



Storm Water Management Program

*In Accordance with Ohio EPA MS4 Permit
Number: OHQ000004*

January 2022

Prepared By:



Certification

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



Alisha Burcham, PE, City Engineer
City of Moraine

City of Moraine, Ohio Storm Water Management Program Table of Contents

<u>SECTION</u>	<u>PAGE</u>
Executive Summary	4
Total Maximum Daily Load (TMDL) Overview	5
Organizational Chart	7
MCM 1: Public Education and Outreach on Storm Water Impacts	8
MCM 2: Public Involvement/Participation	12
MCM 3: Illicit Discharge Detection and Elimination	15
MCM 4: Construction Site Storm Water Runoff Control	22
MCM 5: Post-Construction Storm Water Management	27
MCM 6: Pollution Prevention/ Good Housekeeping for Municipal Operations	32
Appendices	38
Urbanized Area Map	
List of MS4- Related Ordinances	
List of Municipal Facilities	
Storm Water System Map	
Storm Water Outfalls Map	
HSTS Map	
Post Construction Water Quality BMPs Map	

Executive Summary

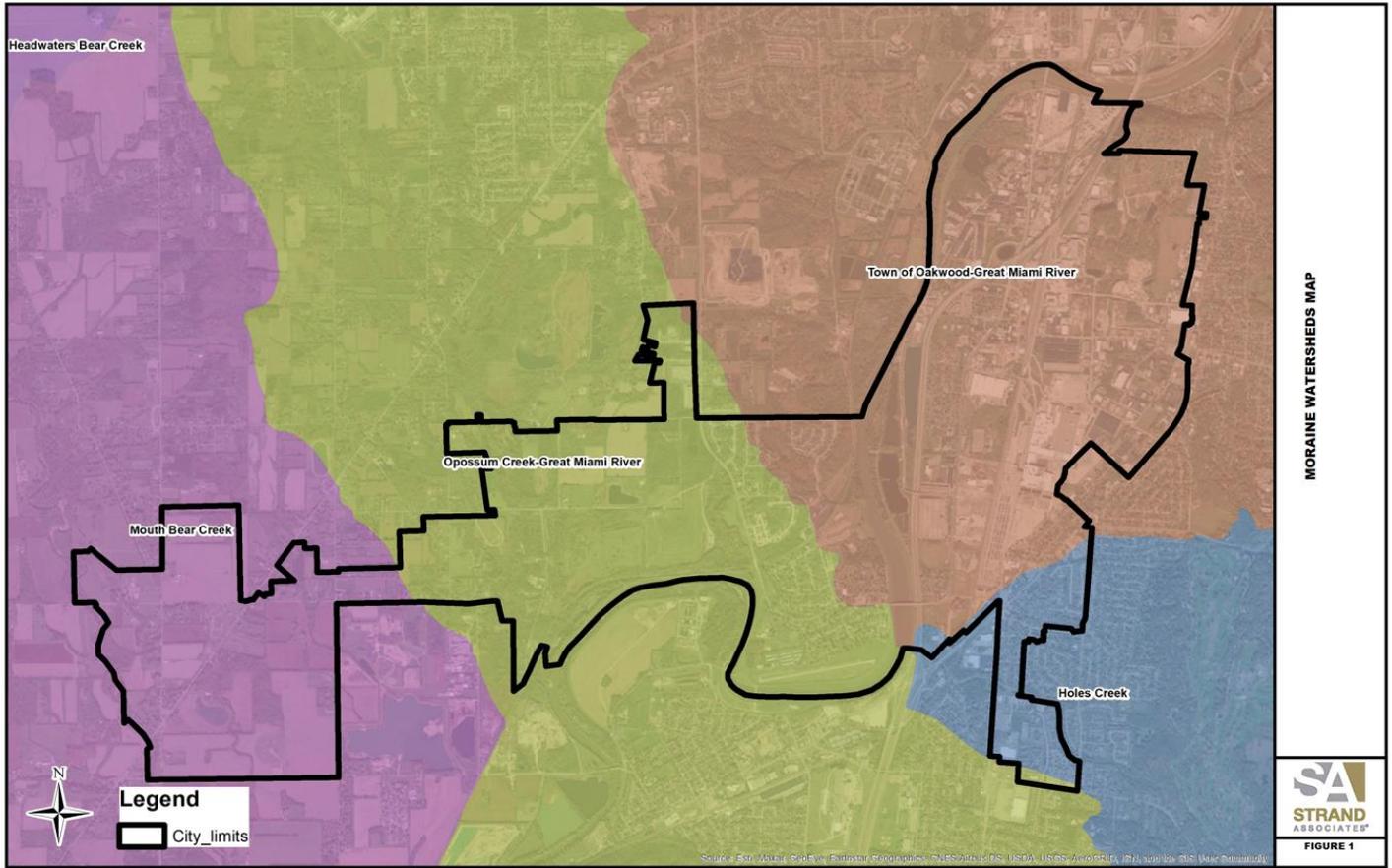
A previous National Pollutant Discharge Elimination System (NPDES) permit for authorization for small Municipal Separate Storm Sewer Systems (MS4s) to discharge storm water (NPDES Permit No. OHQ000003) required the development and implementation of a Storm Water Management Program (SWMP) that satisfied the appropriate water quality requirements of Ohio Revised Code (ORC) 6111 and the Clean Water Act. The SWMP document is intended to identify and describe the best management practices (BMPs) selected by the City of Moraine (City) to meet the requirements of the six minimum control measures (MCMs) described in the permit, why those BMPs were selected in light of local water quality issues, and performance standards for BMP implementation. The six MCMs are:

1. Public Education and Outreach on Storm Water Impacts
2. Public Participation / Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention / Good Housekeeping for Municipal Operations

The NPDES small MS4 permit was reissued on April 1, 2021 (NPDES Permit No. OHQ000004) and requires MS4 communities which are renewing coverage under this permit to update their SWMP to be consistent with the permit and submit the updated SWMP to Ohio EPA (OEPA) by April 1, 2022. The permit term is five years, expiring on March 31, 2026. Permit No. OHQ000004 requires that where applicable, BMPs shall be selected to address U.S. EPA approved Total Maximum Daily Load (TMDL) recommendations for identified water quality problems associated with MS4 discharges within the City of Moraine's watershed(s).

Total Maximum Daily Load (TMDL) Overview

The MS4 Permit requires that where applicable, BMPs shall be selected to address U.S. EPA approved TMDL recommendations. The City of Moraine service area overlaps with four 12-digit hydrologic unit code (HUC-12) watersheds as shown on the following map. All four HUC-12 watersheds are in the Great Miami River (Lower) Watershed.



