

City of Madison Stormwater Quality Management Plan

2021-2026





Executive Summary

Municipal Separate Storm Sewer Systems, or MS4s, are the municipally owned series of stormwater infrastructure, such as storm drains, catch basins, gutters, roadside ditches, swales, sediment ponds, and similar structures which are intended to convey stormwater throughout the community to streams and lakes. The stormwater conveyance systems are essential for drainage and stormwater management for urban and suburban communities. As stormwater flows over land, it collects pollutants deposited by both natural and human activities, before discharging these pollutants into our waterways. The overall goal of a Stormwater Quality Management Plan is to contain the framework for a community to positively impact stormwater quality as it flows across the land and into the stormwater system *before* it reaches waterways.

Regulatory Background

In 1987, amendments to the Clean Water Act (CWA) established a legal framework and requirements for the United States Environmental Protection Agency (USEPA) to develop a comprehensive, phased program for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) permit program in November 1990. The Phase 1 program required medium to large communities with populations of at least 100,000 people and with municipal separate storm sewer (MS4s) to develop programs to address the quality of their stormwater discharges. These amendments to the CWA also placed stormwater management requirements on many industries based upon standard industrial classification (SIC) codes, including stormwater permitting requirements on construction activities that disturbed five or more acres of land.

The NPDES Phase II regulations were promulgated in December 1999. The Phase II stormwater requirements affect smaller communities with municipal separate storm sewer systems (MS4s) serving populations of less than 100,000 people, as well as construction activities that disturb one or more acres of land. Only those small MS4s located in “urbanized areas as defined by the U.S. Bureau of the Census, are required to apply for a stormwater NPDES permit and develop a Stormwater Quality Management Program (SWQMP). The City of Madison was designated as a regulated MS4 community.

The designated Stormwater Phase II permitting authority in the State of Indiana is the Indiana Department of Environmental Management (IDEM). IDEM was responsible for developing a rule-making work group to support the agency’s efforts to adopt federally mandated stormwater regulations under the MS4 General Permit INR040000, which was adopted December 18th, 2021. Formerly, stormwater regulations with the State of Indiana were mandated under 327 IAC 15-13, commonly known as “Rule 13”. This has transitioned the regulations from under state code to a general permit. This requires regulated MS4s to apply for permit coverage, develop a Water Quality Characterization Report (WQCR), and develop a SWQMP which is the purpose of this document.



Table of Revisions

The following table summarizes revisions, additions, deletions, etc. to the contents of this SWQMP:

Date	Revised Pages/Appendices	Summary of Change



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BMP Sheets

General Program Activities

MCM 1 and 2: Public Education, Outreach, Participation, and Involvement

MCM 3: Illicit Discharge Detection and Elimination

MCM 4: Construction Site Stormwater Runoff

MCM 5: Post-Construction Stormwater Runoff

MCM 6: Municipal Operations Pollution Prevention and Good Housekeeping

Stormwater Quality Management Plan Overview

The City of Madison is required to develop a stormwater quality management plan (SWQMP) for the purpose of reducing the discharge of pollutants to the Maximum Extent Practicable (MEP). Since the MS4 program



deal with non-point source pollution, the activities involve Best Management Practices (BMPs) to reduce pollutants in stormwater runoff through the use of known, available, and reasonable methods while meeting the requirements of the MS4 General Permit. The use of BMPs is an iterative process which will be evaluated continually and adjusted to meet the needs of the community while remaining in compliance.

The SWQMP is a planning tool which defines how the MS4 Program will be administered. While it is not a the MS4 permit itself, it is a planning tool for managing the activities required by the permit. The Stormwater Management Plan must address the six (6) Minimum Control Measures (MCMs), including:

MCM 1 & 2: Public Education, Outreach Involvement and Participation

MCM 1 and 2 have been combined into a single element within the Indiana MS4 General Permit, but are still considered separate as defined by the EPA. The goals associated with this MCM are to educate residents, visitors, municipal employees, contractors, developers, businesses, and others about the impacts stormwater runoff can have on water quality and ways they can minimize their impact on stormwater quality. An understanding of stormwater issues will help gain public support for the MS4 program. The plan involves encouraging citizens within the MS4 area to participate and provide input in the development and implementation of the MS4 program. A community that is active and involved will be critical to the success of the program.

