

STORMWATER MANAGEMENT PLAN

CITY OF CARTERVILLE, MISSOURI MOR04C002



OCTOBER 2021 - SEPTEMBER 2026
PERMIT CYCLE

PREPARED BY:
ALLGEIER, MARTIN AND ASSOCIATES, INC.

Stormwater Management Plan

City of Carterville, Missouri

Permitting Period: Oct. 2021-Sept. 2026

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Part 1 - Facility Information

1.A. GENERAL INFORMATION:

NPDES #: MOR04C002
Facility Name: Carterville Phase II MS4
Facility Mailing Address: 1200 East First Street, Carterville, MO 64835

Owner's Name: City of Carterville, Missouri
Owner's Physical Address: 1200 East First Street, Carterville, MO 64835
Owner's Mailing Address: 1200 East First Street, Carterville, MO 64835

Primary Contact: William Cline, City Administrator *
Phone Number: (417) 673-1341
Email: admin@cartervillemo.com

Facility Region: Southwest Region
(Main Office in Springfield, Satellite Office in Neosho)
Facility County: Jasper County, MO

Facility Type: Small MS4
Facility SIC Code: 9511
Facility NAICS Code: 924110
Facility Description: Discharges from Regulated Small MS4
Total MS4 Area (acres): 2.06 sq. miles

* If name of Primary Contact changes, that may be updated on the next Stormwater Management Program Report and/or via email to the Department at MS4@dnr.mo.gov.

1.B. ADJACENT WATERWAYS:

The permittee discharges to one permanently flowing stream (Class P), Center Creek, but not within the City limits.

The permittee is not within 100 feet of waters classified as public drinking water supply lakes (L1) or major reservoirs (L2).

The permittee does not discharge to any Wild and Scenic Riverways, Outstanding State Resource Waters, or streams designated for cold-water habitat. Therefore, the permittee is implementing no additional specific provisions for their continued integrity

The permittee does not discharge within two stream miles upstream of any biocriteria reference locations as defined in 10 CSR 20-7.031.

The permittee is not within 100 feet of any stream listed as Impaired on the 303(d) List

Some of the Permittee's areas are defined as wetlands in the National Wetlands Inventory.

1.C. CRITICAL AREAS:

There are threatened or endangered species in the area. (See table below.) The Permittee has met eligibility criteria for protection of threatened or endangered species.

There are critical habitats in the area. (See table below.) The Permittee has met eligibility criteria for protection of critical habitats.

There are no historic properties in the area.

Table 1. Endangered Species/Critical Habitats

County	Species	Status	Habitat
Jasper	Gray Bat (<i>Myotis grisescens</i>)	Endangered	Caves
Jasper	Arkansas Darter (<i>Eteostoma cragini</i>)	Candidate	Rivers
Jasper	Neosho Madtom (<i>Noturus placidus</i>)	Threatened	Rivers
Jasper	Ozark Cavefish	Threatened	Caves in the Boone & Burlington limestone formations of the Ozark Mountains

Part 2 – Outfalls

Stormwater Outfalls and Receiving Waters City of Cartersville, MO

OUTFALL 001

Legal Description	¼ NE, ¼ NE, Sec 21, T28N, R32W, Jasper County
Longitude: +94°25'28.643"W	Latitude: 37°8'27.39"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1St Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010

OUTFALL 002

Legal Description	¼ NW, ¼ NE, Sec 21, T28N, R32W, Jasper County
Longitude: – 94°25'34.811"W	Latitude: +37°8'27.033"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1St Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010

OUTFALL 003

Legal Description	¼ SE, ¼ SW, Sec 16, T28N, R32W, Jasper County
Longitude: – 94°25'52.871"W	Latitude: +37°8'39.949"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1St Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010

OUTFALL 004

Legal Description	¼ SW, ¼ SW, Sec 16, T28N, R32W, Jasper County
Longitude: – 94°26'16.536"W	Latitude: +37°8'41.357"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1St Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010

OUTFALL 006

Legal Description	¼ NE, ¼ SW, Sec 16, T28N, R32W, Jasper County
Longitude: – 94°25'59.42"W	Latitude: +37°8'50.462"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1St Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010

OUTFALL 007

Legal Description	¼ SE, ¼ NW, Sec 16, T28N, R32W, Jasper County
Longitude: – 94°25'58.778"W	Latitude: +37°8'53.859"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1St Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010

OUTFALL 008

Legal Description ¼ NW, ¼ NW, Sec 16, T28N, R32W, Jasper County
Longitude: – 94°26'4.36"W Latitude: +37°9'18.505"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 009

Legal Description ¼ NW, ¼ SE, Sec 17, T28N, R32W, Jasper County
Longitude: – 94°26'39.917"W Latitude: +37°8'46.298"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 010

Legal Description ¼ NE, ¼ SE, Sec 17, T28N, R32W, Jasper County
Longitude: – 94°26'44.142"W Latitude: +37°8'45.823"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 011

Legal Description ¼ NE, ¼ SW, Sec 17, T28N, R32W, Jasper County
Longitude: – 94°27'5.566"W Latitude: +37°8'49.939"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 012

Legal Description ¼ SE, ¼ NW, Sec 17, T28N, R32W, Jasper County
Longitude: – 94°27'2.133"W Latitude: +37°8'54.924"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 013

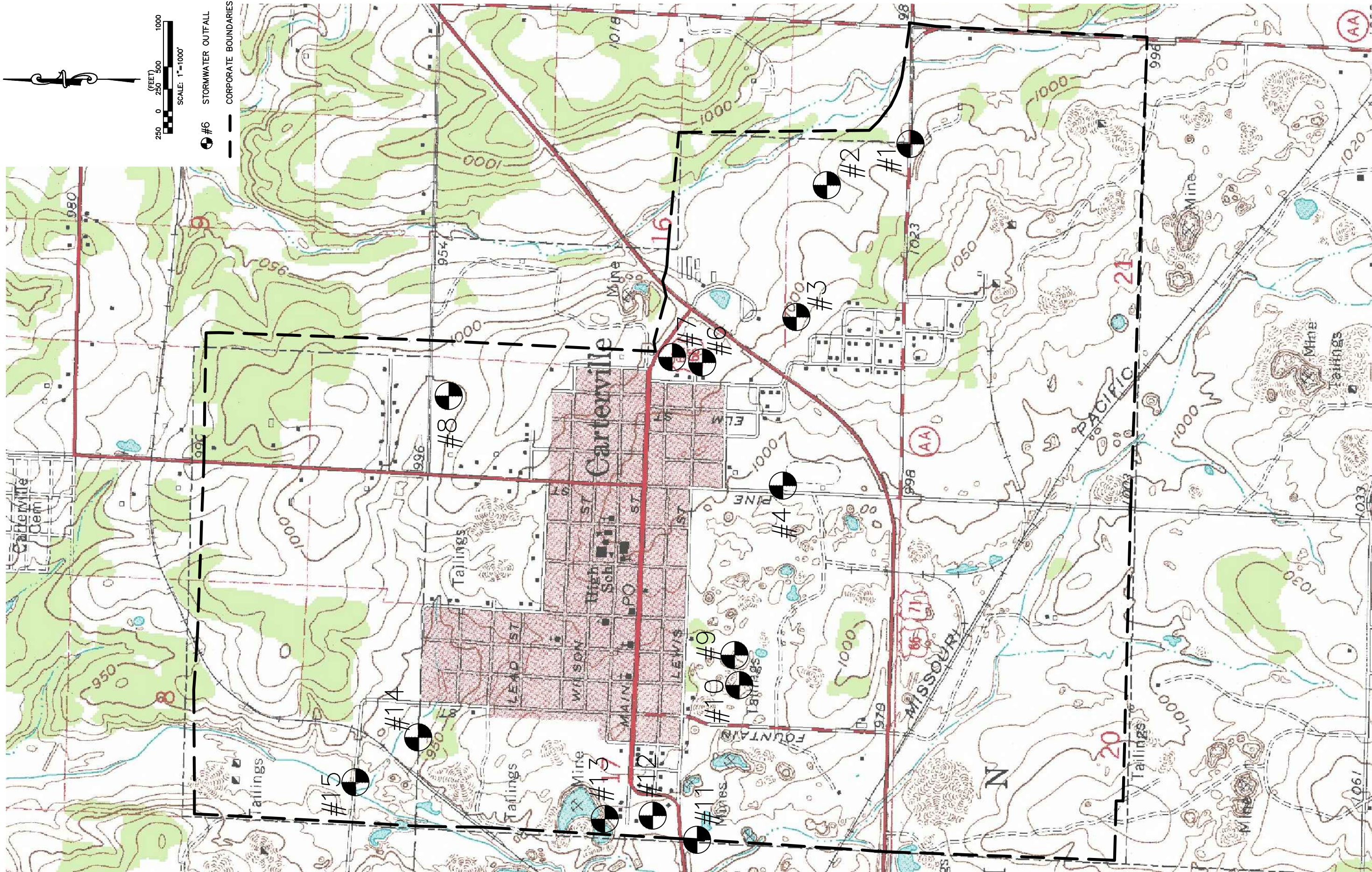
Legal Description ¼ SE, ¼ NW, Sec 17, T28N, R32W, Jasper County
Longitude: – 94°27'2.236"W Latitude: +37°9'0.289"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 014

Legal Description ¼ SE, ¼ SW, Sec 8, T28N R32W, Jasper County
Longitude: – 94°26'51.869"W Latitude: +37°9'21.034"N
Receiving Water Unnamed Tributary to Center Creek (U)
1St Classified Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED 11070207-160010

OUTFALL 015

Legal Description	¼ SE, ¼ SW, Sec 8, T28N, R32W, Jasper County
Longitude: – 94°26'55.885"W	Latitude: +37°9'28.046"N
Receiving Water	Unnamed Tributary to Center Creek (U)
1st Classified	Center Creek (P) – 3203 303(d) listed
USGS/ SUB WATERSHED	11070207-160010



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MISSOURI NO. 000427
OKLAHOMA NO. 675

DATE	REVISION

Carterville MS4.dwg

DWN. BY:	sms
CKD. BY:	sms
APPD. BY:	sms
DATE:	2-12-10

Outfall Map
Carterville MS4 Permit
City of Carterville, MO

DWG. NO.

Part 3 – Stormwater Management Program and Plan

Background

The Municipal Separate Storm Sewer System (MS4) Permit requires each permittee to develop and implement a Stormwater Management Program. Each permittee creates and maintains a written Stormwater Management Plan (SWMP) for the permit cycle. The SWMP is a document describing the Program and is created to ensure consistency and continuity in the implementation of the Program.