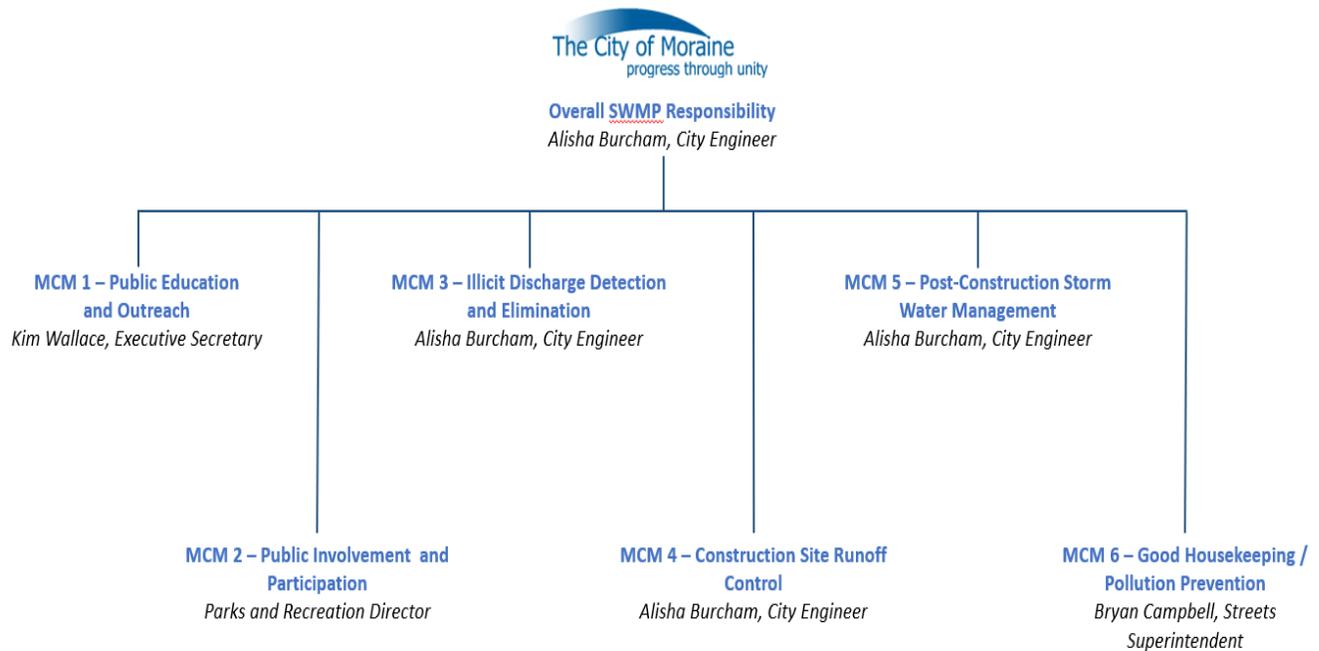
At this time, there are no approved TMDLs for the City of Moraine and the Great Miami River (Lower) Watershed. For those watersheds without an approved TMDL, the latest findings from water quality studies are reported.

Watershed	HUC 12	Status of TMDL	Pollutants for TMDL	Sources / Notes
Mouth Bear Creek	05080002 04 02	Studied in 2010	None at this time.	TMDLs Final Report for the Great Miami River (Lower) Watershed in currently being prepared by OEPA. The watershed was studied in 2010. For follow-up report see Biological and Water Quality Study of the Lower Great Miami River and Select Tributaries, 2012. ¹
Opossum Creek- Great Miami River	05080002 01 06	Studied in 2010	None at this time.	TMDLs Final Report for the Great Miami River (Lower) Watershed in currently being prepared by OEPA. The watershed was studied in 2010. For follow-up report see Biological and Water Quality Study of the Lower Great Miami River and Select Tributaries, 2012. ¹
Town of Oakwood- Great Miami River	05080002 01 05	Studied in 2010	None at this time.	TMDLs Final Report for the Great Miami River (Lower) Watershed in currently being prepared by OEPA. The watershed was studied in 2010. For follow-up report see Biological and Water Quality Study of the Lower Great Miami River and Select Tributaries, 2012. ¹
Holes Creek	05080002 01 04	Studied in 2010	None at this time.	TMDLs Final Report for the Great Miami River (Lower) Watershed in currently being prepared by OEPA. The watershed was studied in 2010. For follow-up report see Biological and Water Quality Study of the Lower Great Miami River and Select Tributaries, 2012. ¹

¹ <https://www.epa.state.oh.us/portals/35/documents/GMR2012TSD.pdf>

Organizational Chart

The following organizational chart provides a visual representation of how the City of Moraine will accomplish the goals outlined in this Storm Water Management Program (SWMP). Implementation of the SWMP will be the responsibility of Alisha Burcham, PE, City Engineer. Partnerships with other local and regional storm water groups will enhance specific components of the SWMP, but the City will ultimately be responsible for implementing the tasks associated with each of the six MCMs.



Minimum Control Measure 1: Public Education and Outreach on Storm Water Impacts

Minimum Control Measure 1: Public Education and Outreach on Storm Water Impacts

The City of Moraine's MS4 permit requires the public education and outreach efforts to accomplish the following:

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

Performance Standards: Program shall include more than one mechanism and at least five different storm water themes or messages over the permit term. If the MS4 discharges to a watershed with a U.S. EPA approved TMDL, at a minimum target each TMDL pollutant identified at least once in the storm water themes or messages over the permit term. Program shall reach at least 50% of the population.

The following tables outline the best management practices (BMPs) selected by the City of Moraine to accomplish MCM 1. The five themes the City will focus on include: (1) Nutrient Pollution (2) Sediment Pollution / Erosion Control, (3) Residential Storm Water Management (4) Litter and Trash, and (5) Hazardous Waste Disposal. The City anticipates these outreach strategies will reach well beyond 50 percent of the population within its service area during the permit term. The City has the legal authority to implement identified BMPs.

BMP Type: Erosion Control Pamphlets		
<p>Description of BMP: The City will continue to provide erosion prevention and sediment control information to developers on all new development and re-development projects to ensure that the development community remains educated on water quality impacts associated with construction site runoff and the importance of adequate erosion prevention and sediment control measures.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Provide pamphlet to the developer of every new development and re-development project. Document the number of erosion control pamphlets distributed to developers annually.	Ongoing	City Engineer
<p>Rationale for BMP: Written communication is a proven way to target specific groups of people with key information related to the storm water program, including the development community. Local developers will be able to utilize the information in the erosion control pamphlets to understand the importance of erosion prevention and sediment control measures on all active construction sites.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, the development community will be well informed of BMPs necessary to minimize sediment transport.</p>		

BMP Type: Multi-Media Communications		
<p>Description of BMP: The City will provide multi-media communications through the City’s website and the City’s monthly news magazine “Moraine Messenger” to promote education and outreach of the storm water program and related issues.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible Party
Include in the “Moraine Messenger” city news magazine information related to public education and outreach of storm water management themes.	Three articles per year.	City Engineer
Post storm water education content on the “Engineer” page of the City’s website including information related to public education and outreach of storm water management themes.	Three times per year.	City Engineer
<p>Rationale for BMP: Multi-media communication is a great way to provide current information to the public in multiple formats and can reach a broad audience. How BMP addresses TMDL: Although not required to address TMDLs, the general public will be well informed on stormwater issues and opportunities.</p>		

MCM 1 Decision Process - Rationale Statement

The rationale statement shall include the following information, at a minimum:

i. How you will inform individuals and households about the steps they can take to reduce storm water pollution?

Refer to the tables above for a description of the BMPs that the City of Moraine intends to implement to inform the public about storm water runoff pollution and ways to reduce pollution and improve water quality. The City of Moraine’s stormwater education campaign targets individuals and households regarding the connection between their personal habits and the health of local streams. It will help inform individuals and households about steps they can take to reduce storm water pollution.

ii. How you plan to inform individuals and groups on how to become involved in the storm water program (with activities such as local stream restoration activities).

Primarily through erosion control pamphlets and a stormwater education campaign as described above. The City website and newsletter are means of notifying individuals about the importance of storm water management and a variety of water quality topics.

iii. Who are the target audiences for your education program who are likely to have significant storm water impacts (including commercial, industrial and institutional entities) and why those target audiences were selected?

This control measure will target land developers, homeowners and the general public. These audiences were selected because they represent a broad group that can implement practices to improve water quality throughout the community. An informed and knowledgeable community is crucial to the success of the storm water management program.

iv. What are the target pollutant sources your public education program is designed to address?

The City's program is designed to address a variety of storm water themes which cover many potential pollutant sources, especially residential sources and development sources of pollution.

v. What is your outreach strategy, including the mechanisms (e.g., printed brochures, newspapers, media, workshops, etc.) you will use to reach your target audiences, and how many people do you expect to reach by your outreach strategy over the permit term?

See above tables for detailed strategies. The City intends to reach people primarily through multi-media outlets. The City anticipates these outreach strategies will reach well beyond 50 percent of the population within its service area during the permit term.

vi. Who (person or department) is responsible for overall management and implementation of your storm water public education and outreach program and, if different, who is responsible for each of the BMPs identified for this program.

Refer to the tables above for the responsible party for each BMP included in the program.

vii. How will you evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs?

The measurable goals were selected to be specific, measurable, achievable and realistic. The City of Moraine intends to evaluate the effectiveness of the public education and outreach BMPs by tracking and documenting information as described in the tables above.

