
City of Sumter MS4 Storm Water Management Plan

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Prepared for:

**CITY OF SUMTER
303 EAST LIBERTY STREET
SUMTER, SC 29151-1449**

Prepared by:

**URS CORPORATION
4016 SALT POINTE PARKWAY, SUITE 200
NORTH CHARLESTON, SC 29405**

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EXECUTIVE SUMMARY

The National Pollutant Discharge Elimination System (NPDES) Program was created by the Environmental Protection Agency (EPA) as a result of the Clean Water Act (CWA). As the EPA-delegated authority of South Carolina, the Department of Health and Environmental Control (SCDHEC) is responsible for implementing the various components of the NPDES program within South Carolina. The NPDES Storm Water Program for Municipal Separate Storm Sewer Systems (MS4s) was implemented in two phases: Phase I for large and medium MS4s, and Phase II for regulated small MS4s.

In 1999, the U.S. EPA issued the Storm Water Phase II General Rule, which targets “regulated small MS4s.” The City of Sumter is located within an Urbanized Area (UA), and thus was required to obtain coverage under the *State of South Carolina NPDES General Permit for Storm Water Discharges from Regulated Small MS4s* (NPDES General Permit). In order to comply with a Phase II permit, the owner/operator of a small MS4 must develop, implement and enforce a stormwater management program designed to reduce the amount of pollutants discharging from the MS4 to the “maximum extent practicable (MEP),” to protect water quality and to satisfy the requirements of the CWA through the development and implementation of what are referred to as “Minimum Control Measures” (MCMs). These MCMs are as follows:

- Public Education and Outreach on Stormwater Impacts
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination (IDDE)
- Construction Site Storm Water Runoff Control
- Post-Construction Storm Water Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations

The City of Sumter obtained initial coverage under the NPDES General Permit on September 24, 2007 and continues coverage under the State of South Carolina NPDES General Permit for Storm Water Discharges from Regulated Small Municipal Separate Storm Sewer Systems (SMS4) dated January 1, 2014. One of the primary requirements of the NPDES permit is the development and implementation of a comprehensive Storm Water Management Plan (SWMP). The purpose of a SWMP is to provide the permittees with a methodical, practical plan for successfully implementing programs that fulfill the permit requirements throughout the duration of the permit term. The SWMP discusses all of the permit requirements that City of Sumter must comply with during the remainder of the current permit term. The schedule for each Plan component will allow the City to successfully comply with their permit, and protect storm water quality within their jurisdictions to the MEP. The SWMP should be re-evaluated and updated each year as needed, and a summary of changes should be included with each Annual Report provided for compliance to SCDHEC.

CONTACTS LIST

This Storm Water Management Plan (SWMP) belongs to the City of Sumter, South Carolina. The contact information for the persons responsible for the implementation or coordination of all components of this SWMP for the City of Sumter are listed below:

Mr. Teige Elliott
Stormwater Manager
City of Sumter
303 East Liberty Street
Sumter, SC 29151-1449
(803) 436-2551
telliott@sumter-sc.com

The following persons are additional points of contact from each agency that have contributed information contained in this report, and that will be participating in the implementation of this SWMP.

Mr. Geoff Smith, P.E.
Project Manager
URS Corporation
4016 Salt Pointe Parkway, Suite 200
North Charleston, SC 29405
(843) 767-4602
geoff.smith@urs.com

INTRODUCTION

2.1 NPDES General Background and Phase I

In response to the growing concern over the quality of water in the United States, Congress enacted the Clean Water Act (CWA) in 1972. The Environmental Protection Agency (EPA), as authorized by the CWA, subsequently developed the National Pollutant Discharge Elimination System (NPDES). The purpose of the NPDES regulations was to be more proactive in protecting the quality of the waters of the Nation. In the State of South Carolina, the Department of Health and Environmental Control (SCDHEC) is responsible for enforcing the NPDES regulations, and thus all requirements imposed by SCDHEC relating to the NPDES program reference the discharge of pollutants to waters of the State.

Surface water pollution is a result of numerous human activities, including development as well as naturally-occurring processes. This type of pollution has the potential to create waters unsafe for drinking, recreation, and other activities, as well as waters uninhabitable by fish, aquatic organisms and wildlife. The NPDES regulations prohibit any point source discharges to waters of the State without an appropriate permit. NPDES permits serve to apply provisions of the CWA to individual entities discharging into South Carolina surface waters by placing pollutant limits on effluent, requiring monitoring of discharges and reporting of the results, as well as requiring entities to implement practices throughout their jurisdiction known to decrease the degradation of surface waters.

The NPDES program targets numerous potential pollution sources, including wastewater treatment plants, industrial facilities and Municipal Separate Storm Sewer Systems (MS4s). The NPDES storm water permit process has been implemented in two phases within South Carolina. Phase I targeted MS4s located within larger, more centralized municipalities and unincorporated areas. Specifically, medium and large MS4s (generally, MS4s serving populations of 100,000 or greater) are required to be covered under a Phase I permit.

2.2 Storm Water Phase II General Rule

In 1999, the U.S. EPA issued the Storm Water Phase II General Rule, which targets “regulated small MS4s.” A small MS4 is generally any MS4 not already covered by a Phase I NPDES permit. The Phase II regulations automatically apply to all small MS4s located within an Urbanized Area (UA), but may also apply to small MS4s outside of the UA if SCDHEC deems it necessary.

The boundaries of UAs are delineated every ten years by the U.S. Census Bureau and are based on population density. Currently, a UA is defined by the Bureau of the Census as “a land area

comprising one or more places – central place(s) – and the adjacent densely settled surrounding area – urban fringe – that together have a residential population of at least 50,000 and an overall population density of at least 500 people per square mile.”

Phase II of the NPDES program is intended to be an extension of Phase I, instituting the use of effective preventative measures to help improve the quality of water entering into and discharging from small MS4s. The requirements of Phase II are intended to provide the owners/operators of smaller, developing MS4s with measures that can be taken to minimize the negative impacts of development and other human activities on water quality. Specifically, the owners/operators of small MS4s are required by EPA to design their Phase II stormwater management programs to accomplish the following:

- Reduce the discharge of pollutants to the Maximum Extent Practicable (MEP).
- Protect water quality.
- Satisfy the appropriate water quality requirements of the CWA.