MCM 3: Illicit Discharge Detection and Elimination

Illicit discharge is defined as any discharge to an MS4 conveyance that is not composed entirely of stormwater, except naturally occurring floatables, such as leaves or tree limbs. Sources of illicit discharges include sanitary wastewater, septic tank effluent, car wash wastewater, oil disposal, radiator flushing disposal, laundry wastewater, roadway accident spillage, and household hazardous wastes. An MS4 operator is required to develop and implement a strategy to detect and eliminate illicit discharges into MS4 conveyances. This is a proactive, rather than reactive approach to water quality management.

MCM 4: Construction Site Stormwater Runoff Control

This control is intended to reduce pollutants, principally sediment, that is associated with construction activities. Requirements include the use of erosion and sediment control measures, as well as measures to properly manage and control other pollutants that may be associated with construction activities. Municipalities will continue to implement an ordinance that manages stormwater from construction sites that disturb more than one (1) acre of land.

MCM 5: Post-Construction Stormwater Management

The MCM addresses stormwater discharges from new development and redeveloped areas, often through the use of stormwater BMPs. Post-construction stormwater quality measures are long-term control systems that must be managed and maintained to ensure performance. The program will ensure that adequate maintenance will be performed on these stormwater quality measures. The goal is to manage stormwater quantity and quality where it falls and retain it on-site. This control measure encourages the use of low impact design techniques and requires the retention or treatment of runoff on site using green infrastructure practices.

MCM 6: Municipal Operations Pollution Prevention & Good Housekeeping

A community should not expect others to manage stormwater measures beyond what it is not already practicing. This MCM requires the MS4 to run operations internally to ensure a reduction in the pollutants that are generated from municipal operations. It includes maintenance and cleaning of roads, parking lots and MS4 conveyances, as well as proper disposal of wastes removed from these areas. Municipal personnel must also receive relevant stormwater training.



Municipal Boundary

The City of Madison is located in Jefferson County in southeastern Indiana along the north shore of the Ohio River as shown on the MS4 map provided in Figure 1. The City of Madison's MS4 area includes the 8.9 square miles (5,684) acres of incorporated area. The population of the City of Madison was 11,967 (2010 Census), resulting in a population density of 1,349 people per square mile.

A portion of the City of Madison is currently served by combined sewers. Stormwater generated in this area is managed under the combined Sewer Overflow (CSO) program, for which the City has developed a Long Term Control Plan (LTCP).