The City of Carterville has chosen to participate in the “Comprehensive” version of the MS4 permit (MO-RO4C000) for the October 2021-September 2026 permit cycle. Carterville is a traditional MS4 with a population of less than 10,000. According to the table below, Carterville fits Group A. All BMPs in this SWMP have been chosen to correspond with the requirements for Group A.

NOTE: Throughout this SWMP document, permit language is denoted in *italics*.

Categories of Regulated Small MS4s under this comprehensive permit.

This comprehensive permit categorizes MS4s by the following categories, or Groups, based on the population served as determined by the most recent Decennial Census at the time of permit issuance, the type of Regulated MS4, and the co-permittee situation.

<i>Group A</i>	<i>Group B</i>	<i>Group C</i>
<i>Traditional Small MS4s (cities) that serve a population of less than 10,000 within a UA;</i> Carterville fits this category.	<i>Traditional Small MS4s that serve a population of at least 10,000 but less than 40,000; OR</i>	<i>Traditional Small MS4s that serve a population of 40,001 or more; OR</i>
<i>Class 2 counties; Non-traditional such as Universities, Federal facilities.</i>	<i>Class 1 counties</i>	<i>Co-permit Small MS4s</i>

The MS4 Operator may add supplemental items to the SWMP. These items include but are not limited to:

- Maps;*
- Standard operating procedures (SOPs);*
- Inspection forms;*
- Sample data;*
- Operations and Maintenance Manual;*
- Website or social media account tracking;*
- Stream Team Activity Reports;*
- Tracking and evaluation documents; and*
- Documentation of agreements for co-permittees and/or cooperative agreements.*

The MS4 Operator may replace or modify ineffective BMPs with effective BMPs

Part 4 – Minimum Control Measures

4.0 Entities under coverage of the MOR04C general permit shall develop and implement a Stormwater Program that includes the following six (6) Minimum Control Measures (MCMs).

- 4.1 MCM#1: Public Education and Outreach on Stormwater Impacts
- 4.2 MCM#2: Public Participation
- 4.3 MCM#3: Illicit Discharge Detection and Elimination
- 4.4 MCM#4: Construction Site Stormwater Runoff Control
- 4.5 MCM#5: Post-Construction Stormwater Management in New Development & Redevelopment
- 4.6 MCM#6: Pollution Prevention/Good Housekeeping for Municipal Operations

NOTE: BMP = Best Management Practice

4.1 MCM 1. Public Education and Outreach (PEO) on Stormwater Impacts

Carterville has implemented a public education and outreach program to distribute educational materials to the community and conduct outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

The public education and outreach program shall, at a minimum include the following:

4.1.A Target Audience

The MS4 Operator shall target specific audiences who are likely to have significant stormwater impacts.

The City of Carterville is considered a traditional MS4 and is primarily a residential community. The primary audience for the City's Public Education program will be residents. With a population under 10,000, Carterville is in Group A, so no additional target audiences are required.

4.1.B Target Pollutants

The MS4 Operator shall target specific pollutant(s) in the permittee's education program. Each MS4 shall have a minimum of one target pollutant for each target audience from Section 4.1.A of this permit.

Carterville has chosen target pollutants for the residential audience that will vary seasonally to coincide with the yard waste collection program. These target pollutants will include, but are not limited to, grass clippings & leaf litter.

4.1.C Best Management Practices (BMPs) for Outreach and Education

The MS4 Operator must utilize appropriate educational resources to be used as BMPs (materials, events, activities, etc.) in conjunction with the selected pollutants for the selected target audiences.

The MS4 Operator may change BMPs during the permit cycle if determined appropriate through tracking and adaptive management reviews show a different BMP may be more effective for the MS4. Any changes shall be reflected in the SWMP and explained in the MS4 Stormwater Management Program Report.

The City of Carterville, as part of Group A, must choose a minimum of two Outreach and Education BMPs from Table III of the MS4 General.

Carterville has chosen the following Outreach and Education BMPs:

❖ **Stormwater Information on the City Website**

- Create and maintain a Stormwater Information page on the City website to provide educational material and links to further stormwater information.
- Measurable Goals: Create and maintain the webpage with up-to-date information and working links. All links will be checked, and the page will be updated as necessary, at minimum annually. Website will be maintained for the entire permit cycle.
- Tracking and Adaptive Management: The number of hits will be tracked. The City will use this to see which messages get reactions, and if certain messages may need more education.
- Target Audience: Residents
- Target Pollutants: Include, but are not limited to, grass clippings & leaf litter.
- Website Address: <https://cartervillemo.com/storm-water> .

❖ **Social Media Posts**

- Post Stormwater Information page on the City's News Blog page.
- Measurable Goals: Post a minimum of four (4) times a year. The messages will address ways attendees can minimize or avoid adverse stormwater impacts or practices to improve the quality of stormwater runoff. Messages will be seasonally appropriate. Posting will be continued for at least one full year.
- Tracking and Adaptive Management: The number of views will be tracked. The City will use this to see which messages get reactions, and if certain messages may need more education.
- Target Audience: Residents
- Target Pollutants: Include, but are not limited to, grass clippings & leaf litter.
- Website Address: <https://cartervillemo.com/> , under "What's Happening" heading.

4.1.D Best Management Practices (BMPs) for Involvement

The MS4 Operator must create opportunities, or support activities that are coordinated by citizen groups, for residents and others to become involved with the Stormwater Management Program. The activities, (BMPs) must have an effort to impact stormwater runoff by improving water quality.

The City of Carterville, as part of Group A, must choose a minimum of one Involvement BMP from Table IV of the MS4 General Permit.

Carterville has chosen the following Involvement BMP:

❖ **Yard Waste Collection/Disposal**

- The City provides a year-round yard waste collection site at the Center Creek Wastewater Facility.
- Measurable Goals: Drop-off service will be provided year-round at the Center Creek Wastewater Facility.
- Tracking and Adaptive Management: Track the amount collected.
- Target Audience: Residents
- Target Pollutants: Grass clippings & leaf litter.
- Permit Years: 2021-2026

4.1.E *The MS4 Operator shall create or support the involvement BMP(s) in Section 4.1.D.*

The City of Carterville provides the Yard Waste disposal BMPs in Section 4.1.D.

4.1.F Adaptive Management

Using adaptive management as required in parts 4.1.A.3.d and 4.1.B.1.c, all MS4 Operators shall review their Public Education and Outreach on Stormwater Impacts Program, at minimum, annually and update implementation procedures and/or BMPs as necessary within the requirements of this permit.

This may be conducted when preparing the annual MS4 Stormwater Management Program Report for submittal to the Department.

Annual Review of MCM 1			
Year reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021			
2022			
2023			
2024			
2025			

Table MCM1. Public Education and Outreach Program BMPs

Stormwater BMP	Target* Audience	Target Pollutant	Implementation Date	Update Frequency	Responsible Party	Measurable Goal	Tracking
Outreach and Education BMPs (min. 2)							
Create & Maintain Stormwater Information page on City website, see above for details (must have hit counter)	R	Include, but not limited to, grass clippings & leaf litter.	Sept. 2022	Annual. Check links. Update info.	City Administrator	Create & maintain the webpage with up-to-date information and working links. All links will be checked. Once created, website will be maintained for the rest of the permit cycle.	Number of hits will be tracked.
Social Media: Post Stormwater Information page on the City's News Blog (must have hit counter)	R	Include, but not limited to, grass clippings & leaf litter.	Throughout 2023	Quarterly (by season) during 2023	City Administrator	Post a minimum of four (4) times a year. The messages will address ways attendees can minimize or avoid adverse stormwater impacts or practices to improve the quality of stormwater runoff. Messages will be seasonally appropriate. Posting will be continued for at least one full year.	The number of views, will be tracked.
Involvement BMPs (min. 1)							
Yard Waste Collection Site	R	Grass Clippings & Leaf Litter	Ongoing	As needed	City Administrator	Yard Waste drop-off service provided year-round, at Center Creek Wastewater Treatment Facility	Track amount Collected
Other Items of Note							
Post link to 2021-2016 SWMP document on Stormwater page of City website	R	All pollutants addressed by SWMP	Sept. 2022	As needed	City Administrator	Post one link to SWMP	1 link posted
Annual Review of MCM 1	n/a	n/a	Each January	Each January	City Administrator	Perform annual review of MCM 1 BMPs.	Note review date and any changes in section 4.1.F of SWMP document.

R = Residents

4.2 MCM 2. Public Participation

Carterville has implemented a comprehensive public participation program that provides opportunities for public participation in the development and oversight of the City's Stormwater Program. This program provides opportunities for public participation in the permittee renewal process and complies with state and local public notice requirements. Additionally, the program provides opportunities for public participation in activities related to developing and implementing the Stormwater Management Program.

The public participation program shall, at a minimum include the following:

4.2.A Public Notice Period

The MS4 Operator shall hold a public notice period for a minimum of thirty (30) days to allow the public to review the draft permit, and description of the MS4s Stormwater Management Program (this may be the SWMP) prior to the submission of the renewal application to the Department.

4.2.B Items to be Posted on Website

As part of the public notice, if the MS4 Operator has a public website, the required items shall be posted on their website with a way to submit comments, along with the standard public notice methods for the MS4.

- 1. The permittee shall respond to comments received during the comment period.*
- 2. The MS4 Operator shall retain copies of any public comments and records of information submitted by the public received as part of the public notice process. These comments and responses shall be made available to the public or the Department upon request.*

The permit renewal application, public notice, and related information were posted on the City's website, <https://cartervillemo.com/>.

4.2.C Public Meeting

The MS4 Operator shall hold a public information meeting to provide information on, or describe the contents of, the proposed Stormwater Management Program. This meeting shall be advertised at least thirty (30) days prior to the public meeting.

- 1. As part of the notice of public meeting, if the MS4 Operator has a public website, the MS4 Operator shall post on that site, along with the standard public notice methods for the MS4. The notice of the public informational meeting, including the date, time and location.*
- 2. The meeting must be held within the service area of the MS4. Co-permittees shall hold the meeting within the boundaries of each co-permittee.*

Dates of public notice:	Mar 8, 2021 – Apr 13, 2021
Dates of notice of meeting:	Mar 8, 2021 – Apr 13, 2021
Date of meeting:	Apr 13, 2021
Location (or virtual):	City Hall
Public Meeting Attendance:	15 people

4.2.D Public Comments

The MS4 Operator 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.

Written comments can be submitted in person or by mail, or email to William Cline, City Administrator, at City Hall (admin@cartervillemo.com). Comments are to be tracked electronically or on paper by Mr. Cline.