In order to comply with a Phase II permit, the owner/operator of a small MS4 must develop and implement the required six “Minimum Control Measures” (MCMs). These MCMs are as follows:

- Public Education and Outreach on Storm Water Impacts
- Public Participation and Involvement
- Illicit Discharge Detection and Elimination (IDDE)
- Construction Site Storm Water Runoff Control
- Post-Construction Storm Water Management for New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations

Small MS4s can either issue a Notice of Intent (NOI) to SCDHEC for coverage under the *State of South Carolina NPDES General Permit for Storm Water Discharges from Regulated Small Municipal Separate Storm Sewer Systems (SMS4)* (NPDES General Permit), or they may choose to apply for an individual permit. One of the major requirements of the NPDES General Permit is the development and implementation of a comprehensive Storm Water Management Plan (SWMP).

The use of the MEP standard to determine compliance with a Phase II permit requires the development and implementation of Best Management Practices (BMPs) to address each of the

six MCMs. All BMPs should have measurable goals associated with them, so that SCDHEC is able to determine whether an MS4 is making significant progress toward fulfilling the requirements of its permit by successfully implementing their BMPs in accordance with their SWMP. Permittees are required to assess the effectiveness of the BMPs they have chosen by establishing measurable goals for each of them, and evaluating whether they are successful at eliminating the discharge of pollutants to the MEP. They are also required to make certain that their chosen BMPs satisfy the requirements of the CWA.

The NPDES General Permit was originally issued in October of 2003, but it was appealed by several of the MS4s that were required to obtain coverage under the permit. The appeal was settled on December 28, 2005, and the revised permit (SCR030000) became effective on March 1, 2006, and expired on February 28, 2011. The NPDES General Permit (Permit) was re-issued by SCDHEC on November 1, 2013 and became effective on January 1, 2014. The re-issued NPDES General Permit will expire on December 31, 2018.

2.3 City of Sumter MS4 Permit Background

The City of Sumter (City) and portions of Sumter County (County) were included on the initial required list of regulated MS4s. The City and County determined that it would more efficient to establish an Inter-Local Agreement, and pool their resources in order to achieve compliance in all parts of the UA. In addition, the City and County made an agreement with the Sumter Soil and Water Conservation District (S&WCD or District) that the District would be responsible for complying with the construction and post-construction MCMs on behalf of the City and County. Subsequent to the initial Permit, the City has developed their own SWMP and no longer receives services from the S&WCD. All MS4 compliance activities are performed by City staff.

The City continues to retain the services of URS Corporation to assess their existing Storm Water Management programs. In cooperation with the City, URS has developed a list of recommended BMPs for the six MCMs as well as methodology for addressing TMDL compliance requirements. The recommended BMPs for each MCM continue the City's efforts to meet water quality requirements initially outlined in the report "*City of Sumter: Best Management Practices for NPDES Phase II Compliance.*" In addition to the list of BMPs, this report also included recommendations for implementation, measurable goals for compliance, and estimated costs for implementation for each MCM.

The BMPs and procedures outlined in this SWMP maintain the initial goals set forth by the City to maintain a proactive approach to addressing water quality and maintaining compliance with the Permit.

SPECIAL CONDITIONS APPLICABLE TO PERMITTED STORMWATER DISCHARGES TO SENSITIVE WATERS

Part 3 of the NPDES General Permit for Small MS4s requires the City of Sumter to take specific actions to protect and improve the water quality in sensitive waters located within the SMS4. Sensitive waters are defined as those with a developed and approved TMDL, those listed on the most recent SCDHEC §303(d) list, those classified as either Outstanding National Resource Waters (ONRW), Outstanding Resource Waters (ORW), Trout Waters (TN, TPGT and TPT) or Shellfish Harvesting Waters (SFH), or those within Source Water Protection Areas (SWPA).

These actions include the creation of a TMDL monitoring plan, for those areas not fully supporting their designated use; an assessment of achieving Waste Load Allocations (WLA) and Water Quality Standards (WQS) within the watershed; and a plan for prioritizing BMP implementation projects within the MS4 along with an implementation schedule.

In addition, Section 3.4.2 states

“The SWMP shall include a section describing how BMP implementation will not cause or contribute to violations of water quality standards in water bodies with impaired monitoring stations identified by the SCDHEC Bureau of Water under Section 303(d) of the Federal Clean Water Act or under 40 CFR § 130.7. The SWMP shall specifically identify BMP, control techniques, system design, and engineering methods and such other provisions deemed appropriate for control of the pollutant of concern.”

Table 1 includes the current list of Sensitive Waters that receive stormwater flows from the City of Sumter. Stormwater from the City of Sumter currently flows to two Water Quality Monitoring Stations (WQMS) with approved TMDLs; Turkey Creek at Liberty Street (PD-098), and Turkey Creek at US 521 (PD-040).

The TMDL for Turkey Creek, SCDHEC WQMS PD-098 and PD-040, was first published in September 2005 (SCDHEC Technical Report Number: 029-05), establishing the pollutant load reduction goals for the Turkey Creek watershed. These pollutant load reduction goals were later revised by the TMDL for the Pocotaligo River and Tributaries (Technical Document Number 0924-13) in September 2013.

Table 1: Current TMDL and §303(d) Listed Monitoring Stations

Approved TMDLs			
Monitoring Station(s)	TMDL	Technical Report	Impairment(s)
PD-098 PD-040	Pocotaligo River and Tributaries	0924-13	<i>Escherichia coli</i>

2012 §303(d) Listed Waterbodies			
Monitoring Station(s)	Station Description	Basin	Impairment(s)
PD-039	Green Swamp at S-43-33	PeeDee	Dissolved Oxygen
PD-040	Turkey Creek at US 521	PeeDee	Dissolved Oxygen Mercury Ammonia-Nitrogen
PD-091	Pocotaligo River at US 15	PeeDee	Dissolved Oxygen

According to the later report, the watershed of WQMS PD-098 includes a 1,204 acre drainage area and 4.5 miles of stream reach within the City of Sumter. The predominant land uses are Open Space Development (27%) and Low Intensity Development (24%); a majority (68.5%) of the watershed is comprised of developed lands. The estimated median flow rate is very low, at 1.1 cfs, and ranges from 0 to 8.3 cfs.