Minimum Control Measure 2: Public Involvement/Participation

Minimum Control Measure 2: Public Involvement/Participation

The City of Moraine's MS4 permit requires the public involvement/participation efforts to accomplish the following:

Comply with State and local public notice requirements and satisfy this minimum control measure's minimum performance standards when implementing a public involvement/ participation program.

Performance Standards: *Include five public involvement activities over the permit term. If the MS4 discharges to a watershed with a U.S. EPA approved TMDL, at a minimum target each TMDL pollutant identified at least once during the permit term.*

The following tables outline the best management practices (BMPs) selected by the City of Moraine to accomplish MCM 2. The City has the legal authority to implement identified BMPs.

BMP Type: Park and Stream Clean-Up Events		
Description of BMP: The City will work with groups of volunteers to complete park and stream clean-up events. The City to encourage City residents and businesses to participate.		
Measurable Goal	Implementation Schedule and Frequency	Responsible Party
Document the date and number of volunteers participating in park and stream clean-up events.	Four events per year with an average of 10 participants per event.	Parks and Recreation Director
<p>Rationale for BMP: Engaging the public in park and stream clean-up events provides an opportunity for hands-on involvement and participation while also improving water quality through cleaning the parks and streams.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, through information sharing at events participants will be introduced to what they can personally do to improve stormwater quality in their neighborhoods.</p>		

BMP Type: Adopt-A-Flower Annual Program		
Description of BMP: The City will engage the public in beautification activities at the six City-owned sites.		
Measurable Goal	Implementation Schedule and Frequency	Responsible Party
Document the number of volunteers assisting in planting and maintaining City-owned sites.	Throughout the growing season- March through October.	Parks and Recreation Director
<p>Rationale for BMP: Involving residents and volunteers introduces them to the benefits of gardens in reducing stormwater runoff.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, through information sharing at events participants will be introduced to what they can personally do to improve stormwater quality in their neighborhoods.</p>		

MCM 2 Decision Process - Rationale Statement

The rationale statement shall include the following information, at a minimum:

i. Have you involved the public in the development and submittal of your NOI and SWMP description?

The City of Moraine involved the public in developing its SWMP by posting a draft update of the SWMP on the City's website for public review and comment.

ii. What is your plan to actively involve the public in the development and implementation of your program?

The public will be invited to participate in the events described above and will have the opportunity to learn about stormwater and pollution prevention through programming, exhibits, etc.

iii. Who are the target audiences for your public involvement program, including a description of the types of ethnic and economic groups engaged? You are encouraged to actively involve all potentially affected stakeholder groups, including commercial and industrial businesses, trade associations, environmental groups, homeowners' associations, and educational organizations, among others.

Events will be city-wide events, that are well advertised and well broadcasted throughout the community. The events are not focused on a specific target audience, but rather intended to reach the entire community.

iv. What are the types of public involvement activities included in your program?

The selected activities are specified in the tables above.

v. Who (person or department) is responsible for the overall management and implementation of your storm water public involvement/participation program and, if different, who is responsible for each of the BMPs identified for this program.

Refer to the tables above for the responsible party for each BMP included in the program.

vi. How you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.

The measurable goals were selected to be specific, measurable, achievable and realistic. The City of Moraine intends to evaluate the effectiveness of the public involvement/participation BMPs by tracking and documenting information as described in the tables above.

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

The City of Moraine's MS4 permit requires the illicit discharge detection and elimination efforts to include the following:

Shall develop, implement, and enforce a program to detect and eliminate illicit discharges.

Shall develop a comprehensive storm water system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls; MS4 system (catch basins, pipes, ditches, detention/retention ponds, post-construction water quality BMPs), and private water quality BMPs. All future and pre-existing public and private post-construction BMPs shall be identified by type of practice.

Shall submit to EPA a list of HSTs including addresses; a map of HSTs including type and size of conduits/ditches that receive discharges.

Shall effectively prohibit through ordinance, or other regulatory mechanism, illicit discharges including enforcement procedures.

Shall develop and implement a program to detect and eliminate non-storm water discharges, including illegal dumping and HSTs. At a minimum this includes:

- i. Working with applicable agencies and/or departments to identify HSTs that could be connected to central sewers and require connection for any HST not operating properly.***
- ii. Working with the health department to develop a proactive O&M program.***
- iii. Actively investigating contamination sources during dry weather screening.***
- iv. Evaluating the planned/possible installation of sewers in areas with high densities of HSTs.***

Shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

Shall address the following categories of non-storm water discharges or flows if identified as significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated/ dibrominated/ desalinated swimming pool discharges, street wash water, and discharges or flows from non-planned fire-fighting activities.

Performance Standards: Establish priorities and goals for long-term system wide surveillance of MS4, and evaluate annually. System map shall be updated as needed. Notify OEPA of detected illicit sanitary cross connections and leaking / broken sanitary sewer lines actively contributing to the MS4 within 24 hours of discovery. If the MS4 discharges to a watershed with a listed U.S. EPA approved TMDL (phosphorus, nitrogen, ammonia, Ecoli, bacteria, dissolved oxygen, organic enrichment) MS4 must have annual employee training which includes illicit discharge detection and elimination topic(s).

The following tables outline the best management practices (BMPs) selected by the City of Moraine to accomplish MCM 3. The City has the legal authority to implement identified BMPs.

BMP: Illicit Discharge Detection and Elimination Regulations and Planning		
<p>Description of BMP: The City will update and enforce their current illicit discharge detection and elimination ordinance as needed during the permit term. This regulation will be the mechanism for enforcing the elimination of any illicit discharges that are detected within the MS4 service area.</p>		
Measurable Goal	Schedule and Frequency	Responsible
Update existing City ordinance to comply with new NPDES MS4 General Permit (dated 4/1/21).	4/1/2022	City Engineer
Continue to enforce City ordinance as needed during the permit term.	Annually	City Engineer
Update IDDE plan as needed during the permit term.	Update as needed.	City Engineer
Notify OEPA of detected illicit sanitary cross connections and leaking / broken sanitary sewer lines actively contributing sewage to the MS4.	Within 24 hours of discovery.	City Engineer
<p>Rationale for BMP: An updated illicit discharge detection and elimination regulation and an IDDE plan provide the City with appropriate mechanisms to enforce the prohibition of illicit discharges, as well as a plan of how to detect and eliminate them.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, prohibiting illicit discharges will improve water quality and having an IDDE plan will ensure that staff know how to properly respond to potential illicit discharges. OEPA notification of illicit connections and leaking sewer lines fulfills reporting requirement.</p>		

BMP: Update System Mapping		
<p>Description of BMP: The City of Moraine maintains updated storm sewer system GIS mapping. The data is updated as needed.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Maintain map of MS4 system.	Update as needed	City Engineer
Maintain inventory of public and private post-construction BMPs in GIS, identified by type of practice.	Update as needed	City Engineer
<p>Rationale for BMP: Maintaining and updating the storm system mapping as needed to include additional assets will create a more accurate representation of the entire storm system network and improve management of MS4.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, having a well mapped system can be useful in identifying potential sources of pollution.</p>		

BMP: HSTS Mapping and Coordination		
<p>Description of BMP: The City will complete the following measurable goals that are focused on preventing potential illicit discharges from HSTS systems within the City limits.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Prohibit new HSTS connections to the storm sewer system.	Annually	City Engineer
Maintain a GIS map of known HSTSs and update as needed.	Annually	City Engineer
Coordinate with Montgomery County Health Department to resolve HSTS issues and look for opportunities to connect to the sanitary sewers.	Annually	City Engineer
Document number of HSTSs eliminated through connection to sanitary sewers.	Annually	City Engineer
<p>Rationale for BMP: Focusing on HSTSs is important to control a known potential source of illicit discharges as septic systems continue to age and become prone to failure.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, HSTS management provides proactive prevention of potential illicit discharges which could contribute pollutants to the City's receiving streams.</p>		

BMP: Dry-Weather Screening of Storm Water Outfalls		
<p>Description of BMP: The City of Moraine will conduct dry-weather screening of storm water outfalls within the MS4 service area at least once during the permit term. The City utilizes standard operating procedures for dry-weather screening of outfalls.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Outfalls to be dry-weather screened at least once during the permit term. Report number of outfalls screened for illicit discharges during dry weather annually.	3/31/2026	City Engineer
Report number of issues identified during dry-weather screening and number of issues addressed.	Annually	City Engineer
<p>Rationale for BMP: Screening storm water outfalls will assist the City in identifying illicit discharges throughout the storm sewer system.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, outfall screening provides proactive prevention of potential illicit discharges which could contribute pollutants to the City's receiving streams.</p>		

MCM 3 Decision Process - Rationale Statement

The rationale statement shall include the following information, at a minimum:

- i. *How you will develop a comprehensive storm sewer map. Describe the sources of information you will use for the maps, and how you plan to verify the outfall locations with field surveys. If already completed, describe how you developed this map. Also, describe how your map will be regularly updated.*

The City updates its GIS information in house. The City will continue to update the existing MS4 system GIS information as needed.

