures for tracing the source of an illicit discharge, including specific techniques used to detect the location of the source;*
- 3. Procedures for removing the illicit discharge; and*
- 4. Other practices that are a part of this plan.*

Unauthorized non-stormwater discharges and dumping activities are responded to immediately if initially encountered by MSD staff during routine activities such as CMOM activity, capital improvement projects (by MSD and co-permittees), and MCM 3 channel surveys.

MSD also operates a 24 hour per day, seven days per week Customer Care call center to receive customer notifications of sewer problems, illegal discharges and dumping. Emergency Response personnel are available 24/7 as well to respond to these problems. Crews respond to spills, discharges, and ongoing debris dumping activities, within four hours. Calls reporting suspected evidence of past debris dumping that are not causing an immediate threat to the environment or safety are investigated within five days.

Procedures, techniques, and guidance for tracing, detecting, and resolving non-stormwater related discharges including illegal dumping into the system are detailed in a standard operating procedure, [MS4 MCM3 Illicit Discharge Investigations](#).

4.3.D *The permittee shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and the improper disposal of waste. The SWMP shall include a description of how this plan will coordinate with all other minimum control measures, monitoring, Integrated Planning (where applicable), and TMDL implementation (where applicable).*

MSD and the co-permittees' plan for informing public employees, businesses and the general public of hazards associated with illegal discharges and the improper disposal of waste consists of:

- Audio/visual messaging on social media, websites, sporting events, tradeshow, and amusement venues
- Messaging depicted on MSD bills
- K-12 educator and student training
- Operating household hazardous waste drop-off locations
- Stream cleanup events
- Door hangars and brochures
- Storm drain inlet markers
- Presentations to professional organizations and trade groups;
- Municipal operations staff training, covering pet waste, yard waste, individual sewage disposal systems, winter de-icing and storage activities, household hazardous waste, land disturbance, FOG (fats, oils and grease), swimming pools, industrial activities, and others.

By identifying target audiences, maintaining and delivering the messaging topics across the mediums noted above, and providing public education and outreach opportunities, the plan coordinates with MCM #1. All BMPs noted in BMP Table 1 demonstrate this.

By utilizing a Steering Committee that meets periodically throughout the permit term and seeking public input through this committee on this Stormwater Management Plan, the plan coordinates with MCM #2. BMP # 26 in BMP Table 2 demonstrates this.

As part of illicit discharge investigations performed under MCM #3, brochures, door hangers, and other communication regarding illegal discharges, improper waste disposal, street cleaning, residential car washing, residential swimming pools, etc. are distributed to the public where these investigations occur. BMPs #34 and #35 in BMP Table 3 demonstrate this.

By identifying and tracking trade associations and contractors that may have involvement in *land disturbance* (MCM #1, BMPs #4 and #5 in BMP Table 1), and providing presentations and education material about the SWMP, illegal discharges, and improper waste handling to these groups at professional organization meetings and trade shows (MCM #1, BMP #14 in BMP Table 1), the plan coordinates with MCM #4. In addition to this, by maintaining written procedures and guidance materials for co-permittees site operators to follow (MCM #4, BMPs #44, #45, #46, #47, and #49 in BMP Table 4), public employees, business owners and the public are informed of proper land disturbance techniques and procedures that can be utilized to prevent illegal discharges and improper disposal of waste associated with land disturbance.

By identifying trade associations (such as the Home Builders Association, Associated General Contractors, American Society of Civil Engineers, property managers, etc.) that may have involvement in *site development, site design, and post construction stormwater management* (MCM #1, BMPs 4 and 5 in BMP Table 1), and providing presentations and education material about the SWMP, illegal discharges, and improper waste handling to these groups at meetings and trade shows, the plan coordinates with MCM 5. By implementing Rules and Regulations, design standards, site design guidance materials, and providing plan review processes (MCM #5, BMPs #53, #55, and #56 in BMP Table 5), public staff, business owners, and the general public are informed of proper site development techniques and procedures that can be utilized to minimize stormwater impacts, prevent illegal discharges, and improper disposal of waste before, during, and after construction. Furthermore, by implementing a maintenance response plan and conducting periodic inspections (MCM #5, BMP #57, BMP Table 5), property owners are educated on how post construction stormwater BMP's can be properly maintained in a way that prevents them from becoming a source of an illegal discharge (either via poor operation or improper disposal of trash, accumulated sediment, etc.).

Through MCM #6, public works staff are trained how to recognize, address, and prevent illicit discharges by implementing the MCM #6 Operations and Maintenance Program, through the annual MS4 Administration Workshop, and refresher training (MCM #6, BMP #58, BMP Table 6)

At the time of this plan, TMDL ARAPs are focused on identifying and eliminating sources of E. coli bacteria in watersheds with an E. coli bacteria TMDL. ARAP activities involve visual inspection of the storm sewer system to identify and eliminate E. coli bacteria sources. When a source is found and an investigation is started, the education methods noted above in MCM #3 are implemented. Integrated Planning is not applicable to this MS4 at this time.

4.3.E *Implement a dry weather field screening strategy for unauthorized non-stormwater flows. The SWMP shall include a description of diagnostic monitoring procedures, including procedures for visual screening, sampling, or field analyzation and what parameters are sampled for to be used as indicators of discharge sources.*

AND

4.3.F *Maintain and describe procedures to identify priority areas likely to have illicit discharges such as, but not limited to, any area where there is ongoing evidence of illicit discharges, or dumping; areas with higher likelihood of illicit connections such as neighborhoods with onsite sewage; or regions with a high percentage of directly connected impervious areas.*

As part of the MCM 3 Illicit Discharge Detection and Elimination program, MSD utilizes a standard operating procedure ([MS4 MCM3 Illicit Discharge Investigations](#)) for implementation of a dry weather field screening strategy for unauthorized non-stormwater flows. The SOP details diagnostic monitoring procedures, including procedures for visual screening, sampling, field analyzation and parameters to be sampled for. The SOP is reviewed at least once during the permit term, and updates are made as needed.

Priority areas likely to have illicit discharges are considered based on the following factors:

- History of prior IDDE activities - which include routine channel surveys and responses to cases of illicit discharges and dumping. Records of locations, findings, and resolutions of these activities are detailed in work orders that are maintained in MSD's computerized maintenance management system (Maximo). This data is tracked, reviewed, and reported annually in MS4 annual reports.
- Databases - MSD maintains databases of non-sewered parcels, properties known to have septic systems, properties participating in a lateral repair program, and addresses providing waste to MSD's hauled waste program. This data is mapped within MSD's GIS system, which depicts regions to indicate where suspected problem areas likely to occur (i.e. high frequency of failing sewer laterals, density of regions of known septic systems, historically high density of illicit discharge/dumping issues, etc.). The proximity of these attributes to impaired segments of streams within the plan area identified on the Missouri 303(d) list, as well as water quality data are assessed to identify areas to prioritize channel surveys.
- Watersheds subject to TMDLs with approved ARAPs conduct investigations of the separate storm sewer system for the pollutant of concern identified in the TMDL, and in accordance with the procedures and schedules identified in the ARAP. TMDL ARAPS and their implementation schedules can be referenced on MSD's website at the following link:
<https://msdprojectclear.org/what-we-do/stormwater-management/tmdl-araps/>

4.3.G *Provide procedures to ensure the permittee's illicit discharge ordinance (or other regulatory mechanism) is implemented by means of appropriate enforcement procedures, including fines, and actions. A description of these enforcement procedures shall be included in the SWMP.*

MSD utilizes provisions in its sewer use ordinances to prohibit illicit discharges into the stormwater system. [MSD Ordinance No. 15048](#) is used as the legal enforcement tool to control such discharges. Article IV of the ordinance establishes control of discharges to separate storm sewers and watercourses. Article VI establishes the authority to prohibit or regulate discharges, and Article IX outlines

enforcement powers. Enforcement procedures are outlined in MSD's [MS4 MCM3 Illicit Discharge Investigations](#) standard operating procedures.

Descriptions of BMPs, actions, measurable goals, milestones, expected results, and evaluation criteria to comply with permit requirements 4.3.A – 4.3.G are identified in **BMP Table 3**.

Permit Section	<div>BMP Table 3</div> <div>Best Management Practice (BMP)</div>					Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM3 4.3.A	MSD	27	Maintain GIS system showing constructed MS4 outfalls and receiving streams.	View outfalls in plan area watersheds. Comply with permit requirement for map	Comply with permit requirement for committee.	Maintain map of constructed outfalls on GIS.	Maintain map of constructed outfalls on GIS.	Maintain map of constructed outfalls on GIS.	Maintain map of constructed outfalls on GIS.	Maintain map of constructed outfalls on GIS.	Constructed outfalls mapped. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed.
	MSD	28	Use map update work orders to track any modifications to the sewer map.	Keep current information on storm sewer system in plan area watersheds	Comply with permit requirement for map maintenance	Maintain work order records of map updates.	Maintain work order records of map updates.	Maintain work order records of map updates.	Maintain work order records of map updates.	Maintain work order records of map updates.	Maps updates completed through work orders. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed.
MCM3 4.3.B	MSD	29	Enforce MSD ordinance 15048, and other ordinances as required.	Provides MSD legal authority to address illicit discharges.	Comply with permit requirement for map maintenance	Enforce MSD Ordinance. Record enforcement actions.	Enforce MSD Ordinance. Record enforcement actions.	Enforce MSD Ordinance. Record enforcement actions.	Enforce MSD Ordinance. Record enforcement actions.	Enforce MSD Ordinance. Record enforcement actions.	Ordinance developed and enforced. Track number of enforcement actions. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed.
MCM3 4.3.C	MSD	30	Survey Plan Area 2020 303 (d) impaired stream listing watersheds (Excluding Missouri River major watershed) natural channels identified on MSD stormwater GIS map	Detect and eliminate illicit discharges.	Identify illicit discharges and take enforcement action as necessary.	Survey 195 miles of storm channels for illicit discharges. Record mileage, findings, and resolutions.	Survey 195 miles of storm channels for illicit discharges. Record mileage, findings, and resolutions.	Survey 195 miles of storm channels for illicit discharges. Record mileage, findings, and resolutions.	Survey 195 miles of storm channels for illicit discharges. Record mileage, findings, and resolutions.	Survey 195 miles of storm channels for illicit discharges. Record mileage, findings, and resolutions.	Track mileage, findings from surveys, and resolutions. Each annual report documents annual measurable goals and milestones completed. Evaluate IDD findings trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, decreasing trend of IDDs findings, and positive change in behavior identified.
	MSD	31	Respond to reports of illegal dumping.	Detect and eliminate illicit discharges .	Identify illicit discharges and take enforcement action as necessary.	Respond to customer complaints in accordance with the effective version of MSD's SOP for Customer Sewer Maintenance Requests.	Respond to customer complaints in accordance with the effective version of MSD's SOP for Customer Sewer Maintenance Requests.	Respond to customer complaints in accordance with the effective version of MSD's SOP for Customer Sewer Maintenance Requests.	Respond to customer complaints in accordance with the effective version of MSD's SOP for Customer Sewer Maintenance Requests.	Respond to customer complaints in accordance with the effective version of MSD's SOP for Customer Sewer Maintenance Requests.	Track service requests, work orders, and resolutions. Each annual report documents annual measurable goals and milestones completed. Evaluate initial response times annually and complaints trend by end of permit term.	Measurable goals and milestones completed, Initial response times comply with policy at least 90% of the occurrences and consistent/decreasing trend of complaints.
MCM3 4.3.C.2	MSD	32	Maintain operating procedures for tracing illicit discharges from public sewer system.	Timely detect and eliminate illicit discharges within entire plan area	Have tools to identify illicit discharges and take enforcement action as necessary.	Maintain and implement standard operating procedures.	Maintain and implement standard operating procedures.	Maintain and implement standard operating procedures.	Maintain and implement standard operating procedures.	Maintain and implement standard operating procedures.	Standard operating procedures completed and updated as needed. Each annual report documents annual measurable goals and milestones completed. Evaluate audits, as applicable. Evaluate IDDs findings trends by end of permit term.	Measurable goals and milestones completed. Audits identify standard operating procedures are followed consistently and IDDs findings are timely addressed.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM3 4.3.C.3	MSD	33	Maintain operating procedures for eliminating illicit discharges	Timely elimination of illicit discharges	Identify illicit discharges and take enforcement action as necessary.	Access and update standard operating procedures. Report number of illicit discharges, resolved and outstanding.	Maintain and implement standard operating procedures. Report number of illicit discharges, resolved and outstanding.	Maintain and implement standard operating procedures. Report number of illicit discharges, resolved and outstanding.	Maintain and implement standard operating procedures. Report number of illicit discharges, resolved and outstanding.	Maintain and implement standard operating procedures. Report number of illicit discharges, resolved and outstanding.	Track number of illicit discharges, resolved and outstanding. Standard operating procedures completed and updated as needed. Each annual report documents annual measurable goals and milestones completed. Evaluate IDD findings trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, decreasing trend of IDD findings, and positive change in behavior identified.
MCM3 4.3.D	MSD	34	Provide public outreach communications tools (brochures, etc.) to sources of non-stormwater discharge that could be substantial contributors of pollutants into the MS4, such as street cleaning, residential car washing, and residential swimming pools	Foster stormwater nonpoint source pollution awareness and behavior change in community	Provide education and increase awareness and positive behavior change	Record location and number of brochures and door hangers provided as part of IDD investigations.	Record location and number of brochures and door hangers provided as part of IDD investigations.	Record location and number of brochures and door hangers provided as part of IDD investigations.	Record location and number of brochures and door hangers provided as part of IDD investigations.	Record location and number of brochures and door hangers provided as part of IDD investigations.	Number of educational material tracked. Each annual report documents annual measurable goals and milestones completed. Evaluate educational material (from IDD findings and complaints) distribution trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed and positive change in behavior identified.
						Record location and number of brochures and door hangers provided as part of illicit discharge investigations.	Record location and number of brochures and door hangers provided as part of illicit discharge investigations.	Record location and number of brochures and door hangers provided as part of illicit discharge investigations.	Record location and number of brochures and door hangers provided as part of illicit discharge investigations.	Record location and number of brochures and door hangers provided as part of illicit discharge investigations.	Number of educational material tracked. Each annual report documents annual measurable goals and milestones completed. Evaluate door hangers distribution trends and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed and positive change in behavior identified.
	MSD	35	Maintain and distribute brochures, door hangers, and other communication tools that inform about hazards associated with illegal discharges and improper disposal of waste.	Foster stormwater nonpoint source pollution awareness and behavior change in community.	Provide education and increase awareness and positive behavior change.	None	Review "location and numbers" to determine if modifications to MCM 1 activities is needed.	None	None	Review "location and numbers" to determine if modifications to MCM 1 activities is needed.		
MCM3 4.3.E	MSD	36	Maintain operating procedures for field testing and surveying to help identify chemicals indicative of illicit discharge.	Field screening provides for timely and efficient illicit source identification and elimination.	Provide tools to identify illicit discharges and take enforcement action as necessary.	Maintain field screening plan.	Maintain field screening plan.	Maintain field screening plan.	Maintain field screening plan.	Maintain field screening plan.	Standard operating procedures completed and updated as needed. Each annual report documents annual measurable goals and milestones completed. Evaluate equipment and control charts by end of permit	Measurable goals and milestones completed and standard operating procedures reflects current operations.