WQMS PD-040 lies downstream of PD-098 along Turkey Creek and has a drainage area of 4,303 acres, the majority of which lies in Sumter County outside the limits of the City. The watershed contains approximately 17.5 miles of stream reach, and consists predominately of Woody Wetlands (26%) and Open Space Development (20%). The estimated median flow rate is 3.7 cfs, and ranges from 0.2 to 27.8 cfs. Developed lands comprise approximately 43% of the watershed. PD-040 drains into the Pocotaligo River approximately 0.5 miles south of the City of Sumter.

According to the revised TMDL (September 2013), twenty-three out of twenty-nine samples (79%) collected at WQMS PD-098 between 1999 and 2008 exceeded the Water Quality Standard (WQS) for fecal coliform. Also, fourteen out of twenty-three samples collected at PD-040 during the same time period exceeded the WQS.

Waste load allocations for stormwater discharges are expressed as a percentage reduction rather than a numeric loading because of the variability of stormwater discharge volumes and recurrence intervals.

The 2013 TMDL Document revised the TMDL goals for PD-098 and PD-040 based on monitoring data collected from 1999 through 2008. For purposes of implementation of the current recreational use standard, the 2013 TMDL Document also includes converted *E. coli* TMDLs for these stations. The revised percent reduction goal for fecal coliform bacteria and *E. coli* at PD-

098 is 81% based on stream flows during moist conditions. Downstream at PD-040, the revised percent reduction goal is 88% based on stream flows during mid-range conditions. Table 2-1 shows the September 2005 and Revised May 2013 percent reductions for each station.

3.1 Existing Programs

Prior to the issuance of the 2014 SMS4 General Permit, the City of Sumter had been proactively engaged in stormwater quality improvement efforts within the Turkey Creek Watershed. The City had inspected all stormwater outfalls and conducted follow-up inspections for any suspected non-stormwater discharges to eliminate illicit discharges. Local citizens have been targeted through MS4 education and outreach programs, to encourage the proper disposal of pet waste to reduce fecal coliform loading within the watershed. The City also performs annual vegetation and sediment maintenance within Turkey Creek and has initiated a number of sanitary sewer rehabilitation projects within the watershed.

In addition, the City has cooperated with Sumter County in the development of the Turkey Creek Watershed Plan. The watershed plan was completed in October 2013 and provides an overall strategy for improving water quality within Turkey Creek. It includes an analysis of the watershed and pollutant sources, potential BMPs and management strategies for reducing impairments within the watershed, and specific implementation projects for improving water quality within Turkey Creek. This document can be used by the City as a reference as it refines its TMDL implementation plans for the entire MS4.

3.2 Planned Programs

As state previously, the City of Sumter has taken a proactive approach to assessing and improving water quality within its MS4 area. The City will continue with these efforts during the current term to meet the requirements stated in the SMS4 General Permit.

The City will develop a TMDL Monitoring and Assessment Plan for the two existing TMDL watersheds within the City. This plan will be developed in accordance with existing watershed plan objectives and procedures as well as SCDHEC protocol. This plan will establish water quality monitoring locations and sampling SOPs to determine the City's water quality impact within these watersheds. Monitoring will be consistent with the requirements set forth in the Permit.

Once monitoring results are available, the City will develop an implementation plan to determine structural and non-structural BMPs that could be implemented within these watersheds to improve water quality to the MEP.

3.3 Proposed Implementation Schedule

Table 2 on the next page provides an approximate schedule for the implementation of activities associated with the Special Conditions Applicable to Permitted Stormwater Discharges to Sensitive Waters portion of the SWMP.

Table 2 - Proposed Implementation Schedule for Special Conditions Applicable to Permitted Storm Water Discharges to Sensitive Waters

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Complete TMDL Monitoring and Assessment Plan	January 2015
Identify and train monitoring staff	May 2015
Begin monitoring in waters with existing approved TMDLs	July 2015
Analyze monitoring data	Annually
Complete TMDL monitoring analysis and Implementation Plan	January 2018
Begin monitoring in new TMDL waters within 18 months of the Effective Date of the TMDL	As-Needed

SWMP COMPONENTS

Part 4.1.1 of the NPDES General Permit requires the City of Sumter MS4 to:

“...develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from your SMS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. The SWMP should include management practices; control techniques and system, design, and engineering methods; and such other provisions as the Department determines appropriate for the control of such pollutants.”

In addition, for each MCM, the SWMP must identify the BMPs that will be implemented, the measurable goals for each BMP, the person(s) responsible for implementing or coordinating the BMPs, and rationale for how and why each BMP was selected. This most recent revision of the SWMP includes changes which correspond to the latest NPDES General Permit and outlines objectives and measurable goals to be completed during the current term. The current NPDES General Permit became effective January 1, 2014 and expires December 31, 2018.

4.1 Public Education and Outreach on Storm Water Impacts

Section 4.2.1.1 of the NPDES General Permit requires the following:

“...permittees shall continue to implement, and revise if necessary, a comprehensive stormwater education/outreach program in accordance with the items noted below.”

- Identify the pollutant(s) of concern within the municipality’s defined watershed area(s);
- Analyze the POC identified to be targeted;
- Initiate a planning process that defines the goals and objectives of the program as they relate to at least three high priority community issues with potential to decrease the POC’s effect on water quality.
- Identify and analyze the target audience(s) that is believed to have an influence on the POC identified;
- Create an appropriate message(s) in accordance with the program goals and

objectives that is designed to invoke a desired response in the targeted audience(s).