4.2.E Stormwater Management Panel or Committee

If the MS4 Operator utilizes a stormwater management panel or committee, the MS4 Operator shall provide opportunities for citizen representatives on the panel or committee. The attendance of the meeting shall be recorded.

The City of Carterville does not utilize a stormwater management panel or committee.

4.2.F Annual Updates to Governing Board

If the permittee has a governing board such as; County Council, City Council, or Board of Curators, a representative of the MS4 Operator, who is familiar with the MS4 Stormwater Program, shall provide an update to the governing board. This shall be conducted at minimum, annually with the status of, or updates on, the Stormwater Management Program, and compliance with the Stormwater Management Program.

An update will be given annually to the City Council, after the completion of the annual Stormwater Report.

Annual Updates to Board of Aldermen			
Year to be Reported Upon	Date of update	Method used to update the Board of Aldermen	Name of MS4 representative(s)
2021:			
2022:			
2023:			
2024:			
2025:			

4.2.I Adaptive Management

Using adaptive management, all MS4 Operators shall review their Public Participation Program, at minimum, annually and update implementation procedures as necessary within the requirements of this permit. This shall be used to review how to best reach the public, the effectiveness of the mechanisms, the effectiveness of reaching the public and the MS4 Governing board and if the community and MS4 government are working together for water quality.

Any additional events and/or BMPs shall be acknowledged in the Stormwater Management Program.

Annual Review of MCM 2			
Year reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021			
2022			
2023			
2024			
2025			

Table MCM2. Public Involvement and Participation Program BMPs

Stormwater BMP	Target* Audience	Implementation Date	Responsible Party	Measurable Goal	Tracking
Permit Renewal Process					
Provide Public Notice for Draft Permit Renewal Application and Associated Mapping	R	Mar-8-2021 to Apr-13-2021	City Administrator	30 days minimum Public Notice provided so public could view and comment on the draft Permit Renewal Application	Complete
Above noted items posted on City Website	R	Mar-8-2021	City Administrator	Items Posted for public viewing and comment	Complete
Provide Public Notice for Public Meeting about Stormwater Management Program	R	Mar-8-2021 to Apr-13-2021	City Administrator	30 days minimum Public Notice provided	Complete
Host Public Meeting about the Stormwater Management Program	R	Apr-13-2021	City Administrator	Host minimum of one public meeting to inform the public about the Stormwater Management Program and provide opportunities for community input.	Finished. One meeting hosted at City Hall.
Provide Method for Public Comment. Record and address comments.	R	Mar-8-2021 to Apr-13-2021	City Administrator	Provide Method for Public Comment. Record and address comments.	Complete for the Permit Renewal. If other comments come in about the Stormwater Program, address them when received.
Ongoing BMPs					
Annual MS4 Program Update to City Council	Board of Aldermen	Each Feb. or Mar., after completion of Stormwater Annual Report	City Administrator	Annual update to City Council. Include status and progress of MS4 Stormwater Management Program.	One update per year. Record when update was given each year in section 4.2.F of SWMP
Annual Review of MCM 2	n/a	Each January	City Administrator	Perform annual review of MCM 2 BMPs.	Note review date and any changes in section 4.2.I of SWMP document.

R = Residents

4.3 MCM 3. Illicit Discharge Detection and Elimination (IDDE)

The City of Carterville has implemented, and enforces, 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 regulated MS4.

The illicit discharge detection and elimination program shall at minimum, include the following:

4.3.A Stormwater & Outfall Mapping

IDDE program will include a current storm sewer system map that shall be updated as needed to include features which are added, removed, or changed. This map may be paper or electronic.

Carterville has a map that contains the location of MS4 outfalls and boundary of the regulated MS4 area (City Limits). This map is in the process of being updated to also contain:

- the storm drain system, and
- the names and locations of all Waters of the State receiving discharges from the City's MS4 Outfalls.

A copy of the existing map is included in section 2.0 of this SWMP. The mapping will be updated with the listed items by September 2023.

4.3.B Outfall Information Tracking

The MS4 Operator must record the sources of information used for the map and track, at minimum:

- *A numbering or naming system of all outfalls;*
- *Dates that the outfall locations were verified/ or last field survey;*
- *For newly added outfalls, the date that it was added to the storm sewer system.*

The City's Outfall Mapping utilizes a numbering system for all Outfalls. If additional Outfalls are added during this permit period, the dates will be noted on the mapping. Outfall locations will be verified during IDDE inspections and the dates will be recorded on the inspection forms.

4.3.C Regulatory Mechanism for Illicit Discharge Prevention

The MS4 shall effectively prohibit non-stormwater discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions.

The City of Carterville uses Chapter 250 of City Code to effectively prohibit illicit discharges to the MS4. This "Illicit Discharge Ordinance" gives the City authority to inspect for illicit discharges and includes enforcement measures. This City Code can be found online at: <https://cartervillemo.com/file-downloads>, under the "City Code Book" link.

4.3.D Dry Weather Field Screening

IDDE program will include a dry weather field screening strategy.

1. *The MS4 Operator shall conduct (or have conducted on their behalf) outfall field assessments. The screening shall be conducted during dry weather conditions (a*

- minimum of 72 hours after the last precipitation event) to check for the presence of a discharge.*
- a. A minimum of 60% of all outfalls shall be screened during the permit cycle.*
 - b. Priority areas, such as those listed in 4.3.H, shall be screened each year.*
2. *Dry weather screening shall include a checklist or other tracking device to; ensure a complete inspection of each outfall, enhance consistency, and to track the field screening. When discharge is present, the checklist or tracking device shall note the following general observations and physical characteristics at a minimum:*
- a. Date and time;*
 - b. Weather conditions and temperature (air & water);*
 - c. Color of discharge;*
 - d. Estimate of flow rate (this may be noted qualitatively);*
 - e. Odor;*
 - f. Surface scum, algal bloom, floatables or oil sheen present;*
 - g. Deposits or stains (note the color);*
 - h. Turbidity (may be noted qualitatively);*
 - i. Stream impact including vegetation, fish, wildlife;*
 - j. Length of impacted stream; and*
 - k. Notes of an obvious source of flow (such as lawn irrigation, etc.)*

Carterville has implemented an IDDE Inspection program that utilizes dry-weather field screening to detect and address non-stormwater discharges, including discharges from illegal dumping and spills.

Procedures for inspection are contained within the City’s “Illicit Discharge Detection & Elimination Field Investigation Guide,” dated 2022. During field inspections, the City uses an inspection checklist, called the “Illicit Discharge Inspection Field Sheet,” that includes the above-listed minimum observations and physical characteristics.

A digital copy of the IDDE Field Guide is available on the City’s Stormwater website (<https://cartervillemo.com/storm-water>). A copy of the Inspection Field Sheet is included under Appendix MCM3. Physical copies of the IDDE Field Guide and Inspection Field Sheet are used in the field by inspection staff.

Each outfall is inspected a minimum of once per permit cycle. Additional inspections may occur if there is a complaint or if a priority area is designated.

Number of IDDE inspections for each year are recorded in the table below.

IDDE Inspections for the Year		
	Amount (% or #) per year of permit cycle	Any specific priority areas included: (See also 4.3.H)
2021:		
2022:		
2023:		
2024:		
2025:		

4.3.E Diagnostic Monitoring Procedures

The MS4 Operator shall maintain diagnostic monitoring procedures to detect and investigate unknown non-stormwater flows as part of the dry weather screening program.

Procedures for Illicit Discharge Inspection are contained within the City's "Illicit Discharge Detection & Elimination Field Investigation Guide," dated 2022. During field inspections, the City uses an inspection checklist, called the "Illicit Discharge Inspection Field Sheet."

A digital copy of the IDDE Field Guide is available on the City's Stormwater website (<https://cartervillemo.com/storm-water>). A copy of the Inspection Field Sheet is included under Appendix MCM3. Physical copies of the IDDE Field Guide and Inspection Field Sheet are used in the field by inspection staff.

4.3.F Tracing the Source

The MS4 Operator shall maintain procedures for tracing the source of an illicit discharge. If initial screening indicates that a dry weather discharge contains pollutants, or if an illicit discharge is suspected from another reporting method, the source shall be traced.

Procedures for tracing the source of an Illicit Discharge are contained within the City's "Illicit Discharge Detection & Elimination Field Investigation Guide," dated 2022. A digital copy of the IDDE Field Guide is available on the City's Stormwater website (<https://cartervillemo.com/storm-water>). Physical copies of the IDDE Field Guide are used in the field by inspection staff.

4.3.G Removing the Source

The MS4 Operator shall maintain procedures for removing the source of the discharge. After locating the source, the pollutant and source must be removed. The exact procedure will depend on the source and the circumstances.

Procedures for removing the source may vary widely, depending on the source and circumstances. Removal procedures may be as simple as a friendly conversation with a property owner. Or a public education campaign may be indicated, if the source is determined to be more widespread. Chapter 250 of City Code authorizes additional, specific enforcement measures for illicit discharge issues. Enforcement procedures in the ordinance include: Notice of Violation, fines, abatement of the problem by the City (or its agent), cost of abatement to be paid by violator, and possible civil action and/or criminal charges, as the situation requires. Appeal procedures are also included in the ordinance. (This City Code can be found online at: <https://cartervillemo.com/file-downloads>, under the "City Code Book" link.)

4.3.H Priority Areas

In order to prevent further illicit discharge, the MS4 Operator shall identify priority areas such as, but not limited to:

- *Areas with evidence of ongoing illicit discharges;*
- *Areas with a past history of illicit discharges;*
- *Certain land use influencing stormsewer/proximity of potential pollutant sources;*

- *Areas of higher population density;*
- *Neighborhoods with onsite sewage systems;*
- *Areas with known litter or dumping issues;*
- *Areas with large or increased number of citizen complaints; and*
- *Industrial areas.*

Annually, the MS4 Operators shall evaluate this priority area list and/or map and update as necessary to reflect changing priorities.

Record IDDE Inspection Priority Areas on the following table.

	IDDE Inspection Priority Area(s)
2021:	
2022:	
2023:	
2024:	
2025:	

4.3.I Written Procedures for IDDE Program Implementation

The MS4 Operator shall maintain written procedures for implementing the IDDE Program, including those components described within this section, to ensure program continuity and consistency.

Procedures for implementation of the IDDE Program are contained within the City’s “Illicit Discharge Detection & Elimination Field Investigation Guide,” dated 2022. A digital copy of the IDDE Field Guide is available on the City’s Stormwater website (<https://cartervillemo.com/storm-water>).

4.3.J Investigation Timeline

The MS4 Operator must conduct investigations in response to field screening discoveries, spills, or in response to complaints from the public, municipal staff, or adjacent MS4s.