Permit Section	Best Management Practice (BMP)					Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM3 4.3.F	MSD	37	Maintain and annually review findings from channel surveys. Previous findings inspected.	Identify priority areas for potential monitoring and follow-up.	Ensures there is follow-up on potential sources.	Review BMP 31 findings and inspect each as necessary to ensure 1-in-5 year frequency is achieved.	Review BMP 31 findings and inspect each as necessary to ensure 1-in-5 year frequency is achieved.	Review BMP 31 findings and inspect each as necessary to ensure 1-in-5 year frequency is achieved.	Review BMP 31 findings and inspect each as necessary to ensure 1-in-5 year frequency is achieved.	Review BMP 31 findings and inspect each as necessary to ensure 1-in-5 year frequency is achieved.	Annual review of all findings. All finding areas inspected 1-in-5 years, minimum. Track mileage, findings from surveys, and resolutions. Each annual report documents annual measurable goals and milestones completed. Evaluate IDD findings trends, and public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, decreasing trend of IDD findings, and positive change in behavior identified.
	MSD	38	Review representative water quality data collected by MSD to prioritize investigation areas.	Use the water quality data that MSD collects to identify sources.	Identify reaches that are affected by sources. Allows development of a plan for sources.	Review water quality data and provide summary report comparing data to channel inspection findings, for 2021 WQ data.	Review water quality data and provide summary report comparing data to channel inspection findings, for 2022 WQ data.	Review water quality data and provide summary report comparing data to channel inspection findings, for 2023 WQ data.	Review water quality data and provide summary report comparing data to channel inspection findings, for 2024 WQ data.	Review water quality data and provide summary report comparing data to channel inspection findings, for 2025 WQ data.	Report submitted and filed. Each annual report documents annual measurable goals and milestones completed. Evaluate correlations between sample collection and IDD annually. Evaluate public survey report awareness/behavior changes by end of permit term.	Measurable goals and milestones completed, target areas identified, and positive change in behavior identified.
	All	39	Survey individual sewage disposal systems (i.e., septic tanks) in the Plan Area 2020 303 (d) listing impaired stream listing watersheds (Excluding Missouri River major watershed).	Detect and eliminate illicit discharges,	Identify illicit discharges and take enforcement action as necessary.	Survey individual sewage disposal systems using existing MSD GIS map. Record findings and resolutions.	Survey individual sewage disposal systems using existing MSD GIS map. Record findings and resolutions.	Survey individual sewage disposal systems using existing MSD GIS map. Record findings and resolutions.	Survey individual sewage disposal systems using existing MSD GIS map. Record findings and resolutions.	Survey individual sewage disposal systems using existing MSD GIS map. Record findings and resolutions.	Track findings from surveys and resolutions to establish a baseline for effectiveness evaluation in future SWMPs. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed and effectiveness baseline identified.
	All	40	Develop a tabular database and GIS layer of properties that have participated in the sewer lateral repair program.	Have a database of properties that have participated in the sewer lateral repair program that could be used to assist illicit discharge investigations	Efficiently complete illicit discharge investigations	Maintain GIS map of data sources.	Maintain GIS map of data sources.	Maintain GIS map of data sources.	Maintain GIS map of data sources.	Maintain GIS map of data sources.	Maintain GIS map and database. Each annual report documents annual measurable goals and milestones completed. Evaluate database usage with IDD findings trends and complaints trends by end of permit term.	Measurable goals and milestones completed and timely lateral repairs throughout plan area continues.
MCM3 4.3.G	MSD	41	Maintain enforcement plan for addressing illicit discharges.	Timely elimination of illicit discharges.	Identify illicit discharges and take enforcement action as necessary.	Maintain and implement Ordinance 15048	Maintain and implement Ordinance 15048	Maintain and implement Ordinance 15048	Maintain and implement Ordinance 15048	Maintain and implement Ordinance 15048	Ordinance and standard operating procedures developed and updated as needed. Each annual report documents annual measurable goals and milestones completed. Evaluate audit results, as applicable, and evaluate IDD findings trends by end of permit term.	Measurable goals and milestones completed. Ordinance and IDD findings are timely addressed. Audits identify standard operating procedures are followed consistently

MCM 4: Construction Site Stormwater Runoff Control

Permit Requirements

The permittee shall develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

4.4.A *The permittee shall have an ordinance and/or other regulatory mechanism to require construction site operators to implement erosion and sediment control BMPs at construction/land disturbance sites.*

- 1. The ordinance or regulatory mechanism shall include sanctions which are designed to ensure compliance, to the extent allowable under state, or local law.*
- 2. The SWMP must contain a copy of or a link to the relevant ordinance or regulatory mechanism.*

AND

4.4.B *The permittee shall maintain requirements for construction site operators to:*

- 1. Implement appropriate erosion and sediment control best management practices; and*
- 2. 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.*

AND

4.4.C *The permittee shall maintain and apply procedures for review of all pre-construction site plans for consideration of potential water quality impacts.*

AND

4.4.D *The permittee shall maintain and apply mechanisms for receipt and consideration of information submitted by the public.*

AND

4.4.E The permittee shall maintain and apply procedures for site inspection and enforcement of control measures, this shall include prioritization of site inspection processes;

AND

4.4.F The permittee shall inspect (or require inspection of) any structure that functions to prevent pollution of stormwater or to remove pollutants from stormwater and ensure that all BMPs are implemented and effective. This shall include a monitoring plan and/or documentation with implementation schedules described in the SWMP.

AND

4.4.G The permittee shall maintain and apply a plan designed to ensure compliance with the permittee's erosion and sediment control regulatory mechanism, this shall include the sanctions and enforcement mechanisms to be used to ensure compliance.

Applicability

Within the Plan Area, construction and land disturbance activities are performed by private entities, as well as by MSD, St. Louis County, and many of the municipal co-permittees. Land disturbance activities conducted by the co-permittees are handled in-house or with the use of a contractor.

As a result of the first Phase II permit, each Plan Area co-permittee has amended its existing construction and land disturbance program or developed a program which includes adoption of appropriate Phase II compliant policies, procedures, and ordinances to reduce pollutants from construction activities that result in a land disturbance of equal to or greater than 1 acre in size. Activities conducted by private entities are subject to the land disturbance permitting requirements of the co-permittee, depending upon the governmental jurisdiction within which the site is located. In addition to any local approvals, every construction site operator must also obtain a separate MDNR permit for any land disturbance activities affecting an area of one acre or more. Regardless of the status of local approvals, land disturbance activities on such sites may not commence prior to the issuance of a state land disturbance permit.

Municipality Implementation Options

Each incorporated municipality has the authority and responsibility to perform construction permitting and inspection services as a basic element of the police powers afforded municipal governments in Missouri. Each has implemented a

Phase II compliance land disturbance program to regulate construction within their jurisdiction.

Some municipalities provide full permitting and inspection services with their own resources. These municipalities have implemented the project reviews, permitting, inspection, complaint response, and other activities needed to implement the permit's land disturbance program.

A second option many municipalities have taken is to adopt St. Louis County's ordinance and contract with St. Louis County for Code Enforcement. The County contracts for permitting (including plan review and construction authorization documents) and code enforcement, including periodic and critical event inspections. The County contract requires the construction site operator to gain zoning approval from the municipality for a project before a county permit is issued. In addition, the municipality issues its final occupancy permits only after the Department of Public Works has completed all construction inspections. In all cases the ordinance authority and any penalties for non-compliance are the responsibility and authority of the individual municipal governments.

BMP Table 4 describes each programmatic BMP and measurables designed to address 4.4.A - 4.4.G. Ordinances, regulatory mechanisms, and procedures used in conjunction with the BMPs in BMP Table 4 are found in **Appendix C**.