- ii. *The mechanism (ordinance or other regulatory mechanism) you will use to effectively prohibit illicit discharges into the MS4 and why you chose that mechanism. If you need to develop this mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with your program.*

The City has in place Moraine City Ordinance (MCO) Chapter 945- Storm Sewer System Illicit Discharge Detection and Elimination. The purpose and intent of the ordinance is to regulate the contribution of pollutants to the MS4 by storm water discharges; to prohibit illicit connections and discharges to the MS4; and to establish legal authority to carry out inspection, surveillance, monitoring procedures, and enforcement necessary to ensure compliance. The current ordinance is referenced in the Appendix.

iii. Your program to detect and address illicit discharges to your system, including discharges from illegal dumping and spills. Your program shall include dry weather field screening for non-storm water flows and Ohio EPA recommends field tests of selected chemical parameters as indicators of discharge sources. You shall describe the mechanisms and strategies you will implement to ensure outfalls which have previously been dry-weather screened will not have future illicit connections. Your program shall also address on-site sewage disposal systems (including failing on-lot HSTs and off-lot discharging HSTs) that flow into your storm drainage system. Your description shall address the following, at a minimum:

- 1. Procedures for locating priority areas which include areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines, for example) or ambient sampling to locate impacted reaches.**

Priority areas will be identified by analyzing collected and mapped data. Resident complaints and inquiries will also be utilized. The known HSTs within the City have previously been identified and mapped. The Montgomery County Health Department provides oversight on these systems.

- 2. Procedures for tracing the source of an illicit discharge, including the specific techniques you will use to detect the location of the source.**

City crews have the ability to provide general field investigations, CCTV inspection, and dye testing to help locate and isolate the source of illicit discharges.

- 3. Procedures for removing the source of the illicit discharge.**

Illicit discharges are resolved on a case-by-case basis given the unique nature of each situation. The City Engineer manages any cleanup and elimination effort.

- 4. Procedures for program evaluation and assessment.**

Mapping and annual reporting will track the number of issues identified and resolved. City staff will use this information to assess program success.

iv. Your program to ensure through appropriate enforcement procedures and actions that your illicit discharge ordinance (or other regulatory mechanism) is implemented to the extent allowable under State law.

The City's illicit discharge detection and elimination ordinance includes enforcement and penalties.

v. How you plan to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Include in your description how this plan will coordinate with your public education minimum measure and your pollution prevention/good housekeeping minimum measure programs.

The hazards associated with illegal discharges and improper disposal of waste will be incorporated into MCM 1- Public Education and Outreach and MCM 6- Pollution Prevention/ Good Housekeeping activities during the permit term.

- vi. Who is responsible for overall management and implementation of your storm water illicit discharge detection and elimination program and, if different, who is responsible for each of the BMPs identified for this program.*

Refer to the tables above for the responsible party for each BMP included in the program.

- vii. How you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.*

The measurable goals were selected to be specific, measurable, achievable and realistic. The City of Moraine intends to evaluate the effectiveness of the illicit discharge detection and elimination BMPs by tracking and documenting information as described in the tables above.

Minimum Control Measure 4: Construction Site Storm Water Runoff Control

Minimum Control Measure 4: Construction Site Storm Water Runoff Control

The City of Moraine' MS4 permit requires the construction site storm water runoff control efforts to include the following:

Shall develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre including projects less than one acre that are part of a larger common plan of development. At a minimum this includes:

- i. Ordinance or other regulatory mechanism to require erosion and sediment controls, and non-sediment pollutant controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law.***
- ii. Requirements for construction site operators to implement appropriate erosion and sediment controls.***
- iii. Requirements for construction site operators to control waste at the construction site that may cause potential water quality impacts.***
- iv. Procedures for storm water pollution prevention plan review which incorporates consideration of potential water quality impacts.***
- v. Procedures for the receipt and consideration of information submitted by the public.***
- vi. Procedures for site inspection and enforcement of control measures.***

Performance Standards: Program shall include an ordinance review/update to be equivalent with the technical requirements in the OEPA General Storm Water Permit for Construction Activities. A pre-construction SWP3 review and approval for all land disturbances greater than or equal to one acre, or less than one acre if part of a larger common plan of development. Applicable sites shall be initially inspected. Checklists are required for SWP3 reviews and site inspections. Frequency of follow up shall be monthly with documentation, unless otherwise determined. If the MS4 discharges to a watershed with a listed U.S. EPA approved TMDL (TSS sediment, siltation, phosphorus, nitrogen, ammonia) MS4 program must include construction site inspections every 14 days rather than monthly if there are known issues at a site until issues resolved.

The following tables outline the best management practices (BMPs) selected by the City of Moraine to accomplish MCM 4. The City has the legal authority to implement identified BMPs.

BMP: Maintain Ordinance and Regulations		
<p>Description of BMP: The City will update and maintain ordinances regarding sediment and erosion control, and site development, as needed during the permit term.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Update existing ordinances to comply with new NPDES MS4 General Permit (dated 4/1/21).	4/1/2022	City Engineer
Update ordinances as needed during the permit term.	Annually	City Engineer
<p>Rationale for BMP: Updating and maintaining the ordinances will provide the City with the means to regulate and enforce storm water management on construction sites. How BMP addresses TMDL: Although not required to address TMDLs, this BMP focuses on the City having construction site runoff and sediment pollution ordinances in-place.</p>		

BMP: Construction Site Runoff Control		
<p>Description of BMP: The City will ensure that site plan and SWP3 reviews are completed, and on-site inspections are completed. Inspections to identify issues and then follow-up with contractors to correct as needed.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Update complaint process as needed during the permit term.	Annually	City Engineer
Follow-up on complaints received for construction site runoff control issues. Track the number of complaints received and complaints resolved annually.	Annually	City Engineer
Develop construction site plan review checklist as needed, to include MS4 requirements for SWP3 reviews and post-construction BMPs. Update annually thereafter as needed.	4/1/2023	City Engineer
Perform construction site plan and SWP3 reviews for each new development and re-development with more than 1 acre of disturbance. Track the number of site plans and SWP3s reviewed annually.	Annually	City Engineer
Update construction site inspection checklist as needed, to include MS4 requirements for	Annually	City Engineer

post-construction BMPs.		
Conduct inspection of construction sites monthly, at a minimum. Track the number of inspections completed for each active construction site annually. Track the number of enforcement violations.	Monthly	City Engineer
Track the number of enforcement violations issued and resolved annually.	Annually	City Engineer
<p>Rationale for BMP: Implementation of construction site runoff site plan and SWP3 reviews, and inspection activities are critical for a successful construction site runoff control program to manage potential sediment pollution.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, this BMP will target construction site runoff and sediment pollution.</p>		

MCM 4 Decision Process - Rationale Statement

The rationale statement shall include the following information, at a minimum:

- i. The mechanism (ordinance or other regulatory mechanism) you will use to require erosion and sediment controls, and non-sediment pollutant controls, at construction sites and why you chose that mechanism. If you need to develop this mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with your SWMP.*

The City has in place Moraine City Ordinance (MCO) Chapter 1323- Erosion and Sedimentation Control. The purpose and intent of the ordinance is for any owner of property within the City to provide adequate controls of erosion and sedimentation of both a temporary and permanent nature during and after construction and development activities. The current ordinance is referenced in the Appendix.