- 1. Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.*
- 2. Investigate within five (5) business days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare or the environment.*

3. *If illicit connections or illicit discharges are observed related to, discharging to, or discharging from, an adjacent MS4 Operator's municipal storm sewer system, the MS4 Operator must notify the other MS4's Operator within 24 hours of discovery or as soon as practicable.*

The City of Carterville will:

1. Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment.
2. Investigate within five (5) business days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge which does not constitute a threat to human health, welfare, or the environment.
3. Notify adjacent MS4 Operators if illicit connections or illicit discharges are observed related to, discharging to, or discharging from, that Operator's municipal storm sewer system. Notification will take place within 24 hours of discovery or as soon as practicable.

Adjacent MS4	Contact person(s)	Phone number/ email
City of Web City	Public Works	417.673.4651
Jasper County	Health Department	417.358.3111

4.3.K Enforcement Procedures

The MS4 Operator shall have procedures for appropriate enforcement, this may include fines, the ability to collect cleanup and abatement costs, and actions to ensure that the permittee's illicit discharge ordinance (or other regulatory mechanism) is being implemented.

Enforcement procedures for illicit discharge issues are laid out in Chapter 250 Article III of City Code. Procedures in the ordinance include: Notice of Violation, fines, abatement of the problem by the City (or its agent), cost of abatement to be paid by violator, and possible civil action and/or criminal charges, as the situation requires. Appeal procedures are also included in the ordinance. (This City Code can be found online at: <https://cartervillemo.com/file-downloads>, under the "City Code Book" link.)

4.3.L Database for Tracking IDDE Actions

The MS4 Operator shall maintain a database, or other centralized system, to track dry weather field screenings, spills, incidents, and investigations.

The City of Carterville tracks all field screenings, spill, incidents, and investigations. Paper and digital copies of all tracking documents will be kept at the City Hall offices for the entire MS4 permit cycle. Records may be kept longer if deemed necessary.

4.3.M IDDE Education

The MS4 Operator shall inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste, this may work with part 4.1 and part 4.6 of this permit (MCM #1 and MCM #6).

Public education, for residents and businesses, is covered under part 4.1 of this SWMP. For education of City staff, see section 4.3.Q and 4.6 of this SWMP.

4.3.N Review/Update of IDDE Program

All MS4 Operators shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary.

4.3.O Review/Update of IDDE Program for Existing Permittees

Existing permittees shall evaluate their current program to ensure that it is in compliance with this permit.

- 1. Any revisions to the ordinance or regulatory mechanism shall be complete in the first year of the permit cycle.*
- 2. Maintain an updated map with the items listed above. Items not included in the current map must be added within the first 2 years of the permit cycle.*

The mapping required in 4.3.A above will be updated by September 2023.

4.3.P The City of Carterville is not a new permittee, so 4.3P is not applicable.

4.3.Q IDDE Training Program for Field Staff

The MS4 Operator must develop and implement or maintain a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system.

Reviews of the training effectiveness shall be considered after municipal site inspections or after an illicit discharge incident occurs. If a certain department or facility did not perform the way they were trained, or if an issue arises that was not handled properly, the MS4 Operator should consider if the training is enough or is ineffective. The MS4 Operator shall consider ways to survey or test staff to see if the training is effective

The City of Carterville will provide Illicit Discharge training to all inspection staff and staff who may handle materials which may become an illicit discharge. Training may be conducted in person or using online resources.

1. Each applicable staff member will be trained at minimum within one year of being hired.
2. Applicable staff include:
 - a. IDDE inspection staff;
 - b. Building inspection staff;
 - c. Fleet maintenance staff;
 - d. Staff at facilities with fuel, chemicals, washing of vehicles or equipment;
 - e. Road maintenance staff;
 - f. Road salt/de-icing staff; and
 - g. Parks, swimming pool, or golf course staff who encounter spills, equipment or vehicle washing, fueling, chemicals, etc.

Reviews of the training effectiveness will be considered after municipal site inspections or after an incident occurs. If a certain department or facility did not perform the way they were trained,

or if an issue arises that was not handled properly, the City will consider if the training is enough or is ineffective.

Records of IDDE Training will be kept with other staff training records under section 4.6 of this SWMP. Reviews of training effectiveness will also be kept under section 4.6.

4.3.R Adaptive Management

Using adaptive management, the MS4 Operator shall review their IDDE Program, at minimum, annually and update implementation procedures as necessary. This data shall be used to continuously evaluate the effectiveness of each BMP and the implementation of each BMP. Any additional BMPs shall be acknowledged in the Stormwater Management Program report.

List any additional programmatic BMPs and when they were added to the Stormwater Management Program. (Examples of programmatic BMPs include: mapping of entire stormsewer system, adopting a standard operating procedure for dry weather screening, etc.)

Annual Review of MCM 3			
Year reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021			
2022			
2023			
2024			
2025			

Table MCM3. Illicit Discharge Detection and Elimination Program BMPs

Stormwater Goal (BMP)	Permit Section	Implementation Date	Update Frequency	Responsible Party	Measurable Goal	Tracking
Mapping						
Stormwater System & Outfall Mapping	4.3.A	Add missing elements by Sept. 2023	As needed	City Administrator	Update mapping to include storm drain system & receiving waters. Update as needed	Map completion, then track updates as needed.
Outfall Information Tracking	4.3.B	Completed, other than updates	As needed	City Administrator	Maintain outfall information (4.3.B) and update as needed, including dates when any outfall locations are surveyed.	Are any updates needed? If so, have they been added?
Regulatory Mechanism and Enforcement						
Regulatory Mechanism - Illicit Discharge Ordinance	4.3.C 4.3.J 4.3.K	Completed	As needed	City Administrator	Maintain and Enforce Illicit Discharge Ordinance. Maintain enforcement procedures (included in ordinance).	Completed
Inspection						
Dry-weather Inspection of Each Outfall	4.3.D	Ongoing	As needed	Building Inspector	Inspect all Outfalls (and any new ones) once per permit cycle.	Inspections tracked by keeping Inspection Sheets on file.
Fill Out Inspection Field Sheet for Each Outfall Inspected	4.3.D	On day of inspection	As needed	Building Inspector	Use the Inspection Field Sheet as a checklist to ensure complete inspection of each outfall.	Use Inspection Field Sheet for each inspection. Keep on File.
Identify Priority Areas for Inspection	4.3.H	Annual	Annual	City Administrator	Identify priority areas for IDDE Inspection, according to Permit section 4.3.H.	Record any priority areas in section 4.3.H of the SWMP
Maintain Written Procedures for Inspection and Tracing the Source	4.3.D-4.3.F	Completed	As needed	City Administrator	Maintain the IDDE Field Guide, which contains the required written procedures for Permit sections 4.3.D-4.3.F	Completed
Education/Training/Review						
IDDE Information to Public	4.3.M	See MCM#1	See MCM#1	See MCM#1	See MCM#1	See MCM#1
IDDE Training for Field Staff	4.3.Q	2022	Annual	City Administrator	IDDE Training for Inspectors and all staff who handle materials that may become an illicit discharge. Initial training for all, then within 1 year of hire for new employees	Track names/number of employees/departments trained in section 4.6.A & 4.6.B of the SWMP
Annual Review of MCM 3	4.3.R	Each January	Each January	City Administrator	Perform annual review of MCM 3 BMPs.	Note review date and any changes in section 4.3.R of SWMP document.

4.4 MCM 4. Construction Site Stormwater Runoff Control

Carterville is in the process of implementing and enforcing a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre are to 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 Regulatory Mechanism

The MS4 Operator shall have a law, ordinance and/or other regulatory mechanism to require construction site runoff control BMPs at construction/land disturbance sites greater than or equal to one (1) acre or less than one acre if the construction activity is part of a larger common plan or development or sale that would disturb one acre or more. The mechanism shall include sanctions which are designed to ensure compliance, to the extent allowable under State, or local law.

The City of Carterville is in the process of adopting a regulatory mechanism to control construction site runoff. This regulatory mechanism will combine ordinances and a Stormwater Management Criteria manual to:

- Regulate pollutants in stormwater runoff from construction activities;
- Lay out procedures for acquiring a Grading Permit;
- Establish legal authority for the City to inspect permitted construction sites;
- Establish legal authority for the City to enforce the regulations through denial of permit, stop-work orders, revocation of permit, and criminal charges, with associated fines and other penalties.

The City will regulate sites that disturb one or more acres of land, as well as those sites that disturb less than one acre if the disturbance is part of a larger common plan of development or sale that would disturb one acre or more.

4.4.B Pre-Construction Plan Review

The MS4 Operator shall review pre-construction plans.

Once the proposed regulatory mechanism is in place, the City of Carterville will perform pre-construction plan review. During review, the City, or its agent, will:

1. Evaluate threats to water quality, taking into account:
 - a. Soil erosion potential;
 - b. Site slope;
 - c. Project size and type;
 - d. Sensitivity of receiving waterbodies;
 - e. Discharge flow type (pipe or sheet flow);
 - f. Location of discharge point in relation to receiving water;
 - g. Proximity of the site to receiving waterbodies; and
 - h. Other factors relevant to the MS4 service area.
2. Utilize a checklist to ensure consistency and completeness. (A copy of this checklist will be included under Appendix MCM 4, once developed.)
3. Require construction site operators to select, install, implement, and maintain appropriate stormwater control measures. This includes temporary BMPs throughout the life of the land

- disturbance, and permanent BMPs which remain on site as required by local codes and ordinances.
4. Consider ways to minimize disturbed areas through actions such as, phased construction requirements, temporary seeding or sodding, or erosion mats to exposed areas.
 5. Require construction site operators to control construction-site waste that may cause adverse impacts to water quality. (Trash, concrete wash-out, etc.)

4.4.C Authority to Inspect and Enforce

The MS4 Operator shall establish authority for site inspections and enforcement of control measures. To the extent allowable by state, federal, and local law, all MS4 Operators shall implement procedures for inspecting construction/land disturbance projects.

The proposed regulatory mechanism will establish authority for site inspection and enforcement of control measures. The City will implement procedures for inspecting construction/land disturbance projects.

Once the proposed regulatory mechanism is in place, the construction site runoff control program will include the following.

1. Identification of priority sites for inspection based on nature of the construction activity, topography, disturbed area, and the characteristics of soils and sensitivity of, or proximity to, receiving water.
2. Construction site inspections will include assessment of compliance with the City's Stormwater Regulations and other applicable ordinances.
3. The inspections will evaluate any structure that functions to prevent pollution of, or remove pollutants from, stormwater. Inspectors will use enforcement polices to require BMPs to be implemented and effective.
4. Final inspections (upon completion of the land disturbance and prior to final approval of construction project) will ensure all disturbed areas have been stabilized and all temporary erosion and sediment control measures are removed.
5. The inspections conducted by the City's inspector are to be documented with a checklist. The checklist will include structural BMPs. Inspectors will check on the self-inspections which are to be conducted by the construction site operator. (A copy of the inspection checklist will be included under Appendix MCM 4, once developed.)