Permit Section	BMP Table 4 Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM4 4.4.A	St. Louis County and Municipalities	42	Maintain regulatory mechanisms and active land disturbance programs.	Ensure co-permittee land disturbance programs are implemented.	Permit compliance.	Assess and update, as needed, Ordinance and/or other regulatory mechanism. Maintain and implement Ordinance and/or other regulatory mechanis each year of the permit term. Record each co-permittees Ordinance and/or other regulatory mechanism.	Maintain and implement Ordinance and/or other regulatory mechanism.	Maintain and implement Ordinance and/or other regulatory mechanism.	Maintain and implement Ordinance and/or other regulatory mechanism.	Assess and update, as needed, Ordinance and/or other regulatory mechanism. Maintain and implement Ordinance and/or other regulatory mechanism. Identify areas to update for next permit term.Record each co-permittees Ordinance and/or other regulatory mechanism.	Ordinance and/or other regulatory mechanism developed and enforced. Track number of St. Louis County and municipalities programs. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed
	MSD	43	Verify regulatory authority.	Ensure existing co-permittee land disturbance programs have authority.	Permit compliance	Record each co-permittees ordinance and/or other regulatory mechanism in the SWMP.	None	None	None	None	Track St. Louis County and municipalities programs information. First year annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed
MCM4 4.4.B	St. Louis County and Municipalities	44	Maintain written procedures and guidance materials for operators to follow.	Prevent land disturbance related waste from leaving the land disturbance area.	Waste sources contained by BMPs	Assess and update, as needed, written procedures. Maintain and implement written procedures each year of the permit term. Record each co-permittees procedure.	Maintain and implement written procedures.	Maintain and implement written procedures.	Maintain and implement written procedures.	Assess and update, as needed, written procedures. Maintain and implement written procedures. Identify areas to update for next permit term. Record each co-permittees procedure.	Track St. Louis County and municipalities written procedures. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable, and evaluate procedures implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that procedures are followed consistently as indicated by trends of implemented programs.
MCM4 4.4.C	St. Louis County and Municipalities	45	Maintain written procedures and guidance materials for permittees to follow.	Require development pre-construction planning See also MCM5.	Appropriate sediment and erosion BMPs installed	Assess and update, as needed, written procedures. Maintain and implement written procedures each year of the permit term. Record each co-permittees procedure.	Maintain and implement written procedures.	Maintain and implement written procedures.	Maintain and implement written procedures.	Assess and update, as needed, written procedures. Maintain and implement written procedures. Identify areas to update for next permit term. Record each co-permittees procedure.	Track St. Louis County and municipalities written procedures. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable, and evaluate procedures implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that procedures are followed consistently as indicated by trends of implemented programs.
MCM4 4.4.D	St. Louis County and Municipalities	46	Maintain written procedures to receive (i.e., public complaint hotline) respond to, and track public inquiries and complaints.	Provide timely customer response to complaints from land disturbance related waste leaving the land disturbance area.	Permittees will follow procedures to ensure timely and appropriate responses.	Assess and update, as needed, written procedures. Maintain and implement written procedures each year of the permit term. Record each co-permittees procedure.	Maintain and implement written procedures.	Maintain and implement written procedures.	Maintain and implement written procedures.	Assess and update, as needed, written procedures. Maintain and implement written procedures. Identify areas to update for next permit term. Record each co-permittees procedure.	Track St. Louis County and municipalities written procedures. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable, and evaluate procedures implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that procedures are followed consistently as indicated by trends of implemented programs.
					Reduce pollution leaving site by demonstrating timely response occurred.	Record each copermittees number of complaints and follow-up actions	Record each copermittees number of complaints and follow-up actions	Record each copermittees number of complaints and follow-up actions	Record each copermittees number of complaints and follow-up actions	Record each copermittees number of complaints and follow-up actions	Each annual report documents annual measurable goals and milestones completed. Evaluate procedures implementation trend by end of permit term. Evaluate complaints, IDD findings, and enforcement trends by end of permit term.	Measurable goals and milestones completed on time with expected result, consistent/increasing trend of implemented procedures, consistent/decreasing trend of formal NOV's, and stable/improved Plan Area TSS.
	MSD			Record number of findings, complaints, and response actions		Record number of findings, complaints, and response actions	Record number of findings, complaints, and response actions	Record number of findings, complaints, and response actions	Record number of findings, complaints, and response actions	Record number of findings, complaints, and response actions	Each annual report documents annual measurable goals and milestones completed. Evaluate complaints, IDD findings, and enforcement trends by end of permit term.	Measurable goals and milestones completed, consistent/decreasing trend of formal NOV's, and stable/improved Plan Area TSS.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM4 4.4.E	St. Louis County and Municipalities	47	Maintain written procedures and checklists for permittees to follow during SWPPP inspections.	To ensure BMPs properly installed and maintained.	St. Louis County and municipalities will inspect that appropriate sediment and erosion BMPs are installed.	Assess and update, as needed, written procedures and checklists. Maintain and implement written procedures each year of the permit term. Record each co-permittees procedure.	Maintain and implement written procedures and checklists.	Maintain and implement written procedures and checklists.	Maintain and implement written procedures and checklists.	Assess and update, as needed, written procedures and checklists. Maintain and implement written procedures. Identify areas to update for next permit term. Record each co-permittees procedure.	Track St. Louis County and municipalities written procedures. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable, and evaluate procedures implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that procedures are followed consistently as indicated by trends of implemented programs.
MCM4 4.4.F	St. Louis County and Municipalities	48	Inspect land disturbance sites and as specified in land disturbance program ordinance.	To ensure BMPs properly installed and maintained.	St. Louis County and municipalities will inspect that appropriate sediment and erosion BMPs are installed.	Record each co-permittees number of inspections at each active land disturbance site.	Record each co-permittees number of inspections at each active land disturbance site.	Record each co-permittees number of inspections at each active land disturbance site.	Record each co-permittees number of inspections at each active land disturbance site.	Record each co-permittees number of inspections at each active land disturbance site.	Each annual report documents annual measurable goals and milestones completed. Evaluate complaints, IDD findings, and enforcements trends by end of permit term.	Measurable goals and milestones completed, consistent/decreasing trend of formal NOV's, and stable/improved Plan Area TSS.
MCM4 4.4.G	St. Louis County and Municipalities	49	Maintain written procedures for enforcement actions.	Provide authority to implement program.	St. Louis County and municipalities will follow enforcement procedures when needed.	Record each copermittees number of informal and formal enforcements.	Record each copermittees number of informal and formal enforcements.	Record each copermittees number of informal and formal enforcements.	Record each copermittees number of informal and formal enforcements.	Record each copermittees number of informal and formal enforcements.	Each annual report documents annual measurable goals and milestones completed. Evaluate complaints, IDD findings, and enforcement trends by end of permit term.	Measurable goals and milestones completed, consistent/decreasing trend of formal NOV's, and stable/improved Plan Area TSS

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

Permit Requirements

The permittee shall develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that would disturb one acre or more, and that discharge into the permittee's regulated MS4.

4.5.A *The permittee shall develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for the community, including, but not limited to the assessment of site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance. The goal of this approach is to arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, utilize BMPs that effectively remove stormwater pollution, and attempt to maintain predevelopment runoff conditions.*

1. Details of these strategies to minimize water quality impacts shall be included in the SWMP.

2. The SWMP shall include a link to or copy of standards developed or adopted.

AND

4.5.B *To the extent allowable under state, or local law, through ordinance, or other regulatory mechanism, the permittee's Stormwater Management Program shall address post-construction runoff from new development and redevelopment projects. The regulatory mechanism the permittee will use shall be identified in the SWMP by including a link to or a copy of the ordinance(s) or regulatory mechanism(s). If the permittee needs to develop a mechanism, the schedule for implementation shall be described in the SWMP.*

Both structural and non-structural BMPs have a role in effectively addressing stream impairment and water quality impacts. A milestone activity of the SWMP will be to continue implementing Plan Area wide requirements for stormwater facilities on development projects over 1 acre. MSD requires all stormwater facilities to be provided and designed in accordance with provisions contained in the ["Rules and Regulations and Engineering Design Requirements for Sanitary Sewer and Stormwater Drainage Facilities,"](#) as amended. These Rules and Regulations include requirements for BMPs for stormwater control and watershed protection to

be incorporated into the project design. These rules and regulations are implemented under the authority of [MSD Ordinance 9030](#), and the Rules and Regulations implementing the Phase II BMPs were adopted by the MSD Board of Trustees in [Resolution 2630](#). The Rules and Regulations include stormwater design criteria for:

- Water quality treatment of the project disturbed area, or equivalent, using the 90th percentile daily rainfall depth or continuous simulation modeling indicating 90% of all annual rainfall is treated by the BMP.
- Reducing runoff volume to pre-construction levels on new development sites. New development sites include those with less than 20% impervious area and/or where prior land use activities have not impaired the site and utilization of natural processes like infiltration are still possible. A BMP's ability to adequately reduce runoff is assessed based on average annual rainfall or continuous simulation modeling over a typical year. Runoff is defined as water discharged to the MS4 by overflow (bypass) and/or by underdrain piping (e.g., treated water that does not infiltrate).
- Extended detention storage and release of the 1-year 24-hour storm to reduce channel erosion, as appropriate for the site.

MSD applies these water quality design criteria on projects within the Plan Area that discharge to waters of the state or drainage areas tributary to a stormwater outlet. In addition, the ["Site Design Guidance – Tools for Incorporating Post Construction Stormwater Quality Protection into Concept Plans and Land Disturbance Permitting, April 17, 2009"](#) is a document used by planning and zoning staff, plan reviewers, site designers, contractors, and developers to help them assess site characteristics at the beginning of the construction site design phase, and arrive at designs that protect sensitive areas, minimize the creation of stormwater pollution, utilize BMPs that effectively remove stormwater pollution, and attempt to maintain predevelopment runoff conditions.

Likewise, MSD applies the water quality design criteria noted above on projects within the flood control levee districts. Projects located within flood control levee districts may utilize regional water quality plans approved by MSD. These regional plans may adopt a modified 3-pronged approach: at the source, in master channels, and in flood storage basin structures.

To be considered an effective BMP for stand-alone treatment of the water quality volume, the BMP shall demonstrate a minimum removal efficiency of 80% total suspended solids and have an acceptable longevity rate in the field (i.e., be maintainable). MSD maintains an online [BMP Toolbox](#) on its website for developers and engineers who submit post-construction BMP plans to MSD and co-permittees. The Toolbox helps navigate a user through the technical and procedural paths to post-construction stormwater BMPs design, installation and maintenance.

MSD, St. Louis County, and the Plan Area municipalities will continue to approve development plans only after ensuring the development meets all applicable requirements. St. Louis County and municipalities enforce ordinances related to land use BMPs in their planning and zoning function. St. Louis County and each municipality has implemented procedures to ensure that all applicable private and public development projects involving stormwater management are reviewed and approved by MSD. Co-permittee ordinances that support this are found in **Appendix D**. MSD enforces sewer and drainage design requirements mandating structural and non-structural post-construction BMPs. MSD will continue to issue permits for and inspect the construction of all structural BMPs.

4.5.C The permittee shall maintain a plan to ensure adequate long-term operation and maintenance of Post-Construction BMPs, both structural and non-structural. Descriptions of and/or examples of agreements between the permittee and other parties such as post-development landowners or regional authorities shall be included in the SWMP.

AND

4.5.D The permittee shall maintain and apply an inspection plan with implementation schedules for post-construction BMPs.

AND

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

An executed maintenance agreement is required with all projects where BMPs are required to comply with the permit, and where MSD is not performing BMP maintenance. All structural BMPs located on private property (i.e., all parcels that are assigned a locator identification number by the St. Louis County assessor's office) will be maintained by the property owner(s), and MSD will enforce the maintenance through a Maintenance Agreement that is recorded with the property deed. MSD will also require a maintenance agreement be executed for BMPs located within right-of-way and for which MSD is not performing routine maintenance, although these agreements cannot be recorded with the right-of-way property. [Details regarding the maintenance agreement](#) are provided on the BMP Toolbox. MSD also provides [resources to help BMP owners](#) understand their responsibilities towards maintenance, reporting, and compliance on the BMP Toolbox as well.

MSD maintains responsibility under the Plan to ensure BMPs are maintained and MSD will continue to inspect BMPs to ensure adequate operation. MSD has enforcement authority to ensure owners maintain their post construction BMPs in [MSD Ordinance 15048](#), Article IV, Part C. MSD BMP inspections will be conducted at a minimum of once every three years for each BMP, or an alternate frequency

deemed appropriate for the BMP type, and MSD will continue enforcement compliance using MSD Ordinance 15048. MSD conducts its BMP inspections and enforcement actions in accordance with procedures specified in its [“Stormwater Management Facilities \(BMP\) Operation and Maintenance Enforcement Response Plan, July 2020”](#)

Descriptions of BMPs, actions, measurable goals, milestones, expected results, and evaluation criteria to comply with permit requirements 4.5. A – 4.5.E are presented in **BMP Table 5**.