- Develop an appropriate education campaign and/or materials as needed to convey any messaging created in accordance with program goals and objectives and based on knowledge of the target audience(s);
- Determine methods and process of distribution for campaign materials in accordance with a knowledgebase of the target audience(s);
- To the MEP, utilize quantitative and/or qualitative formative evaluation assessments to guide and/or change the program goals and/or program activities as needed;
- Utilize public input to the MEP in the development of this MCM;
- Implement program goals and objectives to the MEP during the permit term; and,
- Assess the stormwater education/outreach program annually as part of the annual report.

Public education and outreach builds citizen support of NPDES program-related activities, thereby allowing the City of Sumter MS4 to more successfully implement the components of this SWMP. Many people are unaware of the various activities that can adversely impact the quality of storm water runoff, and once they are informed, are more than happy to make adjustments in their daily lives in order to be more environmentally friendly. In addition, educating the public regarding ways in which they can help to reduce the amount of pollution introduced to storm water runoff creates a sense of responsibility and pride among citizens.

4.1.1 Existing Programs

In order to effectively address the requirements of the Public Education and Outreach MCM, the City of Sumter decided to utilize the *Carolina Clear* program. Per the Clemson University – *Carolina Clear* Storm Water Education Program brochure, “*Carolina Clear* is a comprehensive education program developed by Clemson University Cooperative Extension Service (CES) to inform and educate communities about water quality, water quantity and the cumulative effects of storm water. *Carolina Clear* addresses the special significance of South Carolina’s water resources and the role they play in the state’s economy, environmental health, and overall quality of life.” Many MS4s throughout South Carolina have opted to utilize *Carolina Clear* to fulfill their Public Education and Outreach and Public Participation and Involvement requirements.

The *Carolina Clear* program consists of several components that work together to reach the greatest number of people in the most effective ways possible. These components include:

- Community Awareness and Marketing
- Youth Leadership and Development
- Community and Economic Development
- Family and Consumer Science
- E-Learning Initiative
- Agrisystems and Profitability
- Carolina Yards and Neighborhoods
- Horticulture

A Memorandum of Understanding (MOU) between Clemson University and the City of Sumter was signed in November 2008, which allowed for the staff of *Carolina Clear* to meet with the City to establish a general scope of work for the program. This resulted in a comprehensive education and outreach program that has been implemented on a continual basis since 2008. A copy of the executed MOU is included in Appendix D.

In order to develop a successful program, it was important to develop a decision making process to evaluate the needs of the community and SMS4. The *Carolina Clear* program was implemented in November 2008 as a joint initiative between the City of Sumter, Sumter County and the S&WCD, forming the Sumter Stormwater Solutions consortium. The following steps were taken in the decision making process:

- The City of Sumter recognized that the most powerful way to deliver stormwater education is through a regional approach that reinforces watershed-scale processes. To achieve this, the City of Sumter agreed to partner with *Carolina Clear* on regional stormwater education.
- The City of Sumter assisted with the initial regional stormwater education process by identifying potential partnerships within the community, outlining goals, and developing an education plan that will annually guide the specific efforts of this public education and public involvement process.
- Several representatives from the City of Sumter, Sumter County, Sumter Soil and Water Conservation District, Clemson Extension of Sumter County, and URS Corporation attended an introductory meeting with *Carolina Clear*. The group agreed to meet over the next months to define an education plan. In preparation for this meeting, attendees reached out to other groups and agencies for feedback on the stormwater education needs of the community, to avoid duplication of efforts, and to define goals for evaluating the success of this public education program.

Through these initial planning sessions, *Sumter Stormwater Solutions* identified the following primary target audiences for the *Carolina Clear* outreach program. Additional key audiences will be reached as part of the program, but the following have been identified as key groups for education and potential outreach involvement:

- Developers and Contractors;
- K-12 students;
- Teachers;
- Engineers, Landscape Architects, and Landscapers;
- Homeowners and General Public.

Also, representatives of *Sumter Stormwater Solutions* and *Carolina Clear* agreed to target the following pollutants of concern through the educational components of the program:

- Sediment from construction sites;
- Nutrients from residential properties;
- Dissolved oxygen;
- Contaminants including heavy metals and pesticides;
- Sediment from agricultural activities;
- Bacteria from failing septic systems;
- Bacteria from failing sanitary sewer lines;
- Bacteria from pet waste.

Finally, *Sumter Stormwater Solutions* and *Carolina Clear* had to agree on the format that would be utilized to deliver the proposed education message. The message needed to provide information to the community as well as provide information regarding ways to become involved in public activities within the SMS4s. An initial survey of available tools for household education in the community revealed that many opportunities and media types were available in the community for sharing the stormwater education message including:

- Newspaper articles, especially in *Sumter Daily Item* and *The State*;
- Web presence on community websites as well as *Carolina Clear*'s website;
- City of Sumter water bills;

- 105.9 radio interviews, which hosts an hour long morning radio show focusing on local issues; and
- Public access television.

Carolina Clear has worked with the City of Sumter to assemble articles, materials, public service announcements, videos, and bill stuffers to help deliver improved stormwater management messages and raise awareness to stormwater problems. Additionally, *Carolina Clear* has:

- Advertised and conducted Master Gardener classes, e.g. Carolina Yards and Neighborhoods
- Provided displays and educational exhibits at festivals, conferences and workshops
- Provided program announcements on web sites, maintained by the education partners and SMS4s, of educational opportunities.
- Advertised programs of other groups, which include the local extension office, Swan Lake, Citizens Advisory Group, and Soil and Water Conservation District affiliates.
- Provided information on ways to get involved locally, e.g. participate in a cleanup event and ways to reduce stormwater pollution at home or work, during presentations to selected target audiences.

Each year, *Carolina Clear*, the City of Sumter and Sumter County are jointly responsible for developing and implementing this program through the development of the annual education plan. This education plan outline outreach strategies target audiences, target pollutants and evaluation measures to determine the success of the MCM. Success criteria are included as part of the education plan, incorporating several strategies including: post-workshop assessments, follow-up surveys and activity attendance to evaluate the success of the MCM.