4.4.D Enforcement Procedures

The construction site runoff control program shall include an established, escalating enforcement policy that clearly describes the action to be taken for violations. The program shall have written procedures to ensure compliance with the MS4 Operator's construction site runoff control regulatory mechanism. The MS4 Operator must have a minimum of two (2) enforcement actions.

Enforcement procedures for construction site runoff problems will be laid out in the proposed regulatory mechanism.

4.4.E Construction Site Self-Inspection Procedures

The MS4 Operator shall require the construction site operator to conduct inspections at minimum:

1. Every fourteen (14) days, when construction is active.
2. Within 72 hours of any storm event, and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased.

Checklists used for these inspections conducted by construction site operators shall either be submitted to the MS4 Operator, or the MS4 Operator shall verify that these inspections are being conducted by the construction site operator checklists during MS4 Operator inspections.

Each construction site covered under the proposed regulatory mechanism is also covered under the Missouri Land Disturbance Permit MO-RA00000. The state permit requires construction site operators to conduct inspections as listed above. When the City performs an inspection on a construction site, the City's inspectors will check these self-inspection records. Construction site operator shall keep self-inspection records onsite for City review.

Self-inspection checklists will be issued in paper form and in conjunction with all construction permits issued at the city offices. The city building inspector will verify these records periodically while the site is active.

Note: The 2-year, 24-hour storm event for Carterville has a rainfall depth of 3.86 inches, according to NOAA's Atlas 14, Volume 8, Version 2.

4.4.F Inventory of Active Construction Sites

The MS4 Operator shall maintain an inventory of active public and private land disturbance sites, as defined in Section 4.4 of this permit. This may be supplemented with records such as a plan review checklist and email correspondence.

Once the proposed regulatory mechanism is in place, the City of Carterville will maintain an inventory of active public and private land disturbance sites covered under this permit. The inventory will be kept on a paper map posted at City Hall.

Inventory information for each active site contains the following:

1. Relevant contact information for each project (e.g., tracking number, name, address, phone, etc.);
2. Size of the project/ area of disturbance;
3. If the site is a priority site/ how high of priority;

4.4.G Tracking of Oversight Inspections

The MS4 Operator shall track their oversight inspections. This may be done by retaining copies of records such as inspection checklists and email correspondence. The MS4 Operator must make these inventories available to the Department upon request.

Once the proposed regulatory mechanism is in place, the City of Carterville will track oversight inspections (from 4.4.E) by retaining copies of records of inspection checklists and email correspondence. These inventories are available to the Department upon request.

Tracking contains:

1. Inspection dates and time;
2. Inspector name
3. Inspection findings; and,
4. Follow-up actions and dates, including corrective actions and enforcement actions.

4.4.H Review/Update of Construction Site Runoff Control Program for Existing Permittees

Review the Stormwater Management Program including ordinances, permitting procedures, review procedures, inspection procedures and enforcement procedures to ensure compliance with these requirements. Any changes necessary to be in compliance with this permit shall be completed within the first year of this permit issuance.

The inventory of active sites must be updated as new projects are reviewed and projects are completed. If the MS4 Operator needs to develop this inventory, it shall be completed within one (1) year of this permit issuance

The City of Carterville will adopt the appropriate regulatory mechanisms (ordinances and Stormwater Management Criteria Manual) by December 2022. Once this is completed, the City will develop a plan review checklist, an inspection checklist, and will begin keeping the inventory of active construction sites.

4.4.I The City of Carterville is not a new permittee, so 4.4.I is not applicable.

4.4.J Public Comment About Land Disturbance Sites

The Stormwater Management Program must include procedures for the MS4 Operator to receive and consider information submitted by the public about land disturbance sites. This may be in combination with 4.2.D of this permit.

Construction plans are available at Carterville's City Hall for review by the public. Any citizen of Carterville may submit written comments relating to the plans. Written comments can be submitted in person or by mail, or email to William Cline, City Administrator, at City Hall (admin@cartervillemo.com). Comments are to be tracked electronically or on paper by Mr. Cline. Comments are to be addressed by the City within 30 days of receipt.

4.4.K Training for Inspection Staff

The MS4 Operator shall provide, or support access to, construction site runoff control training for MS4 inspectors and plan reviewers at minimum once during this permit cycle. This education shall be tracked or documented.

Once the regulatory mechanisms are in place, the City of Carterville will provide construction site runoff control (including erosion and sediment control) training to all construction inspection staff and plan reviewers at least once during the permit cycle. Records of this training will be kept with other staff training records under section 4.6 of this SWMP. Reviews of training effectiveness will also be kept under section 4.6.

4.4.L Inspection Procedures

The MS4 Operator must provide written procedures outlining the local inspection and enforcement procedures to their inspectors to ensure consistency among the inspections.

An erosion control inspection will be provided during each inspection requested by the owner, contractor, or subcontractor. A checklist is used for these stormwater inspections. The

completed inspection checklists are kept at City Hall. A copy of the stormwater inspection sheet/checklist will be included with Appendix MCM 4, once developed.

Enforcement procedures for construction site runoff problems will be laid out in the proposed regulatory mechanism.

4.4.M Adaptive Management

Using adaptive management, all MS4 Operators shall review, at minimum annually, their Construction Site Stormwater Runoff Control Program and evaluate the ordinances, review procedures, inspection procedures, enforcement procedures, receipt of public information procedures, and effectiveness of training procedures to ensure compliance with these requirements and determine if changes are needed.

This annual review may include but is not limited to the follow.

- 1. Evaluating the most common violations, how the violations are handled, how many are escalated;*
- 2. If the education program can assist in reducing violations;*
- 3. Determining if the site plans match the sites when violations arise or if additional items need to be evaluated at plan review;*
- 4. Assessing public complaints being addressed in a timely manner; and*
- 5. Evaluating if the inspections are thorough and consistent across different sites.*

Annual Review of MCM 4			
Year reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021			
2022			
2023			
2024			
2025			

Table MCM4. Construction Site Stormwater Runoff Control Program BMPs

Stormwater Goal (BMP)	Permit Section	Implementation Date	Update Frequency	Responsible Party	Measurable Goal	Tracking
Regulatory Mechanism and Enforcement						
Regulatory Mechanism - Erosion & Sediment Control Ordinance & Stormwater Mgmt. Criteria Manual	4.4.A 4.4.D	Sept. 2022	As needed	City Administrator	Adopt, then enforce the required Stormwater Regulations. Maintain enforcement procedures included in Ordinance & Manual.	Have the appropriate ordinances and manual been adopted?
Pre-Construction Plan Review						
Pre-Construction Plan Reviews	4.3.A	Sept. 2022	As needed	City Administrator	Review all qualifying site plans for compliance with Stormwater Regulations.	Track # of plans reviewed and # approved.
Adopt Plan Review Checklist and Use for Future Construction Projects	4.4.B	Sept. 2022	As needed	City Administrator	Adopt & use a checklist to ensure consistency and completeness during Plan Review process.	Keep copies of checklists used for each plan review.
Public Comments	4.4.J	Start in Sept. 2022	Ongoing	City Administrator	Make all active plans available at City Hall for review by public. Accept written comments submitted and address within 30 days.	Keep records of comments submitted and addressed.
Inspection						
Construction Site Inspection by City	4.4.C	Start in Sept. 2022	Ongoing	Building Inspector	Inspect all permitted, active construction sites for compliance with Stormwater Regulations and site's SWPPP (including self-inspections).	Inspections tracked by keeping Inspection Sheets on file.
Create Stormwater Inspection Sheet	4.4.C	Sept. 2022	As needed	City Administrator	Create one Stormwater Inspection Sheet.	One Stormwater Inspection Sheet updated. Add to SWMP.
Use Stormwater Inspection Checklist during Construction Site Inspections	4.4.C	On day of inspection. Start in Sept. 2022	Ongoing	Building Inspector	Use Stormwater Inspection Sheet to ensure complete, consistent inspection of each permitted construction site.	Use Inspection Sheet for each inspection. Keep on file.
City Oversight of Self-Inspection by Construction Site Operators	4.4.E	Start in Sept. 2022	Ongoing	Building Inspector	Provide oversight to check that self-inspections are properly completed by the construction site operators for all permitted sites. (See 4.4.E above for details.)	Keep copies of oversight records, whether submitted by operator or verified by City inspection.
Create and Maintain Inventory of Active Construction Sites	4.4.F	Start in Sept. 2022	Ongoing	City Administrator	Maintain Inventory of all Active Construction Sites. (Include Contact Info, Size of disturbance area, priority level.)	Are all regulated active construction sites included in inventory?
Education/Training/Review						
Erosion & Sediment Control Training for Inspection Staff & Plan Reviewers	4.4.K	2022	As needed	City Administrator	Provide Erosion & Sediment Control Training for Inspection Staff & Plan Reviewers at least once per permit cycle.	Track names/number of staff trained in section 4.6.A & 4.6.B of the SWMP.
Annual Review of MCM 4	4.3.R	Each January	Each January	City Administrator	Perform annual review of MCM 4 BMPs.	Note review date and any changes in section 4.4.M of SWMP document.

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

Carterville is in the process of implementing and enforcing a program to address the water quality of long-term stormwater 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 or sale. The City will accomplish this goal through a stormwater management ordinance requiring any such development project to obtain a Grading Permit, discussed below, before construction may begin.

Once the proposed regulatory mechanism is in place, the City's stormwater program will ensure that permanent controls have been designed and implemented to prevent or minimize water quality impacts.

4.5.A Regulatory Mechanism

The MS4 Operator shall maintain and utilize an ordinance(s) or other regulatory mechanism(s) to address post-construction runoff from new development and redevelopment projects to the extent allowable under state or local law for sites equal to or greater than one acre including projects less than one acre that are part of a larger common plan of development or sale.

The City of Carterville is in the process of adopting a regulatory mechanism to prevent or minimize long-term water quality impacts. This regulatory mechanism (to be adopted by September 2023) will combine ordinances and a Stormwater Management Criteria Manual to:

- Lay out procedures for acquiring a Grading Permit;
- Require long-term maintenance of permanent BMPs.
- Establish legal authority for the City to inspect permitted construction sites and long-term, permanent BMPs;
- Establish legal authority for the City to enforce the regulations through denial of permit, stop-work orders, revocation of permit, and criminal charges, with associated fines and other penalties.