Co-permittee ordinances that support MCM 5 activities are found in **Appendix D**.

Permit Section	BMP Table 5 Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM5 4.5.A	MSD	50	Utilize matrix of BMPs on BMP toolbox. Maintain existing strategies	Requires developments to implement appropriate strategies and controls to address post-construction run-off.	Implement BMPs to MEP.	Developments will utilize BMPs and design requirements as listed on the BMP toolbox. List water quality (WQ) and channel protection (CPv) requirements.	Update BMP toolkit, as needed. Developments will utilize BMPs and design requirements as listed on the BMP toolbox. List WQ and CPv requirements.	Developments will utilize BMPs and design requirements as listed on the BMP toolbox. List WQ and CPv requirements.	Developments will utilize BMPs and design requirements as listed on the BMP toolbox. List WQ and CPv requirements.	Developments will utilize BMPs and design requirements as listed on the BMP toolbox. List WQ and CPv requirements.	Development projects follow rules. Toolbox is complete and updated as needed. Annual internal review of 5 different BMP types of completed projects. Each annual report documents annual measurable goals and milestones completed. Evaluate toolbox usage trend and completed recordkeeping trend by end of permit term.	Measurable goals and milestones completed. Stable/increasing trend of toolbox usage and consistent completed recordkeeping trend.
	St. Louis County and Municipalities	51	Identify co-permittees who have implemented supplemental practices to reduce impervious parking areas and incorporate green infrastructure.	Reduce impervious parking areas and reduce barriers to incorporating green infrastructure into parking areas.	Optimize use of impervious areas in parking	Survey co-permittees with supplemental practices to reduce impervious parking areas and incorporate green infrastructure.	Summarize permit term year 1 survey and report to co-permittees.	None	None	Survey co-permittees with supplemental practices to reduce impervious parking areas and incorporate green infrastructure.	Track number of and different types of practices. Each annual report documents annual measurable goals and milestones completed. Evaluate number of polices trend by end of permit term.	Consistent/increasing trend of implemented policies.
	MSD	52	Maintain optional conceptual review process.	Provides developers with plan review assessment of appropriate strategies and controls to address post-construction run-off.	Identify opportunities for water quality protection early in the development project planning phase.	Record number of developments that are charged for utilizing the conceptual review service.	Record number of developments that are charged for utilizing the conceptual review service.	Record number of developments that are charged for utilizing the conceptual review service.	Record number of developments that are charged for utilizing the conceptual review service.	Record number of developments that are charged for utilizing the conceptual review service.	Track number of conceptual reviews. Each annual report documents annual measurable goals and milestones completed. Evaluate number of conceptual reviews trend by end of permit term.	Consistent/increasing trend of reviews requests.
	MSD	53	Site Design Guide Available	Provide developers and plan reviewers a way to implement BMP	Protect sensitive areas, minimize stormwater pollution, and utilize effective BMPs.	Site Design Guidance document available. Form a committee by end of the year to update Guide by 2025.	Site Design Guidance document available. The committee will evaluate the Guide for changes.	Site Design Guidance document available. The committee will complete a draft Guide update by end of the year.	Site Design Guidance document available. Distribute updated Guide to co-permittees and development community by end of the year.	Site Design Guidance document available.	Process available and used, Site Design Guide updated. Annual review audit of up to 5 projects. Track St. Louis County and municipalities processes. Each annual report documents annual measurable goals and milestones completed. Evaluate co-permittees, with room for new development using Site Design or equivalent processes, projects for addressing existing green space site conditions and evaluation of conceptual plans to preserve and protect green spaces. Evaluate processes implementation trend by end of permit term.	Measurable goals and milestones completed. Reviews identify indicate that processes are followed consistently as indicated by trends of implemented programs.
	All	54	Use pre-condition assessment with early stage project planning.	Requires developers and permittees to assess conditions early.	Protect sensitive areas, minimize stormwater pollution, and utilize effective BMPs.	Assess and update, as needed, process requiring pre-construction planning by MSD Site Design Guidance or equivalent procedure. Maintain and implement processes each year of the permit term. Record each co-permittees process.	Maintain and implement process requiring pre-construction planning by MSD Site Design Guidance or equivalent procedure.	Maintain and implement process requiring pre-construction planning by MSD Site Design Guidance or equivalent procedure.	Maintain and implement process requiring pre-construction planning by MSD Site Design Guidance or equivalent procedure.	Maintain and implement process requiring pre-construction planning by MSD Site Design Guidance or equivalent procedure. Identify areas to update for next permit term. Record each co-permittees process.		

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM5 4.5.B	MSD	55	Follow MSD ordinances 9030 and 15048, MSD Rules and Regulations, and County and Municipal Ordinances.	Requires developers and plan reviewers to implement appropriate strategies and controls to address post-construction run-off.	New and redevelopment projects that disturb greater than or equal to one acre will implement BMPs.	Maintain and implement Ordinances and Design Rules.	Maintain and implement Ordinances and Design Rules.	Maintain and implement Ordinances and Design Rules.	Maintain and implement Ordinances and Design Rules.	Maintain and implement Ordinances and Design Rules.	Ordinance and Design Rules completed and implemented. Each annual report documents annual measurable goals and milestones completed. Evaluate BMP effectiveness reports, as applicable, by end of permit term.	Measurable goals and milestones completed. BMP effectiveness reports as applicable identify BMPs/strategies are effective to improve water quality
	St. Louis County and Municipalities				New and redevelopment projects that disturb greater than or equal to one acre will implement BMPs.	Assess and update, as needed, ordinance and/or other regulatory mechanism to regulate and enforce post-construction strategies. Implement ordinance and/or other regulatory mechanism each year of the permit term. Record each co-permittees ordinance and/or other regulatory mechanism.	Implement ordinance and/or other regulatory mechanism to regulate and enforce post-construction strategies.	Implement ordinance and/or other regulatory mechanism to regulate and enforce post-construction strategies.	Implement ordinance and/or other regulatory mechanism to regulate and enforce post-construction strategies.	Assess and update, as needed, ordinance and/or other regulatory mechanism to regulate and enforce post-construction strategies. Implement ordinance and/or other regulatory mechanism. Identify areas to update for next permit term. Record each co-permittees ordinance and/or other regulatory mechanism.	Ordinance completed, implemented and tracked. Each annual report documents annual measurable goals and milestones completed. Evaluate BMP effectiveness reports as applicable and evaluate ordinances implementation trend by end of permit term.	Measurable goals and milestones completed. BMP effectiveness reports as applicable identify BMPs/strategies are effective to improve water quality and consistent/increasing trend of implemented ordinances.
MCM5 4.5.C	MSD	56	Follow plan review process for executing maintenance agreements environmental compliance inspection process for long term maintenance.	To ensure long-term operation of BMPs.	BMPs will function correctly.	Develop and Implement maintenance agreement for each project, unless BMP maintained by MSD.	Develop and Implement maintenance agreement for each project, unless BMP maintained by MSD.	Develop and Implement maintenance agreement for each project, unless BMP maintained by MSD.	Develop and Implement maintenance agreement for each project, unless BMP maintained by MSD.	Develop and Implement maintenance agreement for each project, unless BMP maintained by MSD.	All MSD approved projects, with BMPs that are not maintained by MSD, have maintenance agreements. Annual internal review of 5 different BMP projects types completed. Each annual report documents annual measurable goals and milestones completed. Evaluate recordkeeping trend by end of permit term	Measurable goals and milestones completed. Consistent trend of completed recordkeeping.
						Implement MSD BMP Enforcement and Response Plan.	Update and implement MSD BMP Enforcement and Response Plan.	Implement MSD BMP Enforcement and Response Plan.	Implement MSD BMP Enforcement and Response Plan.	Implement MSD BMP Enforcement and Response Plan.	Plan updated and implemented. Each annual report documents annual measurable goals and milestones completed. Evaluate BMPs records, inspections, and enforcement actions, addressed in BMP number 57, trends by end of permit term.	Measurable goals and milestones completed. Enforcement and Response Plan consistently followed. Stable trend of BMPs recordkeeping, timely inspections, and timely enforcement actions.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM5 4.5.D & 4.5 E	MSD	57	Inspect all water quality BMPs and use key performance indicators to demonstrate compliance.	To ensure long-term operation of BMPs.	BMPs constructed and maintained to function properly.	Implement construction inspection requirements, as defined in rules and regulations.	Implement construction inspection requirements, as defined in rules and regulations.	Implement construction inspection requirements, as defined in rules and regulations.	Implement construction inspection requirements, as defined in rules and regulations.	Implement construction inspection requirements, as defined in rules and regulations.	Annual internal review of 4 different BMP types of completed projects. Each annual report documents annual measurable goals and milestones completed. Evaluate material submittals been approved, site stability, approved materials are used, underdrain piping installed, plantings installation, site protection, and pictures. Evaluate recordkeeping trend by end of permit term.	Measurable goals and milestones completed. BMPs function as designed, and stable trend of completed recordkeeping.
						Schedule and track BMP three year inspections.	Schedule and track BMP three year inspections.	Schedule and track BMP three year inspections.	Schedule and track BMP three year inspections.	Schedule and track BMP three year inspections.	All BMPs are inspected once per 3 years, minimum. Each annual report documents annual measurable goals and milestones completed. Each annual report documents annual measurable goals and milestones completed. Evaluate BMPs records, inspections, and enforcement actions trends by end of permit term.	Measurable goals and milestones completed. Enforcement and Response Plan consistently followed. Stable trend of recordkeeping, timely inspections, and timely enforcement actions.
						Implement Enforcement Response Plan and track number of BMP enforcement actions	Implement Enforcement Response Plan and track number of BMP enforcement actions	Implement Enforcement Response Plan and track number of BMP enforcement actions	Implement Enforcement Response Plan and track number of BMP enforcement actions	Implement Enforcement Response Plan and track number of BMP enforcement actions	Report number of enforcement actions taken. Enforcement action taken within 45 days of notice of problem, 90% of the time. Each annual report documents annual measurable goals and milestones completed. Evaluate BMPs records, inspections, and enforcement actions trends by end of permit term.	Measurable goals and milestones completed. Enforcement and Response Plan reflects current operations. Stable trend of recordkeeping, timely inspections, and timely enforcement actions.
						Require and track BMP owner annual reports	Require and track BMP owner annual reports	Require and track BMP owner annual reports	Require and track BMP owner annual reports	Require and track BMP owner annual reports	Report number of annual reports received and outstanding. Each annual report documents annual measurable goals and milestones completed. Evaluate number of annual report submittals trend by end of permit term.	Measurable goals and milestones completed. Enforcement and Response Plan reflects current operations. Stable trend of annual report submittals.

MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations

Permit Requirements

The permittee shall develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

4.6.A *An employee training program for municipal operations staff who work with material handling, at municipal vehicle or equipment maintenance areas, storage yards, and material storage facilities. The training shall be used to prevent and reduce stormwater pollution from activities such as, but not limited to, park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. The SWMP shall include:*

- 1. A description of any existing, available training material the permittee plans to use such as those available from EPA, the state, or other organizations. Include the frequency of training and topics covered.*
- 2. A description of how this training will coordinate with all other MCMs.*
- 3. A description of how this training will coordinate with monitoring, integrated planning, and TMDL implementations where applicable.*

MSD and municipal co-permittees have developed and adopted a model [Operation and Maintenance Program for the Prevention and Reduction of Pollution in Stormwater Municipal Operations](#). The program document outlines practices and procedures for stormwater pollution prevention in municipal operations, and was developed based on resources from MSD, APWA members, Missouri Department of Natural Resources, and EPA. Refresher classes are offered by MSD annually to review the best management practices and facets of the document. In addition to the O&M Program refresher training, MSD also conducts an annual SWMP workshop with the municipal co-permittees to review each of the minimum control measures, the status of the SWMP BMPs, as well the status of TMDL ARAP development and implementation. By offering the O&M refresher training and the MS4 Administration workshop, co-permittees and staff are trained on proper management of municipal vehicle and equipment maintenance areas and storage yards; proper land disturbance site management; long-term BMP maintenance; and proper material handling at storage facilities.