Information regarding current Public Education and Outreach initiatives, current Education Plan, and the Annual Report for the PEO MCM can be found on the *Carolina Clear – Sumter Stormwater Solutions* website at:

http://www.clemson.edu/public/carolinaclear/consortiums/sumter_home/index.html .

Carolina Clear will continue to be utilized by the City of Sumter to fulfill the requirements of the Public Education and Outreach MCM throughout the current NPDES General Permit term.

4.1.2 Planned Programs

The City plans to continue their relationship with the *Carolina Clear* program and the Sumter Stormwater Solutions Consortium. As a consortium member, the City will utilize their combined resources to continue to develop permit-specific regional stormwater planning and education

activities. As part of the program, the City will be involved with the development and implementation of the following activities by providing financial and staffing resources:

- Define specific pollutants of concern (POC) within the region. Based on existing TMDL and 303(d) impairments, a primary POC will be fecal coliform/bacteria. Additionally, the City will likely include surrogate pollutants such as sediment and trash and debris, which could be vehicles for bacterial transport.
- Identify three high priority community issues associated with the POC. These will be defined as a consortium and will likely include pet waste, sanitary and septic concerns.
- The specific audiences will be identified. The targeted audiences will include individuals that have a high likelihood of affecting water quality through their day-to-day activities.
- Audience-specific messages, information and programs will be developed to convey an education message that is both educational and tailored to the individual audiences.

Once POCs and audiences have been determined, the consortium will develop an educational plan that will span the life of the existing permit. This educational plan will have defined and measurable goals to determine the annual impact of the program. This program will be evaluated on an annual basis and modified as necessary to influence the public with respect to water quality concerns to the MEP.

4.1.3 Proposed Implementation Schedule

Table 3 on the next page provides an approximate schedule for the implementation of the Public Education and Outreach on Storm Water Impacts MCM.

Table 3 – Proposed Implementation Schedule for Public Education and Outreach on Storm Water Impacts

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Identify the pollutant(s) of concern (POC) within the City’s defined watershed areas.	September 2014
Define the goals and objectives for three (3) high priority community issues with the potential to decrease the POC’s effect on water quality.	December 2014
Identify and analyze the audiences believed to have an influence on the POC.	December 2014
Create an appropriate message in accordance with program goals and objectives that is designed to invoke a desired response in the targeted audience(s).	December 2014
Develop and appropriate education campaign.	December 2014 Annually Thereafter
Determine the methods and process for distribution.	December 2014 Annually Thereafter
Utilize quantitative and/or qualitative formative evaluation assessments to guide and/or change the program goals and objectives and/or program activities as needed.	Annually
Utilize public input to the MEP	On-going
Implement all goals and objectives identified during the permit term.	Reassess Annually Mid-Year
Assess the stormwater education/outreach program annually.	Annually

4.2 Public Involvement and Participation

The Public Involvement and Participation MCM is similar in nature to the Public Education and Outreach on Storm Water Impacts MCM; however, it is intended to make citizens more active in the development and implementation of NPDES-related programs. Public involvement and participation is an essential program component because it builds a broader public support system, shortens implementation schedules, creates a broader base of expertise and economic benefits, and is a conduit to other programs.

4.2.1 Existing Programs

In order to provide an avenue through which the public could participate in the development of the Phase II storm water management programs, the Sumter MS4 formed a Storm Water Advisory Board (SWAB) comprised of stakeholders in the community who would be most affected by storm water programs: local developers, contractors and engineers in the City and County. The SWAB has met twice since its inception, and may be continued in the future as needed as a means of providing public participation opportunities to the community.

As discussed previously, the City of Sumter decided to utilize the services of *Carolina Clear* to satisfy the requirements of the Public Education and Outreach MCM, as well as part of the Public Involvement and Participation MCM.

The *Carolina Clear* education plan is developed annually and outlines potential opportunities for actively involving the public in the development and implementation of this regional education program. The plan includes activities for the following target audiences: the general public, K-12 and higher education, elected and appointed officials and high-level staff, professionals such as contractors, engineers, developers, and public works staff.

The plan also includes various types of public involvement activities, including rain garden implementation, Carolina Yards & Neighborhoods programs, storm drain stenciling and tagging, volunteer monitoring and stream/beach cleanup activities. In addition, *Carolina Clear* will speak as needed or upon request at public hearings and will work with citizen volunteers willing to educate others about the program, including, but not limited to the following groups: Master Gardener's, which are required to perform outreach activities, River sweeps which engage community members in an active, awareness activity which can lead to educating friends, family and neighbors about the importance of stormwater runoff. *Carolina Clear* and the SMS4 will also maintain a presence at festivals and events to recruit citizen volunteers to work towards raising awareness of stormwater pollution. The specifics of these outreach activities is outlined in the education plan on an annual basis.

To evaluate the success of this MCM, *Carolina Clear* and the City of Sumter have chosen to implement the following methods of assessment: assessment forms filled out by each participant rating the quality of the event, turnout numbers and increases in numbers over the permit period, and Google Analytics used to evaluate information used on the website and user characteristics (location, downloads, keywords, return user, and so on). Results are then collated and analyzed with each annual report. These results are used as part of an iterative process to improve delivery of the region's educational message.

In addition Sumter Stormwater Solutions has held training sessions for engineers, developers and contractors regarding NPDES program requirements. These have provided an opportunity for both education and involvement of the development community.

4.2.2 *Planned Programs*

During the current permit term, the City of Sumter will continue to utilize *Carolina Clear* to:

- Create opportunities for citizens to participate in the implementation of stormwater controls (e.g., stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).
- Provide access so that the public can easily find information about the Stormwater Management Plan website.
- Incorporate written procedures for implementing the Public Involvement Participation MCM in the Stormwater Management Plan.

4.2.3 *Proposed Implementation Schedule*

Table 4 on the next page provides an approximate schedule for the implementation of the Public Involvement and Participation MCM.