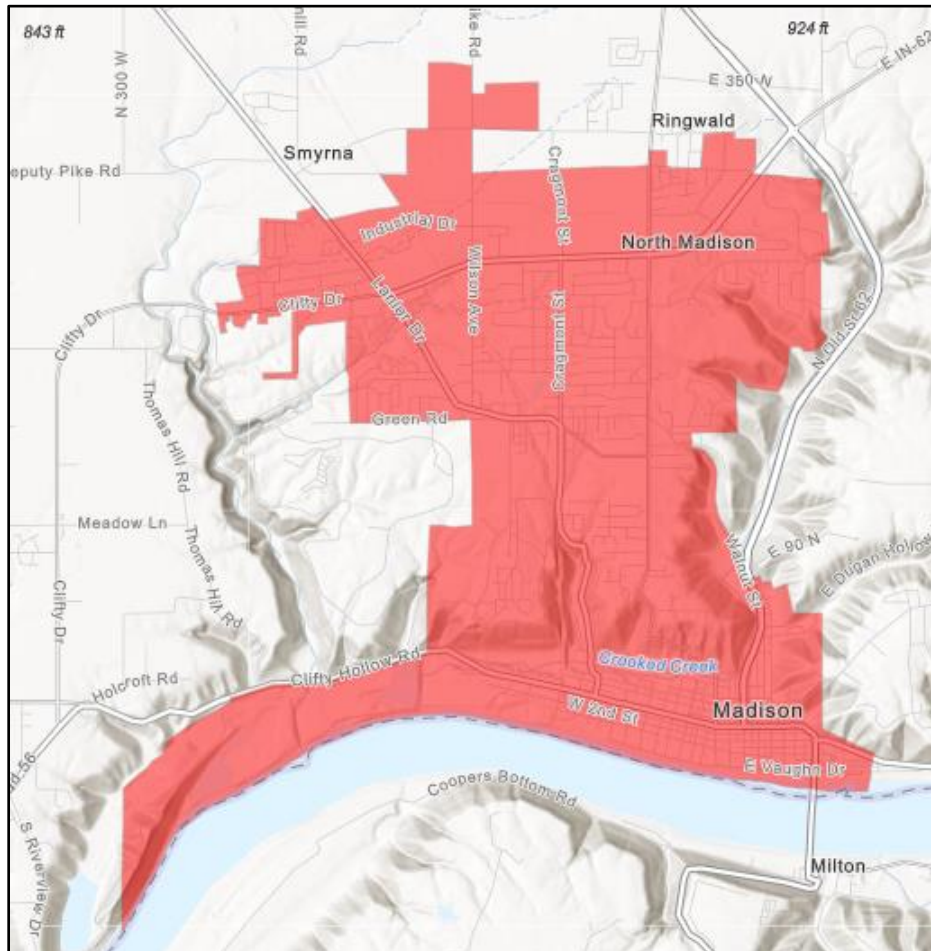


Figure 1. City of Madison Municipal MS4 Boundary

Legal Authority

The City of Madison maintains legal authority to administer the MS4 program and ensure compliance through adopted ordinances. The City of Madison utilizes the following ordinances:

- IDDE, EPSC: City of Madison Stormwater Regulations, Ord. 2006-20, adopted November 21, 2006.
- Post-Construction: Post-Construction Stormwater Regulations, Ord. 2007-1, adopted February 20, 2007.



The City utilizes the Best Management Practices Stormwater Management Manual for Southern Indiana, developed in 2008, which contains methodologies for determining runoff rates, storage volumes, and BMP sizing. It also contains design standards and specifications for open channels, construction site stormwater pollution prevention standards, and controlling peak flows.

Responsible Parties

The Madison Stormwater Program has oversight by the City Council, made up of seven (7) members which meet bi-monthly. Drainage concerns may also be presented to the Board of Public Works which consists of three (3) members and meets bi-monthly as well.

Contact Information

Contact information for persons and/or departments associated with stormwater program management can be found below:

Public Works Department..... (812) 265-8326
 Brian Jackson, Utility Manager
 101 W. Main St.
 Madison, IN 47250
 Email: utilitymanager@madison-in.gov

Stormwater Department..... (812) 265-8328
 MS4 Stormwater Coordinator
 1213 W. First Street
 Madison, IN 47250
 Email: ms4@madison-in.gov

Madison Fire Department..... (812) 265-8350 or 911
 Kenny Washer, Chief
 101 W. Main St.
 Madison, IN 47250
 Email: firedept@madison-in.gov

MS4 Employee Training Requirements

The training program is designed to train staff members corresponding with their job duties. All staff that are involved with implementing aspects of the SWQMP, stormwater pollution prevention plan (SWPPP) at municipal facilities, inspecting construction sites, inspecting stormwater infrastructure, and detecting and eliminating illicit discharges must be trained in water quality protection measures. All field staff, whether full-time, part-time, or seasonal/temporary, must be trained to recognize illicit discharges and report them to the MS4 Coordinator. Office staff and those interacting with the public need some awareness of the MS4 program as well.

Table 1. Employee Training Requirements

Classification	Responsibility	Annual Training Hours Required
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MS4 Coordinator	Program development, monitoring, and implementation	12
Task Manager	Program execution and monitoring for specific MCM(s): inspection, SOP administration, illicit discharge detection/elimination, etc.	12 (8 hours must be in area of responsibility)
City Staff – Full-time/Part-time	Illicit discharge detection and reporting, stormwater infrastructure maintenance, facility stormwater quality pollution prevention	2 (Initial training within 60 days of hire)
City Staff – Seasonal/Temporary	Illicit discharge detection and reporting, stormwater infrastructure maintenance, facility stormwater quality pollution prevention	1 Within 30 days of hire
Deputies	Spill containment and reporting	1 Included with other professional training
City Office Staff	Community communication, education, reporting hotline management	1

Partnerships

The following groups or entities are involved in one or many aspects of the implementation of the City’s Stormwater Quality Management Program.

Stormwater Advisory Committee

The City of Madison’s SWQMP was developed in part, through partnerships with neighboring MS4 entities in Southern Indiana, including Floyd County, the City of Jeffersonville, the City of New Albany, the Town of Clarksville, the Town of Sellersburg, the Town of Georgetown, and Oak Park Conservancy District (OPCD). These partnerships were established to ensure consistency and minimize duplication of effort among neighboring MS4 jurisdictions. Since 2004, local MS4s have partnered together to establish the Stormwater Advisory Committee (SWAC) to help guide the MS4 programs in the region. SWAC membership consists of key MS4 stakeholders and can be attended by members of various local constituencies, including members of the public and the construction/development community, as well as local health departments and Soil and Water Conservation Districts.