The O&M Program refresher training and MS4 Admin workshop coordinates with all other MCMs as follows:

- MCM #1 - by providing education/training to municipal staff; this in itself satisfies how the training program coordinates with MCM #1;
- MCM #2 - by municipal staff participating in the training, this satisfies MCM#2
- MCM #3 – by teaching staff how to recognize, address and prevent illicit discharges, this satisfies MCM #3.
- MCM #4 – by educating inspection staff on proper land disturbance site management, this satisfies MCM #4.
- MCM #5 – by educating inspection staff on the importance of post-construction BMPs and long-term maintenance of the BMPs, this satisfies MCM#5.
- MCM #6 – by educating/training municipal staff on good housekeeping practices at municipal facilities, this in itself satisfies MCM #6.
- TMDL Implementation – ARAP development and implementation status are reviewed; staff are educated on the sources of the pollutant of concern tied to the TMDL, ARAP BMPs, and processes that are established to address the TMDL.
- Monitoring, and integrated planning are not applicable at this time; however, if monitoring or integrated planning become applicable, descriptions of how the training program will coordinate with them will be incorporated into the SWMP and noted in the annual report. The training program is reviewed annually and modified as new, updated material becomes available or as the needs of the MS4 co-permittees change.

4.6.B *The permittee shall maintain an updated list of all municipal operations/facilities that are impacted by this operation and maintenance program.*

The list of co-permittee facilities, as well as a link to applicable maintenance and operations programs are found in **Appendix E**.

4.6.C *The permittee shall maintain an updated list of industrial facilities that the permittee owns or operates that are subject to NPDES permits for discharges of stormwater associated with industrial activity that ultimately discharge to the permittee's MS4. The permittee shall include the permit number or a copy of the No Exposure Exemption Certification (if applicable) for each facility in the SWMP. NPDES permitted facilities not owned or operated by the permittee are not required to be part of the list, however the permittee should be familiar with all such facilities in their MS4 service area as they may signify a priority area for the IDDE (MCM #3) program.*

Co-permittee information to comply with 4.6.C are found in **Appendix F**.

4.6.D *The permittee shall develop or maintain controls for reducing or eliminating the discharge of floatables and pollutants from municipal parking lots, maintenance and storage yards, waste transfer station, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, snow disposal areas owned or operated by the permittee, or other locations expected to contribute floatables and/or pollutants.*

AND

4.6.E *The permittee shall maintain and apply maintenance procedures, maintenance schedules, and long-term inspection schedules for controls to reduce floatables and other pollutants to the permittee's regulated MS4.*

AND

4.6.F *The permittee shall utilize procedures for the proper disposal of waste removed from the separate storm sewers and areas of jurisdiction, including dredged material, accumulated sediments, floatables and other debris.*

AND

4.6.G *The permittee shall utilize procedures for the washing of municipal vehicles and equipment.*

1. Use of any soap or detergent shall only be where there is connection to sanitary sewer or equivalent; and

2. Any wash water that contains pollutants such as salt, oils, grease, sediment, grass clippings, lawn chemicals, or pesticides shall not be discharged to waters of the state or the MS4 system without appropriate treatment to ensure the discharged effluent is in compliance with Missouri Water Quality Standards.

AND

4.6.H *All paints, solvents, petroleum products and petroleum waste products (except fuels) under the control of the permittee shall be stored so that these materials are not exposed to stormwater.*

1. Sufficient practices of spill prevention, control, and/or management shall be provided to prevent any spill of these pollutants from entering waters of the state.

2. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

The scope of municipal operations varies widely among the 61 entities involved in this SWMP. Municipal operations range from very small municipalities, having no municipal facilities other than a few blocks of local streets, to the county government, having responsibility for regional highways, parks, high rise municipal buildings, major construction activities, fleet maintenance operations, airport and all the other various operations of a major county government. Because of this broad variation in activities, selection of appropriate BMPs to satisfy the permit requirements will vary considerably among the co-permittees. Training programs will be similarly varied. Each co-permittee identified and listed their operations that are impacted by the MS4 permit requirements referenced in 4.6B and 4.6C above and have also supplied the required information as part of their MS4 permit application. Implementation of an Operation and Maintenance Program using a program model is required by each co-permittee.

The [Operation and Maintenance Program Model](#) was adopted by each co-permittee during the Third Term Permit, and tailored towards their operations.

4.6.I If the permittee has new flood management projects (projects developed or designed to reduce flooding), the permittee shall utilize procedures to assess all flood management projects for impacts of water quality, incorporating water quality protection devices or practices.

Flood management projects by co-permittees are subject to MSD's review. As the MS4 coordinating authority, MSD also evaluates flood management projects for compliance with this requirement of the permit. Chapter 10 in the [Operation and Maintenance Program Model](#) template provides guidance to co-permittees on satisfying this permit requirement.

Descriptions of BMPs, actions, measurable goals, milestones, expected results, and evaluation criteria to comply with the permit requirements 4.6.A – 4.6.I are presented in **BMP Table 6**.

Appendix E and **Appendix F** both provide links to co-permittee Maintenance and Operations Programs, facilities subject to the maintenance and operations programs, and facilities subject to industrial NPDES permits that discharge into the MS4.

BMP Table 6

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation			
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria	
MCM6 4.6.A	All	58	Provide annual training to all MSD, municipal, and St. Louis County employees who work in municipal operations impacted by stormwater.	To prevent and reduce stormwater pollution from municipal operations.	Training program exists, and updated to coordinate.	Maintain training program.	Maintain training program.	Maintain training program.	Maintain training program.	Review training program and update as needed.	Track number of training programs completed and implemented. Year 5 review documented. Each annual report documents annual measurable goals and milestones completed. Evaluate training material for all MCMs, employee access/availability, and venue options by end of permit term. Evaluate events and attendance trends by end of permit term.	Measurable goals and milestones completed, convenient training access available to all employees throughout the Plan Area, consistent/increasing trend of attendees per class thoroughout the Plan Area.	
	MSD				Co-permittee employees will be offered MSD annual training opportunities.	Hold 4 training events and record attendance.	Hold 4 training events and record attendance.	Hold 4 training events and record attendance.	Hold 4 training events and record attendance.	Hold 4 training events and record attendance.	Hold 4 training events and record attendance.	Track training events completed and attendance. Each annual report documents annual measurable goals and milestones completed. Evaluate events and attendance trends by end of permit term.	Measurable goals and milestones completed, consistent/increasing trend of attendees per class thoroughout the Plan Area.
MCM6 4.6.B & 4.6.C	All	59	Identify all co-permittee municipal operations and facilities with potential stormwater impact.	To ensure all co-permittee owned or operated municipal activities address stormwater discharges	MCM6 facilities in written operation and maintenance program.	Maintain current list in operation and maintenance program plan.	Maintain current list in operation and maintenance program plan.	Maintain current list in operation and maintenance program plan.	Maintain current list in operation and maintenance program plan.	Maintain current list in operation and maintenance program plan.	List completed. Each annual report documents annual measurable goals and milestones completed. Evaluate audit reports as applicable and evaluate Operation and Programs implementations trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.	
					Maintain a list of SIC NPDES permitted industrial facilitates, as applicable	Maintain current list of facilities and their permit numbers.	Maintain current list of facilities and their permit numbers.	Maintain current list of facilities and their permit numbers.	Maintain current list of facilities and their permit numbers.	Maintain current list of facilities and their permit numbers.	Maintain current list of facilities and their permit numbers.	List completed. Each annual report documents annual measurable goals and milestones completed. Evaluate audit reports as applicable and evaluate Operation and Programs implementations trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.
					Maintain current No Exposure Exemption Certification and a list of these facilities, as applicable.	Review certification status of each facility and renew as necessary. Maintain list of facilities and their certification expiration dates in operation and maintenance program plan..	Review certification status of each facility and renew as necessary. Maintain list of facilities and their certification expiration dates in operation and maintenance program plan..	Review certification status of each facility and renew as necessary. Maintain list of facilities and their certification expiration dates in operation and maintenance program plan..	Review certification status of each facility and renew as necessary. Maintain list of facilities and their certification expiration dates in operation and maintenance program plan..	Review certification status of each facility and renew as necessary. Maintain list of facilities and their certification expiration dates in operation and maintenance program plan..	Review certification status of each facility and renew as necessary. Maintain list of facilities and their certification expiration dates in operation and maintenance program plan..	List updated and No Exposure Exemption Certifications completed before expiration dates. Each annual report documents annual measurable goals and milestones completed. Evaluate audit reports as applicable and evaluate Operation and Programs implementations trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM6 4.6.D	All	60	Install BMPs (e.g., rain gardens and permeable pavement) with construction of municipal facilities and roadways, where feasible.	Provide pollutant controls with projects.	Reduce discharge of pollutants from project areas.	Project plans include BMPs. Permittees build BMPs. Permittees maintain and report on BMP condition.	Project plans include BMPs. Permittees build BMPs. Permittees maintain and report on BMP condition.	Project plans include BMPs. Permittees build BMPs. Permittees maintain and report on BMP condition.	Project plans include BMPs. Permittees build BMPs. Permittees maintain and report on BMP condition.	Project plans include BMPs. Permittees build BMPs. Permittees maintain and report on BMP condition.	Co-permittees build BMPs with projects, where feasible. Co-permittees report on BMP status in annual report. Track number of BMPs installed. Each annual report documents annual measurable goals and milestones completed. Evaluate projects installed trend by end of permit term.	Measurable goals and milestones completed and consistent/increasing trend of projects installed.
	St. Louis County and Municipalities	61	Track salt application rates. Set baseline key performance indicator of salt application rates.	To prevent and reduce stormwater pollution from deicing operations.	Salt application rates documented	Record BMPs and application rates.	Record BMPs and application rates.	Record BMPs and application rates.	Record BMPs and application rates.	Record BMPs and application rates.	Each annual report documents annual measurable goals and milestones completed. Analyze salt application rate data annually for application trends. Consider also stream water quality data. Evaluate co-permittees reporting trends by end of permit term.	Measurable goals and milestones completed. Decreasing trend in co-permittee salt application rates that correlates to a decreasing trend in Plan Area stream chloride concentrations. Consistent/increasing trend of co-permittee reporting application rates
					Use alternative deicing approaches to reduce chloride load, where feasible.	Track copermittees use of alternative deicing approaches.	Track copermittees use of alternative deicing approaches.	Track copermittees use of alternative deicing approaches.	Track copermittees use of alternative deicing approaches.	Track copermittees use of alternative deicing approaches.	Each annual report documents annual measurable goals and milestones completed. Analyze salt application rate data annually for application trends. Consider also stream water quality data. Evaluate co-permittees reporting trends by end of permit term.	Measurable goals and milestones completed. Decreasing trend in co-permittee salt application rates that correlates to a decreasing trend in Plan Area stream chloride concentrations. Consistent/increasing trend of co-permittee reporting alternative approaches.
	ALL	62	Identify municipal operations that utilize substances containing Per- and Polyfluoroalkyl substances (PFAS) and Aqueous Film Forming Foam (AFFF)	To prevent and reduce stormwater pollution from municipal operations.	Provide co-permittees with awareness of PFAS and AFFF sources within their operations and practices that can be deployed to manage them.	Provide education opportunity to all co-permittees to familiarize them with background, sources, impacts, and regulatory trends regarding PFAS and AFFF.	Co-permittees evaluate their own municipal operations for PFAS and AFFF, and develop an inventory of potential sources	Form a steering committee of co-permittees to assemble data and findings from Permit Year 2. Summarize findings and share with the rest of the co-permittees by the end of the permit year.	Develop a list of best management practices that can co-permittees can consider employing by the end of the permit year.	Publish an educational brochure on PFAS/AFFF awareness and best management practices that are relevant to municipal operations	PFAS/AFFF awareness brochure with respect to municipal operations is developed and distributed to all co-permittees by the end of the Permit Term. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed. PFAS/AFFF awareness brochure with respect to municipal operations is developed and distributed to all co-permittees by the end of the Permit Term.