Table 4 – Proposed Implementation Schedule for Public Involvement and Participation

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Create opportunities for citizens to participate in the implementation of stormwater controls (e.g., stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).	On-going
Semi-annual contractor and engineer workshops	On-going
Provide access so that the public can easily find information about the Stormwater Management Plan website.	January 2015
Incorporate written procedures for implementing the Public Involvement Participation MCM in the Stormwater Management Plan	January 2015

4.3 Illicit Discharge Detection and Elimination

Section 4.2.3 of the NPDES General Permit requires the following with regard to the Illicit Discharge Detection and Elimination (IDDE) MCM:

- *“Develop, implement and enforce a program to detect and eliminate illicit discharges into your SMS4.*
- *Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the State that receive discharges from those outfalls.*
- *...effectively prohibit .through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system.*
- *Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system.*
- *Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.”*

An illicit discharge is defined as any non-storm water discharge to waters of the State not covered by a separate NPDES permit. Typical illicit discharges include such things as sanitary wastewater, effluent from septic tanks, car wash wastewaters, improper oil disposal, radiator flushing disposal, laundry wastewaters, spills from roadway accidents, improper disposal of automobile fluids and household toxics.

There is a limited list provided in 40 CFR §35.2005(20) of non-storm water discharges that are permitted as long as they are not found to be contributing pollutants to the MS4. This list includes such discharges as irrigation water, lawn water and de-chlorinated swimming pool discharges. If any of these discharges are found to be significant contributors of pollutants discharging to the MS4, they must be addressed by the City and are no longer permissible.

The elimination of pollutants before they are introduced to storm water runoff is the most effective means of eliminating pollutants in storm water discharging from an MS4. The implementation of an IDDE Program within an MS4 is a positive step towards the elimination of pollutants at their source. Illicit discharges may occur inadvertently or may be intentional; in either case, the elimination of such discharges can have a significant positive impact on water quality.

The IDDE MCM is very closely linked with the Public Education and Outreach Program MCM. Most of the population are uninformed regarding the concept of an illicit discharge, and are unaware that they may be contributing to the degradation of water quality in their MS4. By raising

awareness about illicit discharges within residential areas, the City will be able to target a large portion of the population and educate them as to steps they can take as citizens to protect the quality of storm water.

4.3.1 Existing Programs

One of the first steps of an IDDE program is the creation of a comprehensive storm sewer map within the regulated area. The City of Sumter MS4 decided to proceed with mapping prior to issuance of NPDES permit coverage, and contracted with URS Corporation in 2003 to complete a storm sewer system inventory of the entire regulated area. When the scope of the mapping project was developed, the most recent census data available was from 1990; however, the NPDES permit requires that the most recent census data available at the time the permit is issued be used, therefore, the outfall system map must be updated with each new census. Often, the changes to the urbanized area are minor, and the required mapping of the storm sewer system within the new areas is minimal. The outfall map was updated to reflect the 2000 census data, March 24, 2009, and the most recent edition of the outfall map is included in Appendix F.

The initial outfall inventory provided detailed descriptions of the outfalls, including structure type, size, and whether or not a flow was detected during the first mapping phase. If there was a flow at an outfall, a physical description of the flow was also provided (i.e., rusty, soapy, oily, clear, etc.). Although the field reconnaissance phase of the mapping project was not carried out according to the requirements of dry weather screening (i.e., at least 72 hours of no rainfall), the City of Sumter was able to use the information provided regarding flow to determine starting points for the dry weather field screening phase of the IDDE program. By focusing primarily on those outfalls that were found to have a flow other than “clear,” the City was able to target higher-risk outfalls first. Additionally, the mapping project provided the City with a GIS database which is used to store all information pertinent to the storm sewer system and the IDDE program. The data dictionary used while completing the mapping project is included in Appendix G, and demonstrates the type of information that was collected during the storm water inventory.

Another accomplishment attained by the City of Sumter relating to the IDDE MCM during the first permit term was the establishment of an IDDE ordinance (Ordinance #2356, August 18, 2009). This ordinance was necessary in order to provide the City with the legal authority necessary to effectively identify, find the source of, and require the elimination of illicit discharges. Specifically, this ordinance accomplished the following:

- Defines the nature and character of an illicit connection.
- Prohibits the discharge of non-storm water flows to the storm water collection system.

- Requires all developers to provide record drawings of all new developments to the City detailing all storm water controls. These drawings should be in a GIS format to maintain consistency and accuracy with the City's overall system map.
- Creates a means of enforcing the provisions of the ordinance.

Public reporting of suspected illicit discharges and illegal dumping is essential to the success of enforcing the IDDE ordinance, and a mechanism for such reporting is a requirement of the NPDES permit. Therefore, the City has provided two methods for citizens to report suspected violations to the stormwater management department. An online customer service request can be completed at: <http://www.sumtersc.gov/customer-service.aspx> , this is a city-wide centralized reporting system that is monitored by City personnel and forwarded to the appropriate department for response. Or, the Stormwater Department can be contacted directly at (803) 436-2644. Both of these mechanisms are featured on the City of Sumter website: <http://www.sumtersc.gov/default.aspx> .

Since the City of Sumter completed a majority of the stormwater system mapping prior to issuance of the NPDES permit, the City was able to focus a significant effort on Dry Weather Outfall Screening during the initial permit term. The City was able to organize these inspections based on priority, with higher priority outfalls being those that were found during the mapping project to have a discharge other than clear. Areas were identified where there appeared to be a high density of suspected illicit discharges, and these areas were investigated first.

In addition to the Dry Weather Field Screening Program, the City of Sumter has focused efforts on reducing Inflow and Infiltration (I&I) within the sanitary sewer system it operates. Although sanitary service providers are covered under a separate NPDES permit that requires them to limit Inflow and Infiltration (I&I), the City is also responsible for using its authority to reduce I&I to the MEP. The inflow of stormwater to the sanitary sewer system during a rain event can overwhelm the sanitary sewer system with a volume of water greater than its capacity. This has the potential to cause a Sanitary Sewer Overflow (SSO), resulting in the contamination of stormwater runoff with sewage. A blockage in the sanitary sewer system can also cause an SSO.