Quarterly SWAC meetings are used as a forum for discussing the implementation of each community’s SWQMP. The City of Madison’s Stormwater Coordinator and Utility Director actively participates in the Southern Indiana Stormwater Advisory Committee (SWAC). In these meetings, challenges and solutions are discussed which aid the stormwater coordinator in implementing the six (6) MCMs. This approach has allowed the City to consolidate many stormwater functions that were being implemented by various departments in the City and provides the City with a single point of contact for the Stormwater Program.

The primary mission of the SWAC has been to protect and improve water quality in southern Indiana for its 200,000 constituents. Today, the SWAC works together to organize, coordinate, develop, and implement its initiatives. Among other things, our activities include:

- Host and lead quarterly meetings,



- Write and produce educational outreach materials,
- Maintain the SWAC website and social media page, and
- Review new permitting initiatives.

In addition, communities that are part of the SWAC have:

- Coordinated with the state and federal MS4 regulators, and other entities,
- Helped prepare for regulatory audits,
- Developed and implemented Stormwater Quality Management Plans (SWQMP),
- Helped rewrite or create new ordinances,
- Performed municipal facility inspections,
- Conducted regional training workshops,
- Developed the Qualified Professional Inspector Program (QPI) Contractor Self-inspection Program,

The SWAC is assisted by a team of consultants at OHM Advisors, a local engineering firm, who have continuously served these communities for well over a decade.

List of Publications Developed by the SWAC

All SWAC materials are available on the website (www.siswac.org). The full listing of publications the SWAC has made available to the community are:

- Brochures (17 total): Check dams, Concrete Washouts, Construction Entrances, Construction Sequencing, Construction Waste, Illicit Discharge, Individual Sites, Inlet Protection, Guide to the MS4 Program, Sediment Traps, Silt Fence, Stockpiling, SWAC Overview, Temporary Seeding and Mulching, Yard Waste and Grass Clippings, Desechos Ilícitos: Detección y Eliminación, Áreas de Construcción Individuales
- Illicit Discharge Detection and Elimination Field Guide
- IDDE Standard Operating Procedures (SOP)
- Stream Visual Assessment Protocol (SVAP)
- Drainage Detention Basin Guidebook
- EPSC Shirt Pocket Field Guide
- Municipal Employee Training Manual and PowerPoint Presentation
- Municipal Stormwater Resource Handbook
- Qualified Professional Inspector Program (QPI) – managed by Clark County SWCD

Southeastern Indiana Recycling District

The City of Madison will continue to partner with the Southeastern Indiana Recycling District (SEIRD) on household hazardous waste collections. Through this program, materials such as automotive fluids and batteries, household chemicals, and other environmentally harmful products are collected and disposed of properly. The SEIRD provides data on materials and amounts collected at the end of each calendar year.

Clark County Soil and Water District (SWCD)

Through the SWAC, the Town of Georgetown partners with the Clark County Soil and Water Conservation District to administer the Qualified Professional Inspector (QPI) program.



Regional Programs and Protocols

Qualified Professional Inspector (QPI) Program

In order to provide consistent training for active construction site inspectors, the SWAC partnered to initiate development of a Qualified Professional Inspector (QPI) program. The QPI program provides a system to qualify persons to inspect construction sites as required by local ordinances and will provide a means for consistent and comprehensive inspections throughout this region. Historically, the program has been administered by the Clark County Soil and Water District. Program updates are taking place in order to meet the requirements of the Construction Stormwater General Permit (INRA00000).

The goal of the program is to be self-sufficient with minimal oversight costs for the host communities. The training course is tailored to address stormwater concerns and key issues of Indiana Department of Environmental Management (IDEM) and includes, but is not limited to, the following communities: Clark County, Floyd County, the City of Jeffersonville, the City of New Albany, the City of Madison, the Town of Clarksville, the Town of Sellersburg, the Town of Georgetown, and the Oak Park Conservancy District. The course will focus on inspection of stormwater best management practices (BMPs).

The QPI program consists of three major elements: training, qualifying examination and program administration. A QPI Training Manual was developed and includes training materials related to stormwater permitting, stormwater hydrology, procedures for BMP selection, installation, maintenance and inspection. Upon completion of the course, a standardized examination is required to fairly and thoroughly assess the qualifications of course applicants to conduct EPSC plan inspections on construction sites in participating communities.