The City will regulate sites that disturb one or more acres of land, as well as those sites that disturb less than one acre if the disturbance is part of a larger common plan of development or sale that would disturb one acre or more.

4.5.B Minimization of Water Quality Impacts

The MS4 Operator shall continue or develop a strategy to minimize water quality impacts. This shall include a combination of structural and/or non-structural controls (BMPs) appropriate for the permittee's community.

1. Structural Controls:

The proposed Stormwater Management Criteria Manual will contain provisions for structural stormwater controls. These structural controls will include extended detention basins, grass swales, permeable surfaces, sand filter basins, and other structural BMPs. The Manual will include design standards and guidance for designing, installing, implementing, and maintaining stormwater control measures that are designed to infiltrate, evapotranspire,

harvest, detain, retain, and/or reuse stormwater. Design standards in the Manual will include regulation of site discharge volumes, rates, durations, and frequency for new development and redevelopment sites, with the intent to minimize the impact of stormwater runoff on water quality.

2. Non-Structural Controls:

The proposed Stormwater Management Criteria Manual will contain guidelines and rules for non-structural stormwater controls. Through this mechanism, the City will adopted preventative actions that involve management and source controls. Specific measures/policies/ include:

- Policies and ordinances that provide requirements and standards to direct development to identified areas;
- Protection of sensitive areas such as wetlands and riparian areas;
- Maintain and/or increase open space (which may include a dedicated funding source for open space acquisition);
- Encourage buffer zones along water bodies;
- Minimization of disturbance of soils and vegetation;
- Use of green infrastructure; and
- Minimization of directly connected impervious areas.

4.5.C Pre-Construction Plan Review

Pre-construction plan review shall be conducted by the MS4 Operator to assess site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance. The structural or non-structural controls chosen shall; protect sensitive areas, minimize the creation of stormwater pollution, and effectively reduce stormwater pollution. This can be achieved by reasonably mimicking pre-construction runoff conditions on all affected new development projects, or the permittee may achieve this goal through a method more appropriate for its community.

Once the proposed regulatory mechanism is in place, the City of Carterville will perform pre-construction plan review for developments covered under this MS4 permit. This review will be performed in conjunction with the review required under MCM 4. During review, the City, or its agent, will utilize a checklist to ensure consistency and completeness. Non-structural BMPs (such as comprehensive plans, zoning ordinances, buffer strips, and/or maximization/preservation of open space) will be evaluated first. (Copy of this checklist will be included under Appendix MCM 4, once developed.)

4.5.D Long-Term Maintenance of Permanent Stormwater BMPs

The MS4 Operator shall have ordinances or similar enforcement mechanisms to ensure adequate long-term operation and maintenance (O&M) of the selected BMPs, including, as appropriate, agreements between the MS4 Operator and other parties such as post-development landowners or regional authorities.

The City of Carterville will adopt an ordinance as the regulatory mechanism requiring appropriate long-term operation and maintenance of permanent BMPs by September 2023.

Long-term O&M for BMPs will be addressed during the plan review and approval process. Copies of O&M information are to be retained by the party responsible for the post-construction BMP and by the City.

4.5.E Long-Term BMP Inspections

The MS4 Operator shall inspect, or require inspection of, each water quality structural and non-structural water post-construction BMP according to the following at minimum:

- 1. A minimum of one (1) inspection shall be conducted during construction, and one (1) inspection before the site is finalized, to verify water quality facilities are built as designed and any applicable boundaries or practices for non-structural BMPs are being observed. This may be conducted in combination with MCM 4 inspections. (The MS4 inspector shall have access to the approved plans to ensure proper installation.)*
- 2. A minimum of once in the first three years after the installation, by the MS4 Operator.*
- 3. Annually by the owner or operator of the post-construction BMP, or by the MS4 Operator. If completed by the BMP owner or operator, this inspection report shall be submitted to the MS4 Operator for evaluation and review.*
- 4. The MS4 Operator shall inspect a minimum of 60% of all water quality post-construction BMPs within the five year permit cycle. This must include installations with ongoing or open enforcement issues.*

The City of Carterville will begin implementing items 1-4 above once the regulatory mechanism has been put in place.

4.5.F Enforcement Procedures

The MS4 Operator must maintain a plan designed to ensure compliance with the MS4's post-construction water quality regulatory mechanism. This plan shall include escalating enforcement mechanisms the MS4 Operator will use to ensure compliance.

The MS4 Operator must have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance

Enforcement procedures for Long-Term O&M problems will be laid out in the proposed ordinance for Long-Term Maintenance of Permanent Stormwater Controls. This ordinance will establish legal authority for the City to enforce the regulations through notices of violation, criminal charges, with associated fines and other penalties. If necessary, the City may perform maintenance work at the owner's expense. Appeal procedures are also included in the ordinance.

Specific procedures for enforcement will be laid out in in the ordinance. The range of enforcement actions available to the City will allow it to address the variability and severity of the noncompliance. Any enforcement response by the City takes into account the:

1. Degree and duration of the violation;
2. Effect the violation has on the receiving water;
3. Compliance history of the post-construction BMP owner or operator; and
4. Cooperation of the owner or operator with compliance efforts.

The enforcement procedures may start with verbal notice, and education regarding the BMP, before continuing to the Notice of Violation. Enforcement actions will begin within 30 days of discovery of the violation.

4.5.G Enforcement Timeline

Enforcement actions shall be timely in order to ensure the actions are effective. The MS4 Operator shall begin enforcement actions within thirty (30) days of discovering a violation.

Specific procedures for enforcement, including timelines, will be laid out in the proposed ordinance for Long-Term Maintenance of Permanent Stormwater Controls. The enforcement procedures may start with verbal notice, and education regarding the BMP, before continuing to the Notice of Violation stage, but the actions will begin within 30 days of discovery of the violation.

4.5.H Inventory of BMPs

The MS4 Operator shall maintain an inventory tracking the water quality post-construction BMPs. This inventory must contain, at a minimum:

- 1. Relevant contact information for the responsible person(s) or entity (e.g., tracking number, name, address, phone, etc.);*
- 2. The type of post-construction BMP;*
- 3. Applicable operations and maintenance documents;*
- 4. Date the MS4 Operator approved the construction site plan; and,*
- 5. If the water quality facility is owned or operated by the MS4, the tracking shall also include any maintenance, such as sediment clean-out or replanting.*

The City of Carterville will develop an inventory of BMPs within two years of permit issuance (by September 2023). The inventory will be updated as new facilities are added and projects are completed.

4.5.I Tracking Post-Construction BMP Inspections

The MS4 Operator shall also track the post-construction BMP inspections. This may be done by retaining copies of records such as inspection checklists and email correspondence. The MS4 Operator must make these inventories available to the Department upon request. The tracking must contain at a minimum:

- 1. Inspection dates and time;*
- 2. Inspector name;*
- 3. Inspection findings; and F*
- 4. Follow up actions and dates, including corrective actions and enforcement actions.*

The City of Carterville will develop a method for tracking BMP inspections as it implements the Post-Construction BMP Inspection Program from 4.5.E. This will be done within two years of permit issuance (by September 2023) and then continued throughout the permit period.

4.5.J Review/Update of Post-Construction BMP Program for Existing Permittees

Evaluate the ordinances, permitting procedures, review procedures, inspection procedures and enforcement procedures to ensure compliance with these requirements and determine if changes are needed. Any changes necessary to be in compliance with this permit shall be completed within the first two (2) years of permit issuance.

The inventory of water quality facilities must be updated as new facilities are added and projects are completed. If the MS4 Operator needs to develop this inventory, it shall be completed within two (2) years of this permit issuance.

The City of Carterville will adopt the appropriate regulatory mechanisms (ordinances and Stormwater Management Criteria Manual) by December 2023. Once this is completed, the City will begin keeping an inventory of permanent BMPs and develop checklists for plan review, construction inspections, and maintenance inspections.

4.5.K The City of Carterville is not a new permittee, so 4.5.K is not applicable.

4.5.L Training for Inspection Staff

The MS4 Operator shall provide appropriate training for MS4 inspectors at minimum once every permit cycle. This may include Green Infrastructure training, or specific operation of proprietary post-construction BMPs. The MS4 shall provide overall training to explain the function of both structural and non-structural post-construction water quality BMPs.

Once the regulatory mechanisms are in place, the City of Carterville will provide post-construction BMP inspection training to all relevant inspection staff at least once during the permit cycle. Records of this training will be kept with other staff training records under section 4.6 of this SWMP. Reviews of training effectiveness will also be kept under section 4.6.

4.5.M Adaptive Management

Using adaptive management, all MS4 Operators shall review, at minimum annually, their Post-Construction Site Stormwater Management in New Development and Redevelopment Program and evaluate effectiveness of the overall program and determine if changes are needed.

This annual review may include but is not limited to the following.

- 1. Reviewing the number and types of developments;*
- 2. How many BMPs were installed/inspected;*
- 3. The amount of watershed area being treated;*
- 4. The types of violations found and how frequently; and*
- 5. Evaluating how education could improve the effectiveness of the program.*

Any additional programmatic BMPs shall be acknowledged in the Stormwater Management Program Report. (Examples of programmatic BMPs include; educational meetings with HOAs, onsite educational visits, adopting a standard operating procedure for enforcement measures.)

See table on next page.