- ii. Your requirements for construction site operators to implement appropriate erosion and sediment control BMPs and control waste at construction sites that may cause adverse impacts to water quality. Such waste includes, but is not limited to, discarded building materials, concrete truck washouts, chemicals, litter, and sanitary waste.*

The City will require construction site operators to follow the technical requirements of the OEPA General Storm Water Permit for Construction Activities, at a minimum.

- iii. Your procedures for pre-construction storm water pollution prevention plan (SWP3) review which incorporate consideration of potential water quality impacts.*

All construction site plans go through the City's plan review process. As part of this process, the City will review the SWP3 for each site. As stated above, the City will utilize their site plan review checklist to standardize the reviews.

iv. Your procedures for receipt and consideration of information submitted by the public. Consider coordinating this requirement with your public education program.

The public may call and report an issue at any time, or use the City's website to submit a complaint. When complaints are received, the City Engineer conducts an inspection, addresses the issue as needed, and documents the complaint.

v. Your procedures for site inspection and enforcement of control measures, including how you will prioritize sites for inspection.

Construction site inspections are performed by the City of Moraine staff or by a consulting firm acting on the City's behalf. Added inspections occur if public complaints are received regarding muddied streets and debris escaping the construction area. As stated above, the City uses their construction site inspection review checklist to standardize the inspections.

vi. Your program to ensure compliance with your erosion and sediment control regulatory mechanism, including the sanctions and enforcement mechanisms you will use to ensure compliance. Include a written enforcement escalation plan describing your procedures for when you will use certain sanctions. Possible sanctions include non-monetary penalties (such as a stop work order), fines, bonding requirements, and/or permit denials for non-compliance.

The City's updated ordinances will include enforcement measures and penalties.

vii. Who is responsible for overall management and implementation of your construction site storm water control program and, if different, who is responsible for each of the BMPs identified for this program.

Refer to the tables above for the responsible party for each BMP included in the program.

viii. Describe how you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.

The measurable goals were selected to be specific, measurable, achievable and realistic. The City of Moraine intends to evaluate the effectiveness of the construction site runoff control BMPs by tracking and documenting information as described in the tables above.

Minimum Control Measure 5: Post-Construction Storm Water Management in New and Redevelopment

Minimum Control Measure 5: Post-Construction Storm Water Management in New and Redevelopment

The City of Moraine’s MS4 permit requires the Post-Construction Storm Water Management in New and Redevelopment efforts to include the following:

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.

Shall develop and implement strategies which include a combination of structural and/or non-structural post-construction runoff controls.

Shall use an ordinance, or other regulatory mechanism, to address post-construction runoff from new and redevelopment projects to the extent allowable under State and local law.

Shall ensure adequate long-term operation and maintenance of post-construction runoff controls.

Performance Standards: Program shall include an ordinance review/update to be equivalent with the technical requirements in the OEPA General Storm Water Permit for Construction Activities. Post-construction program shall include a pre-construction SWP3 for all land disturbances greater than or equal to one acre, or less than one acre if part of a larger common plan of development. Sites shall be inspected to ensure controls are installed per requirements. Checklists are required for SWPPP reviews and site inspections. Program shall ensure long term O&M plans are developed and agreements are in place, and the private and public post-construction runoff controls are being maintained per plans and agreements. If the MS4 discharges to a watershed with a listed U.S. EPA approved TMDL (TSS sediment, siltation, phosphorus, nitrogen, ammonia) MS4 program must include an educational training to contractors, SWP3 designers, and/or employees during the permit term. In addition, your program shall include one of the following during the permit term and within the TMDL watershed: a retrofit of one existing storm water practice to provide water quality, at least 300 feet of stream/channel restoration to reduce erosion, update your ordinance or regulatory mechanism to require green BMPs from Table 4b of the construction permit, or install BMP(s) from Table 4b of the construction permit to treat at least one acre of existing impervious area developed prior to 2003.

The following tables outline the best management practices (BMPs) selected by the City of Moraine to accomplish MCM 5. The City has the legal authority to implement identified BMPs.

BMP: Update and Maintain Ordinances and Regulations		
Description of BMP: The City will update and maintain ordinances and regulations requiring post-construction storm water management for sites larger than 1 acre to include enforcement mechanisms.		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Update existing ordinances to comply with new NPDES MS4 General Permit (dated 4/1/21).	4/1/2022	City Engineer

Incorporate OEPA Rainwater and Land Development Manual as guidance for post-construction controls. Reference in ordinance(s).	4/1/2022	City Engineer
Update ordinances as needed during the permit term.	Annually	City Engineer
<p>Rationale for BMP: Updating and maintaining the ordinances will provide the City with the means to regulate and enforce post-construction storm water management.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, this BMP will require post-construction storm water controls be implemented on all development sites larger than 1 acre, and these BMPs will reduce pollutants.</p>		

BMP: Post-Construction Runoff Control Implementation		
<p>Description of BMP: The City will focus on implementation and ongoing management and documentation of the post-construction MCMs.</p>		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Develop post-construction site plan review checklist items. Checklist items to be incorporated into Site Plan Review Checklist (developed as part of MCM 4). Update annually thereafter as needed.	4/1/2023	City Engineer
Ensure post-construction controls are designed per requirements during site plan and SWP3 reviews for each new development and re-development.	Annually	City Engineer
Inspect to ensure post-construction controls are installed per requirements.	Annually	City Engineer
Update post-construction inspection checklist items as needed.	Annually	City Engineer
Perform inspections of private and public post-construction BMPs to ensure controls are being maintained per plans and agreements. At a minimum, one site inspection during the permit term is required. Track number of inspections completed annually. Track the number of enforcement violations.	3/31/2026	City Engineer
Document number of signed O&M plans and agreements between the post-construction BMP owner and City.	Annually	City Engineer

Rationale for BMP: Ongoing management and documentation of the post-construction program including O&M agreements and post-construction site inspections are important to long term successful program implementation.

How BMP addresses TMDL: Although not required to address TMDLs, post-construction BMPs help reduce pollutants.

MCM 5 Decision Process - Rationale Statement

The rationale statement shall include the following information, at a minimum:

- i. Your program to address storm water runoff from new development and redevelopment projects. Include in this description any specific priority areas for this program.*

The City will update their ordinances as needed to include post-construction stormwater controls requirements for new and redevelopment projects that disturb greater than or equal to one acre. The ordinance will implement post-construction storm water management controls to address both water quantity and water quality. The updates will include BMP requirements, enforcement procedures, and long-term O&M plans / agreements. The current ordinances are referenced in the Appendix.

- ii. How your program will be specifically tailored for your local community, minimize potential water quality impacts, and attempt to maintain pre-development runoff conditions.*

The City will follow the requirements of the OEPA General Permit for MS4s, the OEPA General Storm Water Permit for Construction Activities, and the BMP guidance from the OEPA Rainwater and Land Development Manual.

- iii. Any non-structural post-construction runoff controls in your program.*

The updated ordinances will allow for non-structural BMPs that meet the MS4 permit requirements. Non-structural BMPs will be evaluated and approved by City staff on a case-by-case basis.

- iv. Any structural post-construction runoff controls in your program, including, as appropriate: green infrastructure storm water management techniques, storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, bioretention cells, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches.*

The updated ordinances will allow for structural BMPs that meet the MS4 permit requirements. Structural BMPs will be evaluated and approved by City staff on a case-by-case basis.

- v. The mechanisms (ordinance or other regulatory mechanisms) you will use to address post-construction runoff from new developments and redevelopments and why you chose the mechanism(s). If you need to develop a mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with your program.*

As discussed above, the City will update their ordinances to include the requirements of the OEPA General Permit for MS4s, the OEPA General Storm Water Permit for Construction Activities, and the BMP guidance from the OEPA Rainwater and Land Development Manual.