A Qualified Professional Inspector certification will be issued to persons who achieve a passing grade on the examination and licenses will be issued to certified individuals. A list of inspectors will be maintained. The EPSC ordinance will be evaluated and updated as needed to formalize requirements of the QPI program. During the current permit term, the course fees will be utilized to maintain the QPI program (i.e., training manual, on-line examination, certification).

Stream Visual Assessment Protocol (SVAP)

In this new permit, the City of Madison will continue to implement the Stream Visual Assessment Protocol (SVAP), and make possible revisions to the protocols. The goal of the SVAP is to provide an efficient and economical solution for visual inspections of stormwater infrastructure required in the Storm Water Quality Management Plan (SWQMP). Data gathered from the SVAP will allow the City to assess MS4 receiving streams, identify locations that could potentially benefit from maintenance or remediation activities, and to identify strategies for improving water quality throughout the City's MS4 area.

Previous SVAP monitoring sites were selected using the MS4 map, aerial photography, watershed maps, land use and other spatial data within each drainage area. Site selection considerations included streams receiving stormwater discharges, streams adjacent to high public use areas such as parks and sensitive areas such as wetlands. These will be expanded upon to include additional outfalls during this permit term.

The SVAP manual outlines the procedures to be used to collect data. The protocol includes visually assessing stream flow, stream channel and riparian zone condition, as well as visual indicators of water pollution such as odor, color, turbidity, excessive algae and floatables. Stream channels are evaluated for evidence of channel alteration (e.g., straightening), excessive erosion and/or sediment deposition. Riparian zones are evaluated for the presence, extent, and quality of riparian vegetation. Data is recorded on a paper form or hand held GPS



unit and further documented with digital photographs. The City conducts the SVAP monitoring twice per year during “leaf off” conditions, which is during early spring low flows when nutrient and sedimentation issues become apparent and during fall/winter when the lack of vegetation allows better assessments of stream bank and in-stream habitat conditions.

The City analyzes SVAP data after each data collection to identify locations and streams in need of remediation or maintenance activities, such as bank stabilization, riparian buffer improvements, or litter pickup. More broadly, the City will use these data to develop strategies for improving or maintaining water quality throughout the MS4 area. At the end of each term, the results of the SVAP will be compiled into a summary report to develop broad views of the changes within the watersheds of Madison.

Annual Report

An annual review of the SWQMP BMPs and measurable goals takes place as the Annual Report submittal. During this process, the previous year’s activities and need for changes in implementation strategies and strategies is to be assessed. The SWQMP is considered a “living document” and can be modified over time to improve implementation strategies for the MS4 community. Annual reports are due to IDEM by April 1st each year. Continuous and consistent tracking throughout the year of MS4 activities greatly benefits the development of the annual report.

The annual report must include:

- Relevant sections of the SWQMP that have been modified.
- Updates of measurable goals for each minimum control measure (MCM).
- Progress towards development, implementation, and enforcement of all MCMs. Report on all items identified in the annual report section associated with each MCM, identified on the BMPs.
- Status of ordinance development and/or modification.
- New and on-going water quality characterization data in an updated Water Quality Characterization Report (WQCR). The WQCR will be submitted with the first annual report submitted for this permit term, by April 1, 2023. This includes a list of receiving waters.
- Implementation problems encountered, including program changes made to address ineffectiveness or infeasibility.
- New funding sources and expenditures.
- MS4 jurisdictional boundaries as required by Section 4.2 (a)(1). Identify boundary changes due to annexations.
- Stormwater system map as required by 4.4 (f)(1) through (4).
- If required, a description of progress to meet a TMDL WLA or improve water quality in the 303d listed impairments.

Program Assessment

An annual program assessment will take place during the development of the annual report. This assessment includes a comprehensive review of all goals and objectives of each MCM, program achievements, and areas identified to improve and enhance program effectiveness.

Evaluate and assess the following:

- Regulatory mechanism(s) (i.e. ordinance).
- Policy and procedures related to management and compliance of MS4 owned and/or operated projects.



- Plan review process, policy, and procedures.
- Standards and specification manual and/or guidance documents.
- Site inspection process, policy, and procedures.
- Coordination with other departments within the MS4.
- Develop and implement a plan and schedule to address program deficiencies, improvements, and modifications to the program.

Best Management Practices for SWQMP

Best management practices (BMPs) and activities sheets have been developed in order to guide the implementation and tasks associated with the City's MS4 program. These can be found on the following pages.