Annual Review of MCM 5			
Year reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021			
2022			
2023			
2024			
2025			

Table MCM5. Post-Construction Stormwater Management Program BMPs

Stormwater Goal (BMP)	Permit Section	Implementation Date	Update Frequency	Responsible Party	Measurable Goal	Tracking
Regulatory Mechanism and Enforcement						
Regulatory Mechanism - Stormwater Management Criteria Manual & Long-Term Maintenance Stormwater Ordinance	4.5.A 4.5.B 4.5.D 4.5.F 4.5.G	Sept. 2022	As needed	City Administrator	Adopt, then enforce existing Stormwater Regulations. Maintain enforcement procedures included in Ordinance & Manual. Regs include minimization of Water Quality Impacts and Long-Term Maintenance of Permanent BMPs.	Have the appropriate ordinances and manual been adopted?
Pre-Construction Plan Review						
Pre-Construction Plan Reviews	4.5.C	Sept. 2022	As needed	City Administrator	Review all qualifying site plans for compliance with Stormwater Regulations.	Track # of plans reviewed and # approved.
Adopt Plan Review Checklist and Use for Future Construction Projects	4.5.C	Sept. 2022	As needed	City Administrator	Adopt & use a checklist to ensure consistency and completeness during Plan Review process.	Keep copies of checklists used for each plan review.
Construction Phase						
Construction Site Inspection by City	4.5.E	Start in Sept. 2022	As needed	Building Inspector	Inspect all permitted, active construction sites for compliance with Stormwater Regulations and approved plans.	Inspections tracked by keeping Inspection Sheets on file.
Long-Term Maintenance of Permanent Stormwater BMPs						
Develop and Maintain Inventory of Permanent Stormwater BMPs	4.5.H	Sept. 2023	At close of Construction	City Administrator	Develop & maintain Inventory of all Permanent Stormwater BMPs. (Include Contact Info, Size of disturbance area, priority level.)	Are all regulated active construction sites included in inventory?
Develop/Adopt Inspection Checklists for Each Type of Permanent BMP	4.5.C 4.5.I	Sept. 2023	As needed	City Administrator	Develop or adopt checklists for each type of Permanent Stormwater BMP.	Inspections sheets developed. Add to SWMP.
Initial Post-Construction Inspection by City	4.5.E 4.5.I	Fall 2023	As needed	Building Inspector	Inspection by City of all Permanent Stormwater BMPs within first 3 years after construction is complete. (After checklists are developed.)	Inspections tracked by keeping Inspection Sheets on file.
Annual Inspections of Permanent Stormwater BMPs, by City or Owner	4.5.E 4.5.I	Fall 2023	Repeat Annually	Building Inspector	Annual Inspections of each Permanent BMP by Owner or City (depending on agreement). City to provide Inspections checklists to Owner.	Inspections tracked by keeping Inspection Sheets on file. Owner to submit completed Inspection Sheets to City.
Education/Training/Review						
Post-Construction BMP Inspection Training for Inspection Staff	4.5.L	2022	As needed	City Administrator	Provide Post-Construction BMP Inspection Training for relevant Inspection Staff at least once per permit cycle.	Track names/number of staff trained in section 4.6.A & 4.6.B of the SWMP.
Annual Review of MCM 5	4.5.M	Each January	Each January	City Administrator	Perform annual review of MCM 5 BMPs.	Note review date and any changes in section 4.5.M of SWMP document.

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

The City of Carterville is in the process of developing a municipal Operation and Maintenance (O&M) Program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

4.6.A Employee Training Program

The MS4 Operator shall maintain and utilize an employee training program for MS4 municipal operations staff. The training shall be given at minimum annually to all MS4 staff who work with material handling, at MS4-owned or -operated vehicle/equipment maintenance areas, storage yards, and material storage facilities. This may be broken up into staff units, or by applicable topics.

The City of Carterville will update its current training program and schedule to meet the requirements of the new MS4 permit. See updated Training Program Schedule below.

Training Program Record			
Staff & Department	Date	Topic(s)	Training Provider/Method

Stormwater Program Training Schedule

1. In-Depth Training for Pollution Prevention/Good Housekeeping (PPGH) – MCM6
 - a. Frequency: ANNUAL
 - b. Topics: See table in section 4.6.B.
 - c. Applicable Staff :
 - i. Building maintenance/custodial staff
 - ii. Fleet maintenance staff;
 - iii. Staff at facilities with fuel, chemicals, washing of vehicles or equipment;
 - iv. Road maintenance staff;
 - v. Road salt/de-icing staff; and
 - vi. Parks, swimming pool, or golf course staff who encounter spills, equipment or vehicle washing, fueling, chemicals, etc.
2. General Training for Pollution Prevention/Good Housekeeping – MCM6
 - a. Frequency:
 - i. Existing Employees: Initial training
 - ii. New Employees: Within one year of being hired
 - iii. Additional training as needed.
 - b. Applicable Staff: All employees not listed in number 1 above.
3. Illicit Discharge Detection and Elimination (IDDE) Training – MCM3
 - a. Frequency:
 - i. Existing Employees: Initial training
 - ii. New Employees: Within one year of being hired
 - b. Applicable staff include:
 - i. IDDE inspection staff;
 - ii. Building inspection staff;
 - iii. Construction inspection staff;
 - iv. Fleet maintenance staff;
 - v. Staff at facilities with fuel, chemicals, washing of vehicles or equipment;
 - vi. Road maintenance staff;
 - vii. Road salt/de-icing staff; and
 - viii. Parks, swimming pool, or golf course staff who encounter spills, equipment or vehicle washing, fueling, chemicals, etc.
 - ix. Police
4. Training for Construction Site Runoff Control & Post-Construction Stormwater Management – MCM4 & MCM5
 - a. Frequency: Once per permit cycle (Sept 2021-August 2026)
 - b. Applicable staff include:
 - i. Construction Inspection staff;
 - ii. Inspection staff for Long-Term BMP inspections

4.6.B Minimum Topics Covered

The training shall be used to prevent and reduce stormwater pollution.

The training shall cover a minimum of the following topics/ activities (if applicable to the MS4):

The table below provides a breakdown of topics to be covered in the In-Depth Training for PPGH and the IDDE Training (#1 & #3 of the updated Training Program Schedule). As training is provided, records will be kept in the table.

Training Program – Minimum Topic Breakdown			
Topic	Years covered in training	Departments trained	Number of staff trained
1. Vehicle and equipment washing			
2. Fluid disposal and spills			
3. Fleet, equipment, and building maintenance			
4. Park and open space maintenance procedures (including fertilizer, herbicide, pesticide application)			
5. New construction, road maintenance, and land disturbances			
6. Stormwater system maintenance			
7. MS4 operated salt and de-icing operations			
8. Fueling			
9. Solid waste disposal			
10. Street sweeper operations			
11. Illicit Discharges			

4.6.C Training Materials & Procedures

The MS4 Operator shall:

- 1. Maintain material to use in the training program, such as those available from the EPA, the state, or other organizations.*
- 2. Maintain written procedures for the training program. Include a description of how this training will coordinate with all other minimum control measures (such as Illicit Discharge), monitoring and TMDL implementations where applicable.*
- 3. Maintain a written schedule to offer topic specific training when it is appropriate. Such as, swimming pool discharges in the summer, leaf disposal in the fall, proper salt clean-up and usage in the winter.*

The City of Carterville is in the process of updating its current training program and schedule to meet the requirements of the new MS4 permit. Training will be provided either in-person or by electronic methods. Training materials will be identified and then recorded for use again in the future. Coordination with other MCMs is shown in the updated Training Program Schedule above. Seasonally appropriate topics for employees may be covered through email or in-person training, as deemed necessary.

4.6.D List of Municipal Operations/Facilities

The MS4 Operator shall maintain a list of all municipal operations/facilities that are impacted by this operation and maintenance program.

The following is a list of all municipal operations and facilities that are impacted by the O&M program.

- City Hall/Police Department - 1200 E 1st street
- Public Works Facility - 310 S Tennessee
- Comet Park - 400 W Main
- Garrett Park - 500 N Pine

4.6.E List of Industrial Facilities Owned and/or Operated by the City

The MS4 Operator shall maintain a list of industrial facilities the MS4 Operator owns or operates which are subject to NPDES permits for discharges of stormwater associated with industrial activity. The list shall include the permit number or a copy of the No Exposure Exemption Certification (if applicable) for each facility.

This includes Municipal projects with a land disturbance permit, wastewater facilities, airports, etc.

NPDES permitted facilities not owned or operated by the permittee are not required to be part of the list, however the MS4 Operator should be familiar with all such facilities in their MS4 service area as they may signify a priority area for the IDDE program.

The following are industrial facilities owned and/or operated by City of Carterville.

- Carterville Water Well & Tower – MDNR MO-5010141

4.6.F Controls for Reducing or Eliminating Floatables and Pollutant Discharge

The MS4 Operator shall develop or maintain controls for reducing or eliminating the discharge of floatables and pollutants from municipal facilities listed in Section 4.6.D and 4.6.E.

The City of Carterville is in the process of developing an Operation and Maintenance Manual for Municipal Operations as a guide for the prevention and reduction of pollution in stormwater runoff from municipal facilities and operations. Once completed, the Municipal O&M Manual will include the following:

1. A list of potential pollutant sources at each facility, such as materials used and stored on site.
2. Minimum of annual inspections of all municipally owned or operated facilities for stormwater issues are to begin once checklists are developed for each facility.
 - a. Records will be kept for inspections and follow up. This will mostly be checklists, once they are developed.
3. Use of structural controls/BMPs to reduce or prevent pollutants from entering waters of the state or into another MS4 where needed.
 - a. A map with descriptions of these BMPs will be maintained for each facility, once it is developed.
4. All paints, solvents, petroleum products, and petroleum waste products (except fuels) under the control of the City are stored so these materials are not exposed to stormwater.
5. Sufficient practices of spill prevention, control, and/or management are provided to prevent any spill of these pollutants from entering waters of the state;
 - a. This includes spill kits when liquid product is stored at a facility; and
 - b. Any containment system used to implement this requirement is constructed of materials compatible with the substances contained and also prevents the contamination of groundwater.
6. Tracking of rock salt/brine or other deicer usage.
7. Maintaining municipal salt storage area(s) after use of rock salt, at minimum:
 - a. Sweep and/or shovel spillage in loading area and storage area, and
 - b. Unload salt hoppers or keep under cover when salt is in the hopper.

By September 2022, City of Carterville will develop the following items:

- The Municipal Operation and Maintenance Manual
- Inspection Checklists for each municipal facility listed in the O&M Manual.
- Maps of BMPs at each municipal facility listed in the O&M Manual.

Once completed, a digital copy of the O&M Manual will be made available on the City's Stormwater website (<https://cartervillemo.com/storm-water>).

4.6.G Procedures for Proper Disposal of Waste

The MS4 Operator shall have procedures for proper disposal of waste removed from the MS4 structures and areas of jurisdiction. This waste, shall include at minimum, if applicable to the permittee:

1. *Street sweeper spoils and washout;*
2. *Accumulated sediment;*
3. *Dredged materials;*
4. *Floatables, trash and litter;*

5. *Leaves, other organic matter; and*
6. *Other debris.*

The above topics will be included in the proposed Municipal O&M Manual. Once completed, a digital copy of the O&M Manual will be made available on the City's Stormwater website (<https://cartervillemo.com/storm-water>).

4.6.H Washing of Municipal Vehicles and Equipment

The MS4 Operator shall maintain and utilize the following procedures, at minimum, for the washing of all municipal vehicles and equipment (if applicable to the MS4):

1. *Use of any soap or detergent shall only be where there is connection to sanitary sewer or equivalent treatment; and*
2. *Any wash or rinse 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.*
3. *Any washing or rinsing activities shall be conducted in an appropriate area so the water is treated. This area(s) shall be marked on the map of the facility.*

Vehicle and equipment washing will be covered in the proposed Municipal O&M Manual. Once completed, a digital copy of the O&M Manual will be made available on the City's Stormwater website.