Permit Section	Best Management Practice (BMP)				Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation		
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM6 4.6.E	All	63	Maintain written Operation and Maintenance Program.	To ensure BMPs properly installed and maintained.	Confirm appropriate BMPs implemented and functioning correctly	Record inspection dates and locations.	Record inspection dates and locations.	Record inspection dates and locations.	Record inspection dates and locations.	Record inspection dates and locations.	Inspections completed and track number of inspections. Each annual report documents annual measurable goals and milestones completed. Evaluate audit reports as applicable and inspections trend by end of permit term. Evaluate municipal operations related complaints, IDD findings, and enforcement trends by end of permit term.	Measurable goals and milestones completed, consistent/decreasing trend of NOVs from municipal operations. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.
					Written operation and maintenance program in place. Program reflects practice.	Template available for co-permittees. Assess and update, as needed, Operation and Maintenance written program. Implement Operation and Maintenance program each year of the permit term. Record and track each co-permittees Operation and Maintenance written program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program. Identify areas to update for next permit term. Record and track each co-permittees Operation and Maintenance written program.	Track co-permittees written Operation and Maintenance Programs. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable and evaluate programs implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.
	MSD	64	Maintain written inspection checklist template for performing inspections .	To ensure BMPs properly installed and maintained.	Confirm appropriate BMPs implemented and functioning correctly .	Checklist available for copermittees. Provide checklist at MSD annual training events.	Checklist available for copermittees. Provide checklist at MSD annual training.	Checklist available for copermittees. Provide checklist at MSD annual training.	Checklist available for copermittees. Provide checklist at MSD annual training.	Checklist available for copermittees. Provide checklist at MSD annual training.	Inspection checklist template completed and available at annual MSD training. Each annual report documents annual measurable goals and milestones completed. Evaluate audit reports as applicable and inspections trend by end of permit term. Evaluate municipal operations related complaints, IDD findings, and enforcement trends by end of permit term.	Measurable goals and milestones completed and consistent/decreasing trend of NOVs from municipal operations. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.
MCM6 4.6.F	All	65	Maintain written Operation and Maintenance Program.	To prevent and reduce stormwater pollution from municipal operations.	Written operation and maintenance program in place. Program reflects practice.	Template available for co-permittees. Assess and update, as needed, Operation and Maintenance written program. Implement Operation and Maintenance program each year of the permit term. Record and track each co-permittees Operation and Maintenance written program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program. Identify areas to update for next permit term. Record and track each co-permittees Operation and Maintenance written program.	Track co-permittees written Operation and Maintenance Programs. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable and evaluate programs implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.

Permit Section	Best Management Practice (BMP)					Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Measurable Goals, Milestones, and Dates	Iterative Process Evaluation	
	Responsibility		Description	Purpose	Expected Result	2021 - 2022	2023	2024	2025	2026	Evaluation Process	Effective BMP Criteria
MCM6 4.6.G	All	66	Maintain written Operation and Maintenance Program.	To prevent and reduce stormwater pollution from municipal operations.	Written operation and maintenance program in place. Program reflects practice.	Template available for co-permittees. Assess and update, as needed, Operation and Maintenance written program. Implement Operation and Maintenance program each year of the permit term. Record and track each co-permittees Operation and Maintenance written program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program. Identify areas to update for next permit term. Record and track each co-permittees Operation and Maintenance written program.	Track co-permittees written Operation and Maintenance Programs. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable and evaluate programs implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.
MCM6 4.6.H	All	67	Maintain written Operation and Maintenance Program.	To prevent and reduce stormwater pollution from municipal operations.	Written operation and maintenance program in place. Program reflects practice.	Template available for co-permittees. Assess and update, as needed, Operation and Maintenance written program. Implement Operation and Maintenance program each year of the permit term. Record and track each co-permittees Operation and Maintenance written program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program. Identify areas to update for next permit term. Record and track each co-permittees Operation and Maintenance written program.	Track co-permittees written Operation and Maintenance Programs. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable and evaluate programs implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.
MCM6 4.6.I	MSD	68	Maintain written guidelines for MSD to follow when preparing preliminary engineering project studies.	To assess water quality impacts for new flood management projects.	Written guidelines in place.	Implement guidelines for preparing preliminary engineering project studies.	Implement guidelines for preparing preliminary engineering project studies.	Implement guidelines for preparing preliminary engineering project studies.	Implement guidelines for preparing preliminary engineering project studies.	Implement guidelines for preparing preliminary engineering project studies.	Maintain guidelines and applicable projects follow guidelines. Each annual report documents annual measurable goals and milestones completed.	Measurable goals and milestones completed.
	All	69	Maintain written Operation and Maintenance Program.	To assess and mitigate water quality impacts for new flood management projects.	Written operation and maintenance program in place. Program reflects practice.	Template available for co-permittees. Assess and update, as needed, Operation and Maintenance written program. Implement Operation and Maintenance program each year of the permit term. Record and track each co-permittees Operation and Maintenance written program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program.	Template available for co-permittees. Implement Operation and Maintenance program. Identify areas to update for next permit term. Record and track each co-permittees Operation and Maintenance written program.	Track co-permittees written Operation and Maintenance Programs. Each annual report documents annual measurable goals and milestones completed. Evaluate audits results as applicable and evaluate programs implementation trend by end of permit term.	Measurable goals and milestones completed. Audit results indicate that Operation and Maintenance Programs are followed consistently as indicated by trends of implemented programs.

Appendices

Appendix A:	St. Louis County SWMP Co-permittees
Appendix B:	St. Louis County SWMP Co-permittees Contact Information
Appendix C:	MCM 4 Co-permittee Ordinances, Regulatory Mechanisms, and Procedures
Appendix D:	MCM 5 Co-permittee Ordinances, Regulatory Mechanisms, and Procedures
Appendix E:	MCM 6 Co-permittee Operations and Maintenance Programs and Facilities
Appendix F:	MCM 6 Co-permittee Facilities Subject to NPDES Permits or with No Exposure Exemption Certification

Appendix A

St. Louis County SWMP Co-permittees

- | | |
|-------------------------------|---|
| 1. City of Ballwin | 32. City of Maryland Heights |
| 2. City of Bellefontaine | 33. City of Moline Acres |
| 3. City of Bel-Ridge | 34. City of Normandy |
| 4. City of Berkeley | 35. City of Northwoods |
| 5. City of Black Jack | 36. City of Oakland |
| 6. City of Breckenridge Hills | 37. City of Olivette |
| 7. City of Brentwood | 38. City of Overland |
| 8. City of Bridgeton | 39. City of Pagedale |
| 9. City of Calverton Park | 40. City of Richmond Heights |
| 10. City of Charlack | 41. City of Rock Hill |
| 11. City of Chesterfield | 42. City of Shrewsbury |
| 12. City of Clarkson Valley | 43. City of St. Ann |
| 13. City of Clayton | 44. City of St. John |
| 14. City of Cool Valley | 45. City of Sunset Hills |
| 15. City of Crestwood | 46. City of Town & Country |
| 16. City of Creve Coeur | 47. City of University City |
| 17. City of Dellwood | 48. City of Valley Park |
| 18. City of Des Peres | 49. City of Vinita Park |
| 19. City of Ellisville | 50. City of Warson Woods |
| 20. City of Fenton | 51. City of Webster Groves |
| 21. City of Ferguson | 52. City of Wildwood |
| 22. City of Florissant | 53. City of Winchester |
| 23. City of Frontenac | 54. City of Woodson Terrace |
| 24. City of Glendale | 55. St. Louis County |
| 25. City of Green Park | 56. Town of Norwood Court |
| 26. City of Hazelwood | 57. Village of Bel-Nor |
| 27. City of Jennings | 58. Village of Hanley Hills |
| 28. City of Kirkwood | 59. Village of Marlborough |
| 29. City of Ladue | 60. Village of Riverview |
| 30. City of Lakeshire | 61. Metropolitan St. Louis Sewer |
| 31. City of Manchester | District (coordinating authority for
implementation of SWMP) |

Appendix B

St. Louis County SWMP Co-permittees Contact Information

Co-Permittee	First Name	Last Name	Title	Phone	Email
City of Ballwin	Jim	Link	Director of Public Works	(636) 207- 2347	jlink@ballwin.mo.us
City of Bellefontaine Neighbors	Fran	Stevens	City Clerk	(314) 867-0076	fstevens@cityofbn.com
City of Bel-Ridge	Cary	Herndon	Public Works Supervisor	(314) 267-6846	cherndon@bel-ridge.us
City of Berkeley	Keith	White	Superintendent	314) 400- 3780	white@ci.berkeley.mo.us
City of Black Jack	Kittrel	Braselman	Director of Public Works	(314) 355-0400	directorofpw@cityofblackjack. Com
City of Breckenridge Hills	George	Mudd	Building Inspector	(314) 427-6868	gmudd@breckenridge-hills.mo.us
City of Brentwood	Dan	Gummersheimer	Director of Public Works	(314) 963-8643	dgummersheimer@brentwoodmo.org
City of Bridgeton	Robert	Gunn	Director of Public Works	(314) 739-7665	rgunn@bridgetonmo.com
City of Calverton Park	James	Paunovich	Mayor	(314) 524-1212	calverton.park@sbcglobal.net
City of Charlack	Peter	Daub	Director of Public Works	(314) 427-4715	pdaub@cityofcharlack.com
City of Chesterfield	James	Eckrich	Public Works Director/City Engineer	(636) 537-4764	jeckrich@chesterfield.mo.us
City of Clarkson Valley	Michele	McMahon	City Clerk	(636) 227-8607	cvcityhall@charter.net
City of Clayton	Spencer	Litteken	Civil Engineer	(314) 290-8575	slitteken@claytonmo.gov
City of Cool Valley	Deborah	Jones	City Clerk	(314) 521-3500	cvcityclerk@yahoo.com
City of Crestwood	James	Gillam	Director of Public Works	(314) 729-4722	jgillam@cityofcrestwood.org
City of Creve Coeur	Matt	Wohlberg	City Engineer	(314) 442-2084	mwohlberg@ci.creve-coeur.mo.us
City of Dellwood	Marvin	Crumer	Public Services Director	(314) 869-8686	mcrumer@cityofdellwoodmo.com
City of Des Peres	Stephen	Meyer	Director of Public Works	(314) 835-6130	smeyer@desperesmo.org
City of Ellisville	Michael	Hartwig	City Engineer	(636) 227-9660	mhartwig@ellisville.mo.us
City of Fenton	Dan	Howard	Director of Public Works	(636) 349-8155	dhoward@fentonmo.org
City of Ferguson	Donald	Boyce	Director of Public Works	(314) 524-4721	dboyce@fergusoncity.com
City of Florissant	Tom	Goldkamp	Civil Engineer	(314) 839-7643	tgoldkamp@florissantmo.com
City of Frontenac	Jeff	Wappelhorst	Director of Public Works	(314) 994-0646	jwappelhorst@cityoffrontenac.org
City of Glendale	Ben	DeClue	City Administrator	(314) 965-3600	bdeclue@glendalemo.org
City of Green Park	James	Mello	City Administrator	(314) 894-7336	jmello@cityofgreenpark.com
City of Hazelwood	Nikki	Miller	Project Development Coordinator	(314) 513-5031	mmmiller@hazelwoodmo.org
City of Jennings	Jim	Maixner	Director of Public Works Streets & Parks	(314) 381-7184	jmaixner@cityofjennings.org
City of Kirkwood	Richard	Holesinger	Assistant City Engineer	(314) 822-5819	holesire@kirkwoodmo.org
City of Ladue	Anne	Lamitola	Director of Public Works	(314) 993-5665	alamitola@cityofladue-mo.gov
City of Lakeshire	Tim	Seher	Mayor	(314) 605-3578	lakeshiremayor@aol.com