- vi. How you will ensure the long-term operation and maintenance (O&M) of any implemented or installed post-construction runoff controls. Options to help ensure that future O&M responsibilities are clearly identified and enforceable include an agreement between you and another entity such as the post-development landowners or regional authorities.*

Long-term O&M responsibilities and requirements will be detailed in the City's updated ordinances.

- vii. Who is responsible for overall management and implementation of your post-construction SWMP and, if different, who is responsible for each of the BMPs identified for this program.*

Refer to the tables above for the responsible party for each BMP included in the program.

- viii. How you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.*

The measurable goals were selected to be specific, measurable, achievable and realistic. The City of Moraine intends to evaluate the effectiveness of the post-construction BMPs by tracking and documenting information as described in the tables above.

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping For Municipal Operations

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping for Municipal Operations

The City of Moraine's MS4 permit requires the Pollution Prevention/Good Housekeeping For Municipal Operations efforts to include the following:

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.

Using training materials available from OEPA or other organizations, program shall include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

Shall include a list of industrial facilities owned and operated by the City. SWP3 plans shall be developed and implemented as required.

Performance Standards: Program to include an annual employee training. Operation and maintenance shall include appropriate documented procedures, controls, maintenance schedules, and record keeping. Salt piles shall be covered with no storm water run-on and subsequent runoff of salt. All tanks of brine or other liquid road treatments shall have secondary containment or bollard/barrier protection. Soil disturbance associated with ditch / MS4 maintenance shall have soil stabilization initiated as required. If the MS4 discharges to a watershed with a listed U.S. EPA approved TMDL (TSS sediment, siltation, phosphorus, nitrogen, ammonia, Ecoli, bacteria, metals, dissolved oxygen, organic enrichment) MS4 program shall include one of the following: a street sweeping program, a catch basin cleaning program, a leaf/yard waste collection program, or must conduct routine facility inspections at your facilities at least quarterly. The selected program must have proper debris management and disposal.

The following tables outline the best management practices (BMPs) selected by the City of Moraine to accomplish MCM 6. The City has the legal authority to implement identified BMPs.

BMP: Employee Training		
Description of BMP: The City will utilize available storm water training materials to train City staff on storm water related issues, good housekeeping and pollution prevention, and a review of SWP3s for City municipal facilities.		
Measurable Goal	Implementation Schedule and Frequency	Responsible
Provide one employee training per year for all Public Works staff focused on pollution prevention and good housekeeping practices. Record number of employees who receive training each year.	Annually	Streets Superintendent

Rationale for BMP: Training Public Works staff is a very important aspect of reducing pollution from municipal facilities. Using materials and training already available results in efficiencies and consistent messaging.

How BMP addresses TMDL: Although not required to address TMDLs, municipal good housekeeping will reduce pollution to receiving streams.

BMP: Municipal Facilities

Description of BMP: The City will maintain municipal facilities to prevent pollution runoff.

Measurable Goal	Implementation Schedule and Frequency	Responsible
Submit updated No- Exposure Certification for City Streets Department facility to OEPA.	4/1/2022	City Engineer
Inspection conducted at City Streets Department facility.	Annually	Streets Superintendent
Tanks of brine or other liquid road treatments to have secondary containment or bollard/barrier protection.	4/1/2023	City Engineer

Rationale for BMP: Pollution prevention practices at municipal facilities reduce pollution to receiving streams.

How BMP addresses TMDL: Although not required to address TMDLs, municipal pollution prevention practices will reduce pollution to receiving streams.

BMP: MS4 Operation and Maintenance Program

Description of BMP: The City will continue implementation of Operation and Maintenance Program for municipal facilities as follows:

- Continue catch basins / dry wells inspections and clean as-needed. Properly dispose of collected material.
- Treat roads with liquid brine and road salt as needed for winter safety.
- Apply pesticides, herbicides, and fertilizers sparingly at rates specified by the manufacturer.
- Continue street sweeping program. Properly dispose of collected material.
- Continue leaf collection and brush pickup practices. Properly dispose of collected material.
- Stabilize soil disturbance areas associated with ditch / MS4 maintenance needs.

Measurable Goal	Implementation Schedule and Frequency	Responsible
Inspect catch basins/ dry wells and clean as needed. Report number of inspections, cleanings, and tons of material collected.	Annually	Streets Superintendent
Continue applying brine and road salt to roads as needed for safety reasons. Report gallons of liquid brine and tons of salt applied to roads.	Annually	Streets Superintendent

Continue usage of pesticides, herbicides, and fertilizers. Minimize usage if possible. Report gallons of pesticides/herbicides, and pounds of fertilizers applied.	Annually	Streets Superintendent
Continue street sweeping program. Sweep curb streets minimum two times per year, and prioritized areas more frequently. Report tons of material collected by street sweepers, and lane miles swept.	Annually	Streets Superintendent
Continue leaf collection and brush pickup practices. Report cubic yards of leaves and brush collected.	Annually	Streets Superintendent
Soil disturbance associated with ditch / MS4 maintenance needs soil stabilization initiated as required. Report linear feet of ditch maintained and stabilized, and time frames soil stabilization was initiated.	Annually, beginning no later than 4/1/2023.	Streets Superintendent
<p>Rationale for BMP: Implementing good housekeeping practices is important for reducing pollution from municipal facilities.</p> <p>How BMP addresses TMDL: Although not required to address TMDLs, reducing pollution as a result of operation and maintenance program implementation could reduce pollutants in local streams.</p>		

MCM 6 Decision Process - Rationale Statement

The rationale statement shall include the following information, at a minimum:

- i. *Your operation and maintenance program to prevent or reduce pollutant runoff from your municipal operations. Your program shall specifically list the municipal operations that are impacted by this operation and maintenance program.*

See tables above for specific activities. Note that the City's Streets Department facility located at 4720 Vance Road is a no-exposure facility. An updated non-exposure form will be submitted to OEPA by April 1, 2022. The salt storage pile is covered with no storm water run-on and subsequent runoff of salt.

- ii. *Any government employee training program you will use to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. Describe any existing, available materials you plan to use. Describe how this training program will be coordinated with the outreach programs developed for the public information minimum measure and the illicit discharge minimum measure.*

Refer to the table above for information related to the employee training program. This program will be coordinated with the MCM 1 - Public Education and Outreach and MCM 3- Illicit Discharge Detection and Elimination programs to the extent that the information provided in all programs will be consistent and will be cross-referenced as appropriate.

iii. Your program description shall specifically address the following areas:

1. Maintenance activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to your MS4.

The City routinely conducts street sweeping, catch basin / dry wells cleaning, and leaf collection and brush pickup. The City will continue with current practices that have been effective. The collected materials are disposed of as appropriate at the Montgomery County Transfer Station or taken to a local landscape company to be processed for mulch.

2. Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt/sand handling and storage locations and snow disposal areas you operate. A description of the materials used for roadway and municipal parking lot winterization (use of salt, sand, bottom ash, etc. or combination thereof), associated application rates, and the rationale for the selected application rates shall be included. Also identify controls or practices to be used for reducing or eliminating discharges of pollutants resulting from roadway and municipal parking lot winterization activities.

As described above, the City has ongoing programs in place for street sweeping, catch basin / dry wells cleaning, and leaf collection and brush pickup. The City will continue with current practices of applying brine and road salt to roads as needed to provide safe winter travel for residents. Road winterization materials will be tracked as indicated in the above tables. The City will follow pollution prevention and good housekeeping practices for each municipal facility to reduce pollution from those sites.

3. Procedures for the proper management and disposal of waste removed from your MS4 and your municipal operations, including dredge spoil, accumulated sediments, floatables, street sweepings/ catch basin cleanings and other debris.

Debris collected will be managed and disposed of in a proper manner. The collected materials are disposed of at the Montgomery County Transfer Station or taken to a local landscape company to be processed for mulch.

4. Procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices.

All new projects go through the City's plan review process which includes MS4 requirements for water quality controls.

iv. Who is responsible for overall management and implementation of your pollution prevention/good housekeeping program and, if different, who is responsible for each of the BMPs identified for this program.