4.6.I Written Controls, Procedures, Inspection Schedules, Tracking, Annual Review

The MS4 Operator shall maintain written explanation of the controls, procedures, inspection schedules, and explanation of tracking of these controls. Tracking may be done by retaining inspection reports or checklists. Individual Stormwater Pollution Prevention Plans (SWPPP) or one overarching Operations and Maintenance Manual (O&M Manual) for all applicable MS4 facilities may be used to comply with this requirement.

Annually, the MS4 Operator shall evaluate the results, controls, and inspection procedures to ensure compliance with these requirements and determine if changes are needed. This evaluation may also aid in finding priority areas or pollutants in relation to MCM 3, or adding more education in relation to MCM 1.

Written explanations of controls, procedures will be included in the proposed municipal O&M Manual. Once completed, a digital copy of the O&M Manual will be made available on the City's Stormwater website (<https://cartervillemo.com/storm-water>).

Facility inspections checklists will be developed by September 2022 and initial inspections of all facilities will be conducted by the end of 2022. After this, annual inspections will continue throughout the permit period. Tracking will be accomplished by retaining inspection checklists.

The City will perform an annual review of the Pollution Prevention/Good Housekeeping Program to ensure MS4 compliance and determine if changes are needed. This review will take place during the preparation of the annual MS4 Stormwater Report. Annual reviews will be recorded in the following table.

Annual Reviews of Facility Inspections	
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[illegible]

4.6.J Flood Management Projects

The MS4 Operator shall maintain procedures to determine if there are impacts to water quality for new flood management projects, if applicable. Any flood management projects shall require the protection of water quality in the standards that are used to plan, design, build, and maintain stormwater infrastructure. Flood management projects are those projects developed or designed to reduce flooding.

Water quality impact of flood management projects will be covered in the proposed municipal O&M Manual.

Flood management projects in the Plan Area can include:

- Regional storm water control (retention basins, detention basins);
- Flood control levees and associated pump stations;
- Storm water drainage conveyance capacity improvements;
- Projects involving land buyouts; and
- Designated uses of floodplain land.

Have there been any such flood management projects to review?		
Year	Yes/no	If yes, the location(s)
2021		
2022		
2023		
2024		
2025		

4.6.K Review/Update of Pollution Prevention/Good Housekeeping Program for Existing Permittees

Existing permittees: Shall evaluate the current Stormwater Management Program including training, inspection procedures, and other municipal operation procedures to ensure compliance with these requirements. Any changes necessary to be in compliance with this permit shall be completed within one (1) year of this permit issuance.

The City of Carterville will develop/implement the missing items from all of section 4.6 within one year of permit issuance (by September 2022).

4.6.L The City of Carterville is not a new permittee, so 4.6.L is not applicable.

4.6.M Adaptive Management

Using adaptive management, all MS4 Operators shall review their Municipal Operations Program, at minimum, annually and update implementation procedures as necessary within the permit requirement.

Any additional programmatic BMPs shall be acknowledged in the Stormwater Management Program Report. (Examples of programmatic BMPs include: new training program, adopting a standard operating procedure for equipment cleaning, etc.)

[illegible]

Annual Review of MCM 6			
Year reviewed	Date of review	Reviewer(s)	Were changes made and noted?
2021			
2022			
2023			
2024			
2025			

Table MCM6. Pollution Prevention/Good Housekeeping Program BMPs

Stormwater Goal (BMP)	Permit Section	Implementation Date	Update Frequency	Responsible Party	Measurable Goal	Tracking
O&M Manual						
Create and Follow an Operation & Maintenance Manual for Municipal Operations	4.6.D 4.6.E 4.6.F 4.6.G 4.6.H 4.6.I 4.6.J	Sept. 2022	As needed	City Administrator	Create an Operation & Maintenance Manual for Municipal Operations as a guide for the prevention and reduction of pollution in stormwater runoff from municipal facilities and operations.	Is O&M Manual complete?
Facility Inspections						
Develop PPGH Inspection Checklists and BMP Maps for Each Municipal Facility	4.6.I	Sept. 2022	As needed	City Administrator	Develop PPGH Inspection Checklists for each municipal facility. Develop map of each facility's BMPs.	Add Inspection Checklists and Maps to O&M Manual.
PPGH Inspections for Each Municipal Facility	4.6.1	Fall 2022	Repeat Annually	Building Inspector	Use PPGH Inspection Checklists & maps to perform annual inspections of each municipal facility.	Inspections tracked by keeping Checklists on file.
Education/Training/Review						
Develop/Identify Appropriate Staff Training Material for MCMs 3, 4, 5, & 6. Keep records of material used for later reuse.	4.6.A 4.6.B 4.6.C 4.3.Q 4.4.K 4.5.L	Summer 2022	As needed	City Administrator	Develop/Identify Appropriate Staff Training Material for MCMs 3, 4, & 5. (See listed SWMP sections.) Keep records of material used for later reuse.	Record training material used.
Implement Updated Staff Training Program	4.6.A 4.6.B 4.3.Q 4.4.K 4.5.L	Fall 2022	As needed	City Administrator	Provide stormwater training for City staff according to the Stormwater Program Training Schedule on <u>4.6 page 3</u> . Training frequency and topics are listed on the Schedule.	Track names/number of staff trained in section 4.6.A & 4.6.B of the SWMP.
Annual Review of MCM 6	4.6.M	Each January	Each January	City Administrator	Perform annual review of MCM 6 BMPs.	Note review date and any changes in section 4.6.M of SWMP document.

Part 5 – Monitoring, Recordkeeping, and Reporting

5.2 Recordkeeping

All records required by this permit may be maintained electronically, as long as they are accessible upon request by the Department. If a non-electronic version is kept, the permittee shall retain the most recent versions of the records and shall be accessible to the Department upon request.

5.3 MS4 Stormwater Management Program Report

- A. A report to the Department on the status of the MS4's program is **due annually on** or before **February 28th**. This report shall cover the previous year from **January 1st to December 31st**. The report shall be submitted on the Department approved, MS4 Stormwater Management Program Report form. If approved by the Department, permittees may submit the MS4 Stormwater Management Program Report using an alternative report format.
- B. The annual reports must be submitted through the eDMR system. This is accessible through the Missouri Gateway for Environmental Management (MoGEM): <https://dnr.mo.gov/mogem/>

Which City Staff have access to the eDMR system?	
NAME	Role in the eDMR system
William Cline	Community Official
Carze Brown	Certifier
Sarah Simon (Allgeier, Martin & Associates, Inc.)	Preparer

APPENDIX **MCM 1**

PUBLIC EDUCATION & OUTREACH

SUPPORTING DOCUMENTS

This space reserved, as needed, for documentation of Public Education activities listed in Table MCM 1.

APPENDIX **MCM 2**

PUBLIC PARTICIPATION

SUPPORTING DOCUMENTS

This space reserved, as needed, for documentation of Public Participation activities.

APPENDIX **MCM 3**

ILLICIT DISCHARGE DETECTION & ELIMINATION

CHECKLISTS AND SUPPORTING DOCUMENTS

Illicit Discharge Inspection Field Sheet

page 1 of 2

Section 1: Background Data

Outfall ID:	
Today's date:	Time:
Investigators:	Form completed by:
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:
Camera:	Photo #s:
Notes (e.g., origin of outfall, if known):	

Section 2: Outfall Description

LOCATION	MATERIAL	CROSS-SECTION (SHAPE)		DIMENSIONS (IN.)	SUBMERGED
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> Concrete <input type="checkbox"/> Corrugated Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	<input type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____	In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully
<input type="checkbox"/> Open channel	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> Rip-Rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If No, Skip to Section 5</i>				
Flow Description (If present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	Stop watch
<input type="checkbox"/> Flow #2	Flow depth		In	Tape measure
	Flow width	_____ ' (Top) _____" (Bottom)	Ft	Tape measure
	Measured length	_____ ' _____"	Ft	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Illicit Discharge Inspection Field Sheet

page 2 of 2

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No (If No, Skip to Section 5)

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/sour <input type="checkbox"/> Petroleum/gas <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Faint	<input type="checkbox"/> 2 – Easily detected	<input type="checkbox"/> 3 – Noticeable from a distance
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Faint colors in sample bottle	<input type="checkbox"/> 2 – Clearly visible in sample bottle	<input type="checkbox"/> 3 – Clearly visible in outfall flow
Turbidity	<input type="checkbox"/>	See severity	<input type="checkbox"/> 1 – Slight cloudiness	<input type="checkbox"/> 2 – Cloudy	<input type="checkbox"/> 3 – Opaque
Floatables - Does Not include trash!!	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Suds <input type="checkbox"/> Petroleum (oil sheen) <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Few/slight; origin not obvious	<input type="checkbox"/> 2 – Some; indications of origin (e.g., possible suds or oil sheen)	<input type="checkbox"/> 3 – Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No (If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping <input type="checkbox"/> Peeling Paint <input type="checkbox"/> Corrosion	
Deposits/Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Other:	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Odors <input type="checkbox"/> Colors <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Suds <input type="checkbox"/> Excessive Algae <input type="checkbox"/> Other:	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Orange <input type="checkbox"/> Green <input type="checkbox"/> Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely
 ☐ Potential (presence of two or more indicators)
 ☐ Suspect (one or more indicators with a severity of 3)
 ☐ Obvious

Section 7: Data Collection

1. Sample for the lab?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. If yes, collected from:	<input type="checkbox"/> Flow	<input type="checkbox"/> Pool

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

APPENDIX **MCM 4**

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

CHECKLISTS AND SUPPORTING DOCUMENTS

This space reserved for Construction Site Stormwater Runoff Control items, to be added once developed/adopted.

Items to be added include:

- Copy of applicable ordinances/manuals updated/adopted (or links to these),
- Pre-Construction Review Checklist,
- Stormwater Inspection Sheet/Checklist,

APPENDIX **MCM 5**

POST-CONSTRUCTION STORMWATER MANAGEMENT

CHECKLISTS AND SUPPORTING DOCUMENTS

This space reserved for items for the Post-Construction Stormwater Management program (including Long-Term Maintenance of Permanent Stormwater BMPs). Items are to be added once developed/adopted.

Items to be added include:

- Copy of applicable ordinances/manuals adopted (or links to these),
- Long-Term BMP Inspection Checklists.

APPENDIX **MCM 6**

POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

SUPPORTING DOCUMENTS

This space reserved for documentation of training materials used in the Stormwater Program Training.

Facility Inspection Checklists shall be included in the Municipal Operation & Maintenance Manual, but
may also be placed here.