Co-Permittee	First Name	Last Name	Title	Phone	Email
City of Manchester	Dave	Pracht	Director of Public Works	(636) 227-1385	dpracht@manchestermo.gov
City of Maryland Heights	Cliff	Baber	Director of Public Works	(314) 738-2258	cbaber@marylandheights.com
City of Moline Acres	Dennis	DeShay	Public Works Director	(314) 868-2433	ddeshay@molineacres.org
City of Normandy	Regina	Fitzgerald	Director of Public Works	(314) 267-3695	rfitzgerald@cityofnormandy.gov
City of Northwoods	Denise	Griffin	City Administrator	(314) 385-8000	dgriffin@cityofnorthwoods.com
City of Oakland	Deborah	LeMoine	City Administrator	(314) 416-0026	oaklandcityhall@sbcglobal.net
City of Olivette	Bruce	McGregor	Director of Public Works	(314) 993-0252	bmcgregor@olivettemo.com
City of Overland	Jason	McConachie	City Administrator	(314) 952-1952	jmconachie@overlandmo.org
City of Pagedale	Keith	Harvey	Public Works Director	(314) 657-7301	kharvey@cityofpagedale.org
City of Richmond Heights	Chris	Boyd	Director of Public Works	(314) 655-3670	cboyd@richmondheights.org
City of Rock Hill	Katy	Nieman	Director of Parks & Recreation	(314) 561-4304	knieman@rockhillmo.net
City of Shrewsbury	Tony	Wagner	Public Works Superintendent	(314) 645-7441	twagner@cityofshrewsbury.com
City of St. Ann	Ryan	Meyer	Director of Public Services	(314) 423-2917	rmeyer@stannmo.org
City of St. John	James	Phillips	Director of Public Works	(314) 427-8700	jphillips@cityofstjohn.org
City of Sunset Hills	Bryson	Baker	Director of Public Works	(314) 849-3400	bbaker@sunset-hills.com
City of Town & Country	Tim	Randick	Project Manager	(314) 587-2820	randickt@town-and-country.org
City of University City	Jennifer	Wendt	Project Manager	(314) 505-8562	jwendt@ucitymo.org
City of Valley Park	Gerald	Martin	Director of Public Works	(636) 225-8930	gmartin@valleyparkmo.org
City of Vinita Park	Craig	Lovings	Public Works Director	(314) 428-7373	publicworks@vinitapark.org
City of Warson Woods	Michael	Dell'Orco	Acting City Engineer	(314) 965-3100	mdellorco@warsonwoods.com
City of Webster Groves	Travis	Ham	Building Commissioner	(314) 963-5317	hamt@webstergroves.org
City of Wildwood	Dan	Rahn	Assistant City Engineer	(636) 405-2024	dan@cityofwildwood.com.
City of Winchester	Barbara	Beckett	City Administrator	(636) 391-0600	cityhall@city.winchester.mo.us
City of Woodson Terrace	Doug	Zaiz	Director of Public Works	(314) 427-2600	dzaiz@woodsonterrace.net
St. Louis County	Ray	Gawlik	Storm Water Manager	(314) 615-8157	RGawlik@stlouisco.com
Town of Norwood Court	Anna	Hollins	Chairperson, Board of Trustees	(314) 495-5471	aphollins1@aol.com
Village of Bel-Nor	William	Hook	Mayor	(314) 382-5786	hooks2809@gmail.com
Village of Hanley Hills	Dorothy	Matthews	Village Clerk/Office Administrator	(314) 725-0909	clerkhanhills@gmail.com
Village of Marlborough	Joy	Drennan	Village Administrator	(314) 962-5055	jpd_villageclerk@sbcglobal.net
Village of Riverview	Dan	Fraley	Street Department Supervisor	(314) 868-0700	dfitzgerald@riverviewmo.org
Metropolitan St. Louis Sewer District	Jason	Peterein	Program Manager	(314) 436-8714	jtpete@stlmsd.com

Appendix C

MCM 4 Co-permittee Ordinance, Regulatory Mechanism, and Procedures

Co-Permittee	Land Disturbance Ordinance	Link to MCM 4 Ordinance, Regulatory Mechanism and Procedures	St. Louis County Code Enforcement Agreement
City of Ballwin	Ordinance 04-07	City of Ballwin	No
City of Bellefontaine Neighbors	Ordinance 2079	City of Bellefontaine Neighbors	No
City of Bel-Ridge	Ordinance 2011-6	City of Bel-Ridge	No
City of Berkeley	Ordinance 4438	City of Berkeley	No
City of Black Jack	Ordinance 982	City of Black Jack	Yes
City of Breckenridge Hills	Ordinance 1100	City of Breckenridge Hills	Yes
City of Brentwood	Ordinance 3931	City of Brentwood	No
City of Bridgeton	Ordinance 05-43	City of Bridgeton	No
City of Calverton Park	Ordinance 662	City of Calverton Park	Yes
City of Charlack	Ordinance 15-10	City of Charlack	Yes
City of Chesterfield	Ordinance 2801	City of Chesterfield	No
City of Clarkson Valley	Ordinance 08-03	City of Clarkson Valley	No
City of Clayton	Ordinance 5965	City of Clayton	No
City of Cool Valley	Ordinance 1128	City of Cool Valley	Yes
City of Crestwood	Ordinance 3889	City of Crestwood	No
City of Creve Coeur	Ordinance 1107	City of Creve Coeur	No
City of Dellwood	Ordinance 1103	City of Dellwood	Yes
City of Des Peres	Ordinance 2260	City of Des Peres	No
City of Ellisville	Ordinance 2769	City of Ellisville	No
City of Fenton	Ordinance 3389	City of Fenton	Yes
City of Ferguson	Ordinance 7-225	City of Ferguson	No
City of Florissant	Ordinance 8487	City of Florissant	No
City of Frontenac	Ordinance 2010-1621	City of Frontenac	No
City of Glendale	Ordinance 09-10	City of Glendale	Yes
City of Green Park	Ordinance 445	City of Green Park	Yes
City of Hazelwood	Ordinance 3910-07	City of Hazelwood	No
City of Jennings	Ordinance 2149	City of Jennings	No
City of Kirkwood	Ordinance 9174	City of Kirkwood	No
City of Ladue	Ordinance 1950	City of Ladue	No
City of Lakeshire	Ordinance 862	City of Lakeshire	No

Co-Permittee	Land Disturbance Ordinance	Link to MCM 4 Ordinance, Regulatory Mechanism and Procedures	St. Louis County Code Enforcement Agreement
City of Manchester	Ordinance 09-1967	City of Manchester	Yes
City of Maryland Heights	Ordinance 2008-3037	City of Maryland Heights	No
City of Moline Acres	Ordinance 993	City of Moline Acres	Yes
City of Normandy	Ordinance 594	City of Normandy	No
City of Northwoods	Ordinance 07-02	City of Northwoods	No
City of Oakland	Ordinance 729	City of Oakland	Yes
City of Olivette	Ordinance 551	City of Olivette	No
City of Overland	Ordinance 2008-29	City of Overland	No
City of Pagedale	Ordinance 1623	City of Pagedale	Yes
City of Richmond Heights	Ordinance 4965	City of Richmond Heights	No
City of Rock Hill	Ordinance 1688	City of Rock Hill	Yes
City of Shrewsbury	Ordinance 2444	City of Shrewsbury	No
City of St. Ann	Ordinance 2533	City of St. Ann	No
City of St. John	Ordinance 1146	City of St. John	Yes
City of Sunset Hills	Ordinance 1613	City of Sunset Hills	No
City of Town & Country	Ordinance 3510	City of Town And Country	No
City of University City	Ordinance 7065	City of University City	No
City of Valley Park	Ordinance 1473	City of Valley Park	No
City of Vinita Park	Ordinance 21578	City of Vinita Park	No
City of Warson Woods	Ordinance 1305	City of Warson Woods	No
City of Webster Groves	Ordinance 8591	City of Webster Groves	No
City of Wildwood	Ordinance 1488	City of Wildwood	No
City of Winchester	Ordinance 961	City of Winchester	No
City of Woodson Terrace	Ordinance 1692	City of Woodson Terrace	Yes
St. Louis County	Ordinance 25,494	St Louis County	No
Town of Norwood Court	Ordinance 314	Town of Norwood Court	Yes
Village of Bel-Nor	Ordinance 859	Village of Bel Nor	Yes
Village of Hanley Hills	Ordinance 28084	Village of Hanley Hills	Yes
Village of Marlborough	Ordinance 05-422	Village of Marlborough	Yes
Village of Riverview	Ordinance 07-18	Village of Riverview	No

Appendix D

MCM 5 Co-permittee Ordinance, Regulatory Mechanism, and Procedures

Co-Permittee	MCM 5 Ordinance	Link to MCM 5 Ordinance, Regulatory Mechanism and Procedures	Require MSD Approval for MCM 5 on New and Revelopment projects
City of Ballwin	Ordinance 2704	City of Ballwin	Yes
City of Bellefontaine Neighbors	Ordinance 2081	City of Bellefontaine Neighbors	Yes
City of Bel-Ridge	Ordinance 2016-01	City of Bel-Ridge	Yes
City of Berkeley	Ordinance 4342	City of Berkeley	Yes
City of Black Jack	Ordinance 941	City of Black Jack	Yes
City of Breckenridge Hills	Ordinance 1109	City of Breckenridge Hills	Yes
City of Brentwood	Ordinance 4117	City of Brentwood	Yes
City of Bridgeton	Ordinance 08-10	City of Bridgeton	Yes
City of Calverton Park	Ordinance 646	City of Calverton Park	Yes
City of Charlack	Ordinance 08-911	City of Charlack	Yes
City of Chesterfield	Ordinance 2704	City of Chesterfield	Yes
City of Clarkson Valley	Ordinance 08-02	City of Clarkson Valley	Yes
City of Clayton	Ordinance 5965	City of Clayton	Yes
City of Cool Valley	Ordinance 1127	City of Cool Valley	Yes
City of Crestwood	Ordinance 4100	City of Crestwood	Yes
City of Creve Coeur	Ordinance 5551	City of Creve Coeur	Yes
City of Dellwood	Ordinance 1170	Contact co-permittee	Yes
City of Des Peres	Ordinance 2260, Aricle XIV	City of Des Peres	Yes
City of Ellisville	Ordinance 2768 & 3187	City of Ellisville	Yes
City of Fenton	Title IV Zoning Code Ordinance 3001	City of Fenton	Yes
City of Ferguson	Ordinance 2008-3349	City of Ferguson	Yes
City of Florissant	Ordinance 8487	City of Florissant	Yes
City of Frontenac	Ordinance 2010-1621	City of Frontenac	Yes
City of Glendale	Ordinance 18-08	City of Glendale	Yes
City of Green Park	Ordinance 546	City of Green Park	Yes
City of Hazelwood	Ordinance 3911-07	City of Hazelwood	Yes
City of Jennings	Ordinance 2148	City of Jennings	Yes
City of Kirkwood	Ordinance 10546	City of Kirkwood	Yes