Refer to the tables above for the responsible party for each BMP included in the program.

v. *How you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.*

The measurable goals were selected to be specific, measurable, achievable and realistic. The City of Moraine intends to evaluate the effectiveness of the good housekeeping BMPs by tracking and documenting information as described in the tables above.

Appendices

Urbanized Area Map

List of MS4- Related Ordinances

List of Municipal Facilities

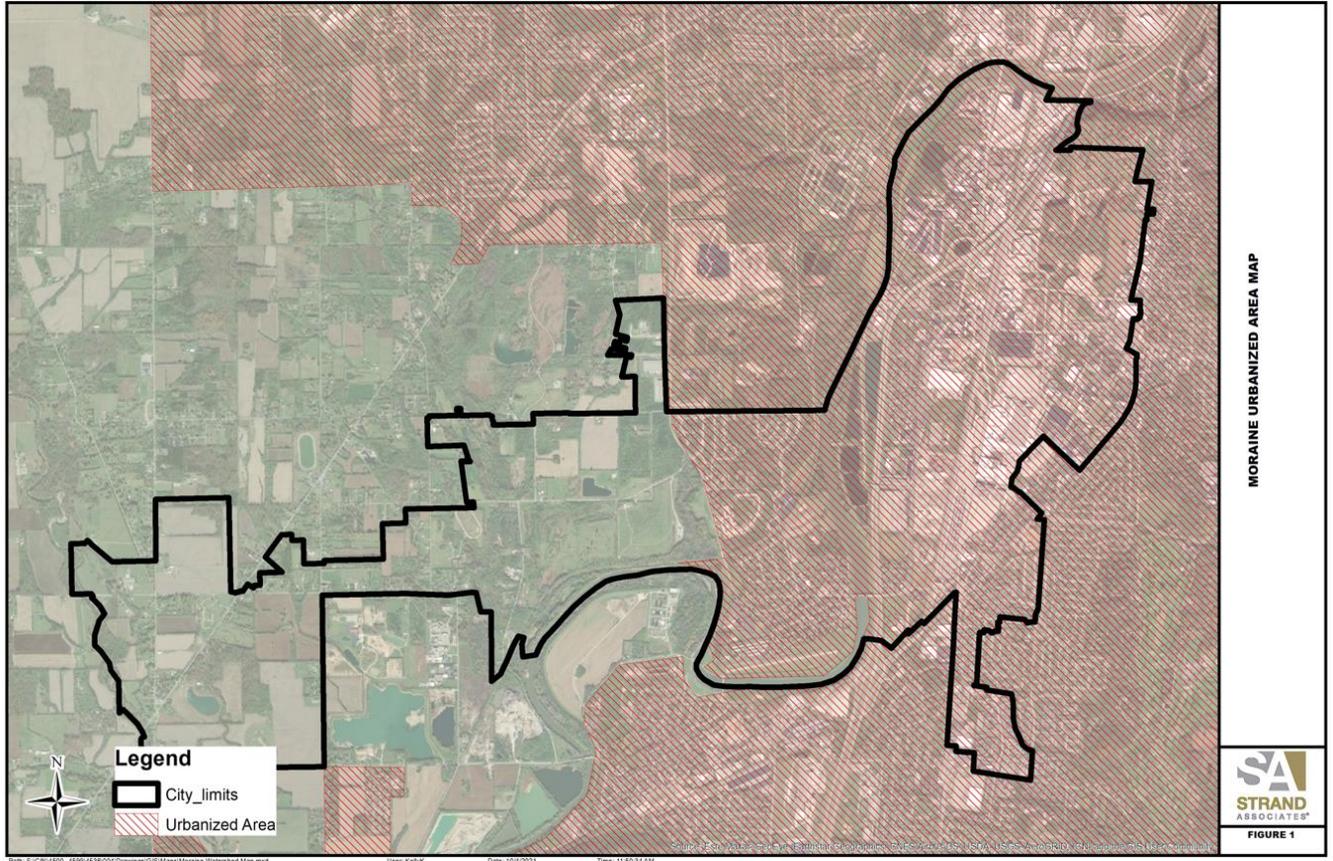
Storm Water System Map

Storm Water Outfalls Map

HSTS Map

Post Construction Water Quality BMPs Map

Urbanized Area Map



List of MS4- Related Ordinances

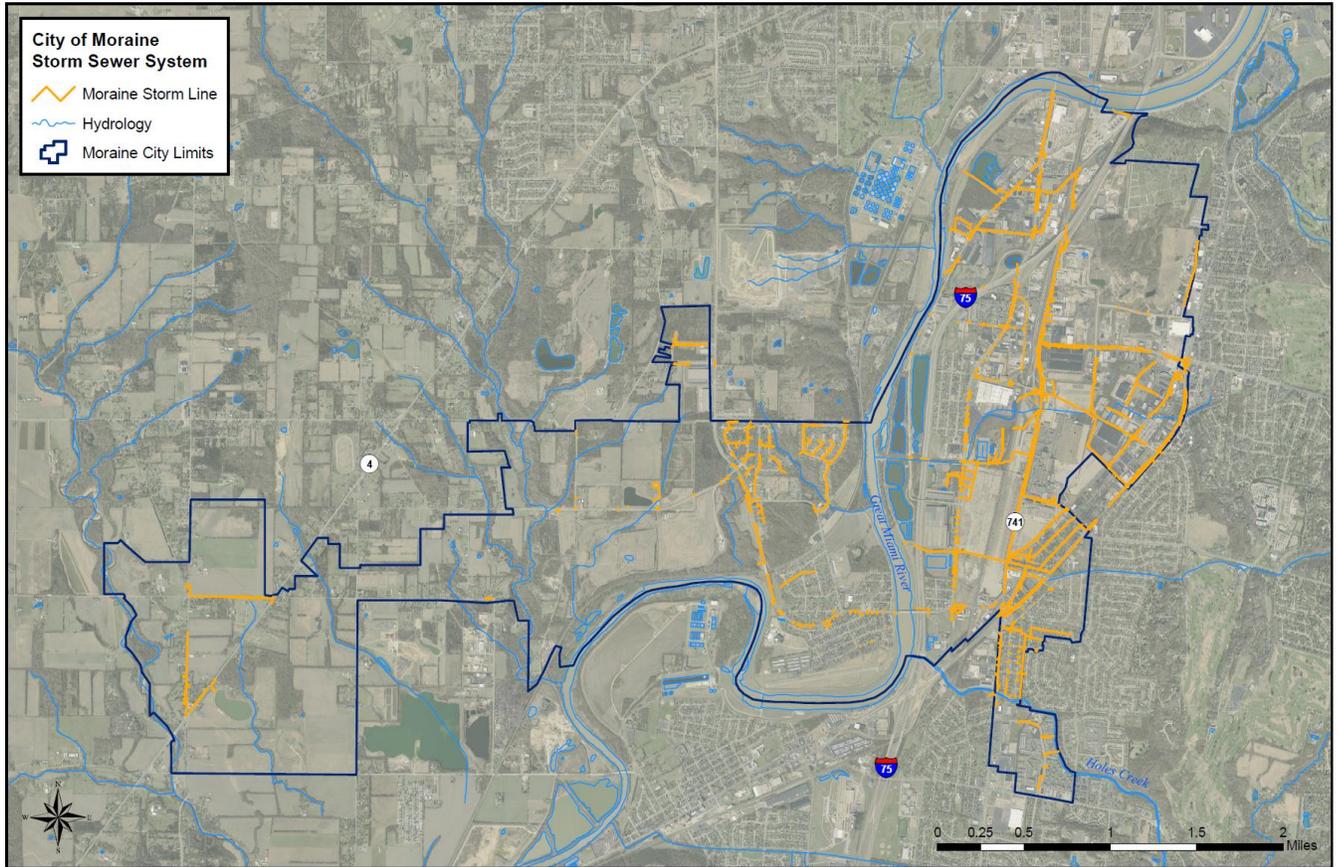
- City Ordinance Chapter 945- Storm Sewer System Illicit Discharge Detection and Elimination.
- City Ordinance Chapter 1323- Erosion and Sedimentation Control.
- City Ordinance Chapter 1417- Sanitary and Storm Drainage Requirements

Copies of these ordinances can be obtained at the Engineering Department.