Another means by which storm water can become contaminated with sewage is through the infiltration of water from the sanitary sewer system or a failing septic system into the stormwater conveyance system. The reduction of I&I is an important component of any IDDE program. To that end, the City must proactively address I&I within all sanitary systems located within the regulated area.

The City of Sumter is the primary sanitary service provider within the UA; thus, the implementation of more proactive maintenance and SSO management within its own system is

possible. In order to limit I&I, the City has assessed their current preventive maintenance practices, and revised these practices in order to reduce the instances of SSOs due to blockages. Also, the City has evaluated the current SSO response procedures, and revised these procedures in order to reduce the impact of SSOs on storm water runoff. The City maintains a record of SSOs occurring within the city limits.

Spill response is another important component of an IDDE program. Spills of hazardous materials, or of materials that are considered storm water pollutants, have a very high potential to be introduced to the storm water conveyance system if they are not properly mitigated. Spill response within the City of Sumter MS4 should include the notification of the Storm Water Management Division of the City so that steps can be taken to prevent the contamination of storm water runoff.

Another means by which the City has addressed storm water contamination through illegal dumping is by providing the public with a convenient means to dispose of hazardous household materials (HHM) that are not appropriate for collection with solid waste. This includes used tires, used motor oil, used oil filters, antifreeze, appliances, car batteries, etc. These items can be disposed of at select Sumter County Recycling Centers. More information regarding these recycling centers can be found at:

<http://sumtercountysc.org/?q=department/recycling-center>.

The IDDE MCM is an active program that must be continually repeated and revised throughout the NPDES permit cycle as new areas are incorporated into the MS4 and existing infrastructure continues to deteriorate.

4.3.2 Planned Programs

The City of Sumter will review and revise as necessary the current IDDE ordinance during the first year of the current permit cycle.

The City will update their storm sewer system map based on the 2010 census data and any annexed areas within the City. The mapping update will be ongoing as the City completes the round of Dry Weather Screening for the current permit term.

Dry Weather Field Screening is an on-going program, and will continue at a rate of (20%) of the total outfalls per year. Any remaining outfalls to be investigated at the end of the current permit term will be rolled over to the next permit term. In order to standardize the Dry Weather Field Screening process, the City will develop an updated and abbreviated Standard Operating Procedures (SOP) document. This document will be developed and implemented during the first year of the permit term.

The City will also review their existing Enforcement Response Guide (ERG) to assist City

personnel with the enforcement of the IDDE ordinance and include any necessary updates resulting from new Permit conditions. This document include guidance on the types of enforcement measures appropriate for various types of violations to ensure fair and consistent enforcement actions throughout the MS4 jurisdiction.

Based on TMDLs that have been developed since the first permit cycle, the City is now entirely within TMDL watersheds. Therefore, a first step to identifying priority areas for the City is to revise the protocol defining priority areas. The City will assess their existing outfall and dry weather screening data and prepare an outfall inventory ranking that will aid in the development of priority areas. This will allow the City to address outfalls that are higher priority while still being able to distribute the overall outfall assessment across the duration of the permit cycle, i.e. screening all outfalls to the MEP.

As part of the dry weather screening program, the City will evaluate their IDDE SOP to determine its effectiveness in consistent assessment of outfalls and elimination of illicit discharges.

The City will revise their internal guidance and ERG to allow for more effective enforcement of non-stormwater discharges.

The City will continue their internal training program of City staff, with an increased focus on the IDDE program and reporting of illegal dumping.

4.3.3 Proposed Implementation Schedule

Table 5 on the next page provides an approximate schedule for the implementation of the Illicit Discharge Detection and Elimination MCM.

Table 5 – Proposed Implementation Schedule for Illicit Discharge Detection and Elimination

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Update system map to include newly annexed areas incorporated into the MS4 not previously mapped.	On-going
Identify priority areas within the MS4 with a higher likelihood of illicit connections.	January 2015
Update priority area list annually.	On-going / January
Update written dry weather screening procedures to detect and eliminate illicit discharges to the MS4.	January 2015
Review and update Enforcement Response Guide for IDDE ordinance violations.	January 2015
Conduct field screening for illicit discharges or connections.	On-going
Complete assessment of field screening program.	3 rd AR
Eliminate non-stormwater discharges within 30 days of source determination.	On-going
Maintain a public reporting mechanism for suspected illicit discharges.	On-going
Develop a public reporting form for City website.	July 2015
Train all employees who have the potential to observe an illicit discharge or illicit connection to the storm sewer system.	Annually

4.4 Construction Site Storm Water Runoff Control

Section 4.2.4 of the NPDES General Permit requires the following:

“You must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your SMS4 from construction activities that result in a land disturbance of greater than or equal to one acre.”

Construction activity includes, at a minimum:

- Clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre
- Clearing, grading, and excavating that result in disturbance of less than one acre of total land area that is part of a larger common plan of development or sale (LCP)

Construction site storm water runoff control is a highly emphasized permit requirement for all MS4s due to the tremendous impact construction has on water quality. When land is disturbed for the purpose of construction, much of the natural vegetation is removed, exposing soil that can more easily be eroded away by the wind or rain events. Thus, sediment and erosion control is one of the primary water quality concerns on construction sites. In addition, there is the potential for other pollutants to be introduced to storm water runoff at a construction site. The most common of these pollutants include discarded building materials, concrete truck washout, chemicals, litter and sanitary waste.

Due to the significant amount of land development occurring within the City, and most other urbanized areas in the country, the comprehensive effect of construction activity on water quality can be highly detrimental if not properly controlled. Conversely, reducing the amount of pollutants that exit construction sites will have a significant, positive effect on water quality.

A component of the final decision regarding the appeal of the NPDES General Permit was that all SMS4s were to have both the Construction Site Storm Water Runoff Control and the Post-Construction Storm Water Management in New Development and Redevelopment MCMs fully developed and implemented by September 1, 2007. The City implemented this MCM in accordance with this requirement.