Co-Permittee	MCM 5 Ordinance	Link to MCM 5 Ordinance, Regulatory Mechanism and Procedures	Require MSD Approval for MCM 5 on New and Development projects
City of Ladue	Ordinances #1951, #2148, and #2163	City of Ladue	Yes
City of Lakeshire	Ordinance 862	City of Lakeshire	Yes
City of Manchester	Ordinance 08-1852	City of Manchester	Yes
City of Maryland Heights	Section 24-6.9 of the Municipal Code	City of Maryland Heights	Yes
City of Moline Acres	Chapter 430 Article I. Stormwater	City of Moline Acres	Yes
City of Normandy	Ordinance 595	City of Normandy	Yes
City of Northwoods	Ordinance 12-6	City of Northwoods	Yes
City of Oakland	Ordinance 663	City of Oakland	Yes
City of Olivette	Ordinance 2601	City of Olivette	Yes
City of Overland	Ordinance 2008-29	City of Overland	Yes
City of Pagedale	Ordinance 1394	City of Pagedale	Yes
City of Richmond Heights	Ordinance 5075	City of Richmond Heights	Yes
City of Rock Hill	Ordinance 1660	City of Rock Hill	Yes
City of Shrewsbury	Ordinance 2533	City of Shrewsbury	Yes
City of St. Ann	Ordinance 2801	City of St. Ann	Yes
City of St. John	Tree Policy	City of St John	Yes
City of Sunset Hills	Ordinance 1712	City of Sunset Hills	Yes
City of Town & Country	Ordinance 1076	City of Town And Country	Yes
City of University City	Ordinance 6895	City of University City	Yes
City of Valley Park	Ordinance 1755	City of Valley Park	Yes
City of Vinita Park	Ordinance 1136	City of Vinita Park	Yes
City of Warson Woods	Ordinance 1318	City of Warson Woods	Yes
City of Webster Groves	Ordinance 8813	City of Webster Groves	Yes
City of Wildwood	Ordinance 675	City of Wildwood	Yes
City of Winchester	Ordinance 957	City of Winchester	Yes
City of Woodson Terrace	Ordinance 1725	City of Woodson Terrace	Yes
St. Louis County	Ordinance # 25,494, 23,553, 24,256, 26,111	St. Louis County 25,494, 23,553, 24,256, 26,111	Yes
Town of Norwood Court	Ordinance 302	Town of Norwood Court	Yes
Village of Bel-Nor	Ordinance 864	Village of Bel Nor	Yes
Village of Hanley Hills	Ordinance 948	Village of Hanley Hills	Yes
Village of Marlborough	Ordinance 08-450	Village of Marlborough	Yes
Village of Riverview	Ordinance 07-26	Village of Riverview	Yes

Appendix E

MCM 6 Co-permittee Operations and Maintenance Programs

Co-Permittee	MCM 6 Municipal Operations and Maintenance Program (Link included as applicable)
City of Ballwin	City of Ballwin
City of Bellefontaine Neighbors	City of Bellefontaine Neighbors
City of Bel-Ridge	City of Bel-Ridge
City of Berkeley	City of Berkely
City of Black Jack	City of Black Jack
City of Breckenridge Hills	City of Breckenridge Hills
City of Brentwood	City of Brentwood
City of Bridgeton	City of Bridgeton
City of Calverton Park	Contact co-permittee
City of Charlack	City of Charlack
City of Chesterfield	City of Chesterfield
City of Clarkson Valley	Contact co-permittee
City of Clayton	City of Clayton
City of Cool Valley	City of Cool Valley
City of Crestwood	City of Crestwood
City of Creve Coeur	City of Creve Coeur
City of Dellwood	Contact co-permittee
City of Des Peres	City of Des Peres
City of Ellisville	City of Ellisville
City of Fenton	City of Fenton
City of Ferguson	City of Ferguson
City of Florissant	City of Florissant
City of Frontenac	City of Frontenac
City of Glendale	City of Glendale
City of Green Park	City of Green Park
City of Hazelwood	City of Hazelwood
City of Jennings	City of Jennings
City of Kirkwood	City of Kirkwood
City of Ladue	City of Ladue
City of Lakeshire	Contact co-permittee
City of Manchester	City of Manchester

Co-Permittee	MCM 6 Municipal Operations and Maintenance Program (Link included as applicable)
City of Maryland Heights	City of Maryland Heights
City of Moline Acres	City of Moline Acres
City of Normandy	City of Normandy
City of Northwoods	Contact co-permittee
City of Oakland	City of Oakland
City of Olivette	City of Olivette
City of Overland	City of Overland
City of Pagedale	Contact co-permittee
City of Richmond Heights	City of Richmond Heights
City of Rock Hill	City of Rock Hill
City of Shrewsbury	City of Shrewsbury
City of St. Ann	City of St. Ann
City of St. John	City of St John
City of Sunset Hills	City of Sunset Hills
City of Town & Country	City of Town and Country
City of University City	City of University City
City of Valley Park	City of Valley Park
City of Vinita Park	City of Vinita Park
City of Warson Woods	City of Warson Woods
City of Webster Groves	City of Webster Groves
City of Wildwood	City of Wildwood
City of Winchester	City of Winchester
City of Woodson Terrace	City of Woodson Terrace
St. Louis County	St Louis County
Town of Norwood Court	Town of Norwood Court
Village of Bel-Nor	Village of Bel Nor
Village of Hanley Hills	Village of Hanley Hills
Village of Marlborough	Village of Marlborough
Village of Riverview	Contact co-permittee
Metropolitan St. Louis Sewer District	MSD

Appendix F

MCM 6 Co-permittee Facilities Subject to NPDES Permits or with No Exposure Exemption Certification

Co-Permittee	NPDES Permit	No Exposure	Facility Address
City of Ballwin	-	MONX00044	200 PARK DRIVE Park Drive
City of Bellefontaine Neighbors	-	MONX00332	9641 BELLEFONTAINE ROAD
City of Bel-Ridge	-	Application submitted	312 Wheaton Ave.
City of Berkeley	-	-	-
City of Black Jack	-	MONX00333	12690 Old Jamestown Rd.
City of Breckenridge Hills	-	MONX00334	3112 Pasteur
City of Brentwood	-	MONX00335	8756 EULALIE AVENUEBRENTWOOD, MO 63144
City of Bridgeton	-	MONX00336	4015 FEE FEE ROADBRIDGETON, MO 63044
City of Bridgeton	-	MONX00337	12355 NATURAL BRIDGE ROADBRIDGETON, MO 63044
City of Calverton Park	-	-	-
City of Charlack	-	MONX00338	8451 Midland
City of Chesterfield	-	MON000714	17891 North Outer 40 Road
City of Chesterfield	-	MONX00041	165 Public Works Drive
City of Clarkson Valley	-	-	-
City of Clayton	-	MONX00088	8300 SHAW PARK DRCLAYTON, MO 63105-3397
City of Cool Valley	-	MONX00339	CITY OF COOL VALLEY100 SIGNAL HILL DR.COOL VALLEY, MO 63121
City of Crestwood	MOG760050	-	9245 WHITECLIFF PARK LANE
City of Creve Coeur	-	-	-
City of Dellwood	-	MONX00343	1415 CHAMBERS ROADDELLWOOD, MO 63135
City of Des Peres	-	MONX00345	942 Des Peres Road
City of Ellisville	-	MONX00051	553 OLD STATE RDELLISVILLE, MO 63021
City of Fenton	MOG760091	-	990 HORAN DRIVEFENTON, MO 63026
City of Fenton		MONX00513	700 RUDDER RDFENTON, MO 63026
City of Ferguson	-	MONX00346	901 FERGUSON AVENUEFERGUSON, MO 63135
City of Florissant	-	MONX00347	1155 St. Charles Street
City of Frontenac	-	MONX00062	10555 Clayton Road

Co-Permittee	NPDES Permit	No Exposure	Facility Address
City of Glendale	-	MONX00348	721 Bismark Ave.
City of Green Park	-	-	-
City of Hazelwood	-	Application submitted	115 Ford Lane
City of Jennings	-	MONX00350	5834 HODIAMONTJENNINGS, MO 63136
City of Kirkwood	-	Application	345 S. Fillmore Ave.
City of Kirkwood	-	Application	350 South Taylor Ave.
City of Ladue	MOG970006	-	9810 South Outer Forty Dr.
City of Ladue	-	MONX00064	9345 Clayton Road
City of Lakeshire	-	-	-
City of Manchester	-	MONX00046	800 Second Street
City of Maryland Heights	-	MONX00351	incomplete
City of Moline Acres	-	MONX00352	2450 CHAMBERS ROADST. LOUIS, MO 63136
City of Normandy	-	MONX00353	5800 BERMUDA DRIVENORMANDY, MO 63121
City of Northwoods	-	-	-
City of Oakland	-	-	-
City of Olivette	-	-	-
City of Overland	-	MONX00354	1602 RIDDLE COURTOVERLAND, MO 63114
City of Pagedale	-	MONX00355	7135 NORTH MARKET, ST. LOUIS, MO 63133
City of Richmond Heights	-	MONX00356	8013 DALERICHMOND HEIGHTS, MO 63117
City of Richmond Heights	-	MONX00357	8108 ELINORRICHMOND HEIGHTS, MO 6311
City of Rock Hill	-	Application submitted	827 N. Rock Hill Rd.
City of Rock Hill	-	Application submitted	930 Des Peres Ave.
City of Shrewsbury	-	Application submitted	7309 Melbourne Ave.
City of St. Ann	-	MONX00340	8645 PARDEE LANECRESTWOOD, MO 63126
City of St. Ann	-	MONX00358	3950 INDUSTRIAL DRIVEST. ANN, MO 6307
City of St. John	-	MONX00359	8920 BRISTOL AVE.ST. JOHN, MO 63114
City of Sunset Hills	MOG760093	-	12512 WEST WATSON ROADSDUNSET HILLS, MO 63127
City of Town & Country	-	-	-
City of University City	-	MONX00322	7000 OLIVE BLVD.UNIVERSITY CITY, MO 63130-2395
City of Valley Park	-	MONX00042	320 BENTON STVALLEY PARK, MO 63088

Co-Permittee	NPDES Permit	No Exposure	Facility Address
City of Vinita Park	-	MONX00323	2081 WOLTERVINITA PARK, MO 63114
City of Warson Woods	-	-	-
City of Webster Groves	-	-	-
City of Wildwood	-	-	-
City of Winchester	-	-	-
City of Woodson Terrace	-	MONX00361	9648 AMBROWOODSON TERRACE, MO 63134
St. Louis County	-	MONX00330	4045 Seven Hills DriveSt. Louis, MO 63033
St. Louis County	-	MONX00331	11202 Schaefer DriveSt. Louis, MO 63043
St. Louis County	-	MONX00329	16099 Ruck RoadSt. Louis, MO 63021
St. Louis County	-	MONX00328	10996 Kohrs LaneSt. Louis, MO 63123
St. Louis County	-	MONX00327	433 Cliff Cave RoadSt. Louis, MO 63125
St. Louis County	-	MONX00074	2688 Adie RoadSt. Louis, MO 63043
St. Louis County	-	MONX00073	2500 Drilling Service DriveMaryland Heights, MO 63043
St. Louis County	-	MONX00749	11295 Schaefer DriveMaryland Heights, MO 63043
St. Louis County	-	MONX00069	11283 Schaefer DriveMaryland Heights, MO 63043
St. Louis County	-	MONX00326	6347 Plymouth AvenueWellston, MO 63133
Town of Norwood Court	-	-	-
Village of Bel-Nor	-	-	-
Village of Hanley Hills	-	MONX00349	7559 ALLEN GREENHANLEY HILLS, MO 63133
Village of Marlborough	-	-	-
Village of Riverview	-	-	-
Metropolitan St. Louis Sewer District	MO0004391	-	3455 CREVE COEUR MILL RD., ST. LOUIS, MO 63146
Metropolitan St. Louis Sewer District	MO0025151	-	201 HOFFMEISTER AVE., ST. LOUIS, MO 63125
Metropolitan St. Louis Sewer District	MO0025160	-	13798 OLD HALLS FERRY RD., FLORISSANT, MO 63034
Metropolitan St. Louis Sewer District	MO0086126	-	75 OPPS LN., FENTON, MO 63026
Metropolitan St. Louis Sewer District	MO0101362	-	1000 GRAND GLAIZE PARKWAY, VALLEY PARK, MO 63088
Metropolitan St. Louis Sewer District	MO0127949	-	7849 FINE RD., ST. LOUIS, MO 63129
"- Co-permittee reported either permit not applicable or unavailable			