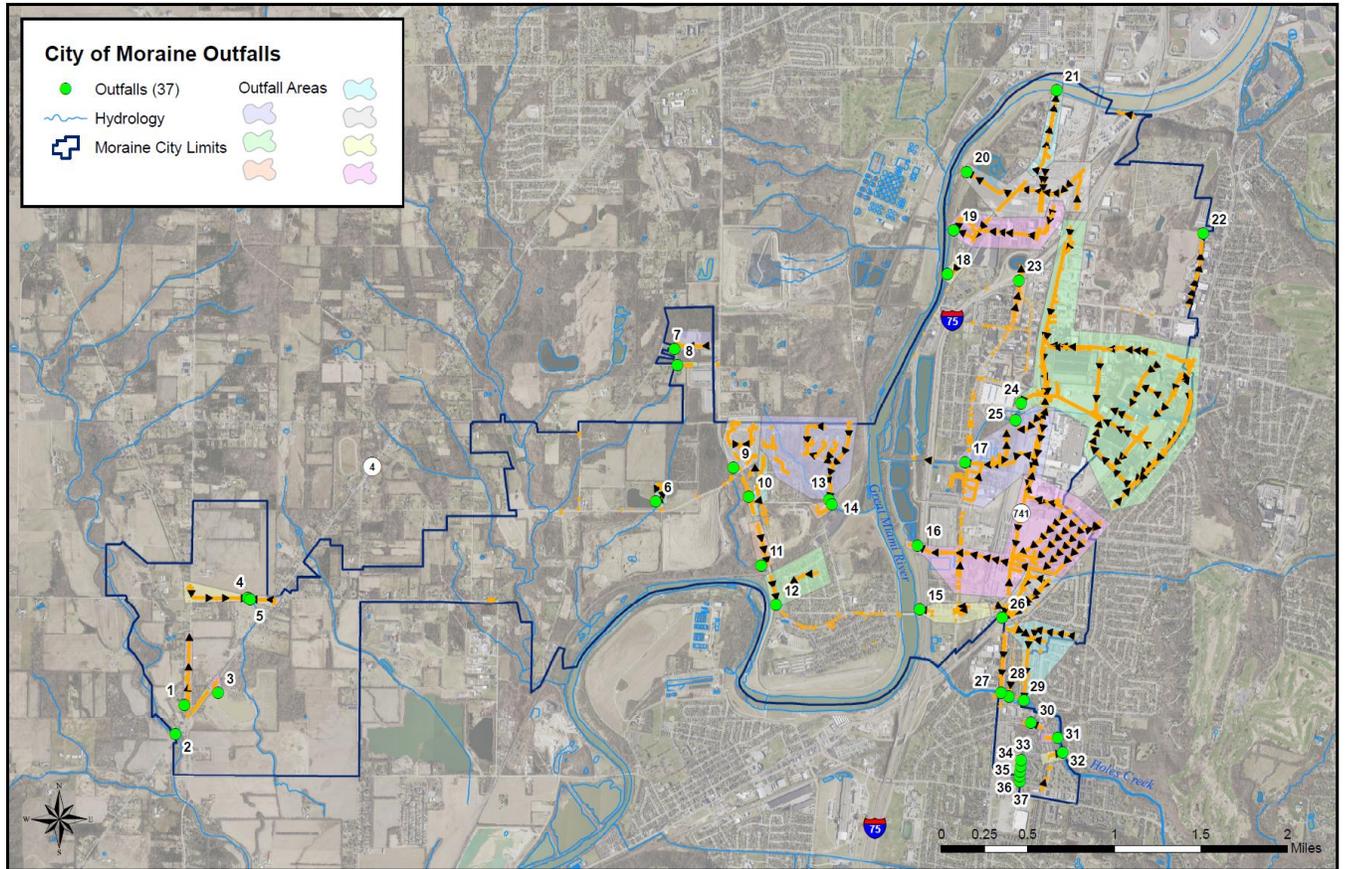
List of Municipal Facilities

- City Streets Department Facility (4720 Vance Road)- No-exposure certification submitted to OEPA in 2022.

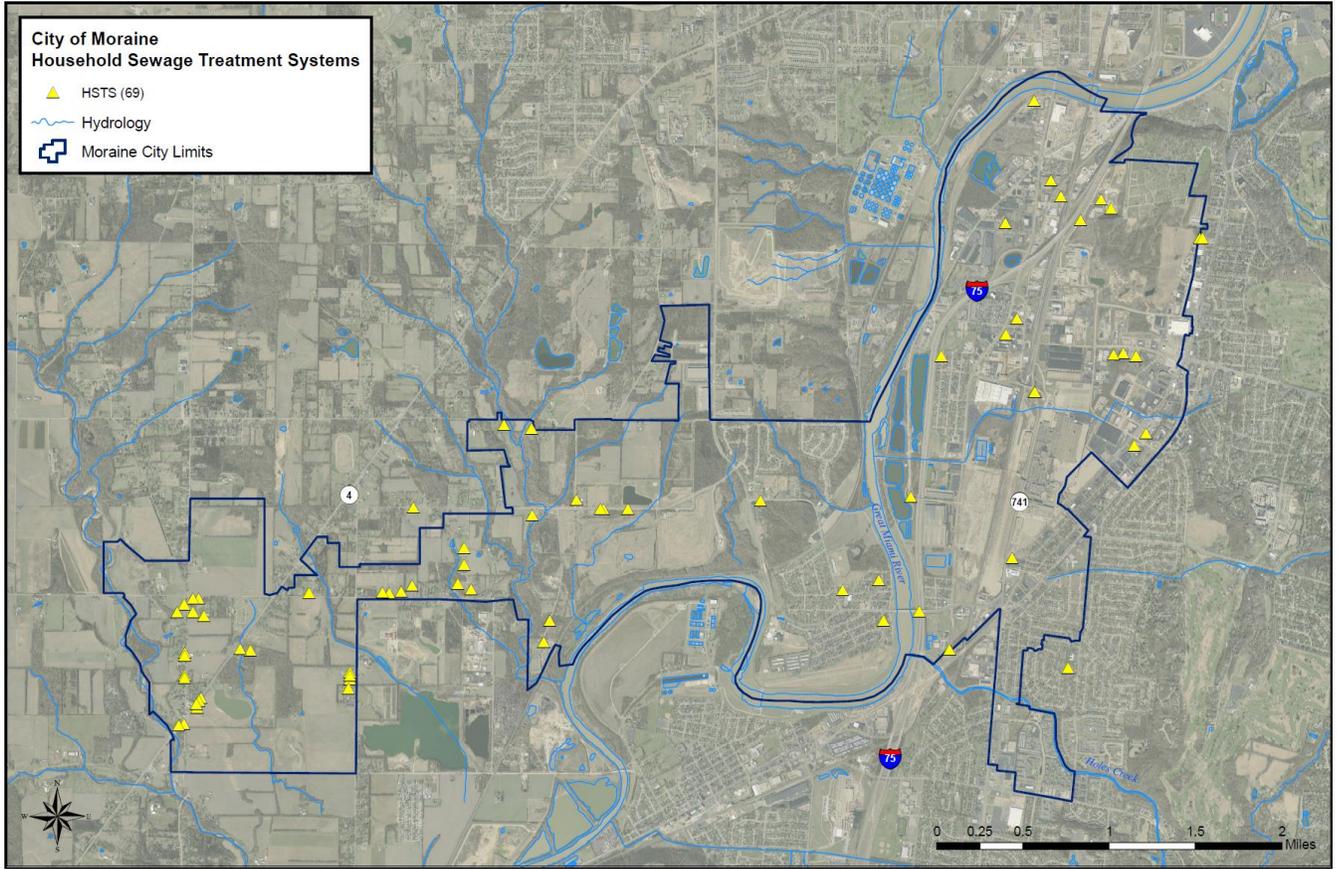
Storm Water System Map



Storm Water Outfalls Map



HSTS Map



Post Construction Water Quality BMPs Map