4.4.1 Existing Programs

In order for the City of Sumter to adequately reduce adverse water quality impacts due to land disturbing activity, it was necessary to establish the legal authority to require BMPs and other water quality considerations on construction sites, and it was necessary to establish the legal

authority to inspect sites and enforce water quality requirements. The City is a delegated entity for the purpose of plan review, inspection and enforcement. Ordinance No. 2469 is the current city ordinance that contains the more stringent sediment and erosion control measures required by Phase II, and was adopted by the City on August 6, 2013. Section 3.7 of this ordinance defines the two classifications of Storm Water Pollution Prevention Plans (SWPPPs):

- **Type 1** - A Type 1 SWPPP is required for all land disturbing activities that disturb one acre or greater
- **Type 2** – A Type 2 SWPPP is required for all land disturbing activities that disturb less than one acre and that are not a part of a larger common development or sale.

The requirements for each SWPPP classification are provided in detail in Sections 5 and 6 of the ordinance.

Section 3.8 of the ordinance describes the considerations taken during the project review process, one of which specifically addresses the existence of a Total Maximum Daily Load (TMDL). Section 3.9.A.3 requires that, if a project is discharging into waters with an approved TMDL, the SWPPP must incorporate “measures or controls that are consistent with the assumptions and requirements of such TMDL.” This demonstrates the extra level of consideration given to waters with an approved TMDL.

Section 4.1 of the ordinance establishes the requirements for different types of operators including operators that have “operational control over construction plans and specifications,” operators that have “operational control over day-to-day activities” and operators that have “operational control over only a portion of a larger project.” Section 3.11 states that “The applicant shall be responsible for carrying out the proposed work in accordance with the approved erosion and sediment control and storm water management plan and grading permit, and in compliance with the requirements of this ordinance. Section 4 of the ordinance allows for contractors and subcontractors who will conduct construction activities to be co-permittees or secondary permittees with the project owner. Regardless of whether a contractor or subcontractor has decided to be a co-permittee with the project owner on the *NPDES General Permit for Storm Water Discharges from Construction Activities* (General Construction Permit), he must still be listed on the SWPPP and attend a pre-construction conference before land disturbing activity can begin. These requirements help to ensure that all those participating in a land disturbing activity, regardless of their status as co-permittees or secondary permittees, can still be held accountable for failure to comply with the SWPPP.

In order to avoid any situations where a project owner, or contractor or subcontractor, attempts to avoid being held responsible for not complying with the applicable SWPPP, Section 4.2.B.(4)(a)

contains a certification statement that must be signed by all contractors and subcontractors listed on the SWPPP as co-permittees, and by all contractors and subcontractors who will affect the implementation of the SWPPP but will not be listed as co-permittees, respectively. The statement includes language stating that the contractors and subcontractors:

- Attended a pre-construction conference onsite or, when allowed, offsite with the individual who is responsible for the operational control of the SWPPP;
- Accept the terms and conditions of the SWPPP as required by the General Construction Permit, and
- Understand that they are legally accountable to the City and SCDHEC to ensure compliance with the terms and conditions of the SWPPP.

Section 5 of the ordinance moves into the more specific requirements of plans and applications submitted to the City for approval. Sections 5.1 and 6 describe the standards and requirements for all Type 1 SWPPPs submitted to the City. Section 5.2 lists specific requirements for Type II SWPPP preparation. These requirements include details of temporary as well as permanent erosion and sediment control measures, the proposed order of construction activity (including clearing and grading), road grading, and similar construction activities. The intent of these requirements is to ensure that as little bare soil as possible is exposed at one time, thereby minimizing erosion.

Section 6.8.J. of the ordinance establishes design criteria aimed at protecting water quality. Additional design requirements for water quality are included throughout the ordinance. Section 6.8.L. specifically addresses sites with storm water discharges to a receiving water body that is listed as impaired on South Carolina's 303(d) list of Impaired Waters. For those waters with an approved TMDL, the ordinance requires that the SWPPP identify "...measures to be taken by the Operator so that the construction site's discharge of pollutants is consistent with the allocations, assumptions, and requirements contained in the TMDL." If no TMDL has been established for the water to which a site is discharging, the SWPPP must be developed so that stormwater discharges, "...do not cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standards." This subsection of the ordinance provides additional protection for impaired water bodies, helping to reduce the adverse impact to them during construction.

In order to ensure that the intent of each SWPPP is fulfilled and that all parties having an impact on the implementation of the SWPPP are held accountable, Section 4.2.B.(3)(b) states specifically that individual lot owners obtaining their own coverage under the Permit shall, "indicate on the NOI that the new lot owner will follow the approved On-Site SWPPP(OS-SWPPP) and individual

lot controls developed for the LCP or develop a sediment and erosion control plan meeting the requirements set forth for a Comprehensive SWPPP (C-SWPPP) in Section 6.1.G.” This action will ensure that all parties involved in the development of a site are held accountable appropriately for their impacts to water quality.

Section 7.2 addresses inspections during construction in great detail. The same inspection frequency required by the General Construction Permit is required in the ordinance (one inspection every seven days and following any storm event of 0.5 inches or greater).

Section 5.2 of the ordinance contains specific requirements to be included in all Type 2 SWPPPs, which, although less stringent than those requirements for Type 1 SWPPPs, still require erosion and sediment control to be an emphasized component of the pollution plan. This helps to reduce the collective, adverse impact of construction sites less than one acre.

Section 7.4 provides the City with the authority to demand correction for off-site damage due to construction activity. Although the ordinance provides for very stringent erosion and sediment control considerations in every SWPPP, there will be instances where a developer/contractor fails to adhere to his SWPPP, causing an adverse impact to a downstream water body. Rather than only using enforcement measures against the person responsible for the SWPPP, this section of the ordinance allows for the City to go one step further and demand that the responsible party correct the off-site impact.

The ordinance also provides the City with numerous potential enforcement actions that can be utilized in the event that any portion of the ordinance is violated. Section 10 is entirely devoted to administration and enforcement of the ordinances, and contains provisions for enforcement action in the event the contractor fails to comply with City requirements. This section also establishes the authority of the City to utilize Stop-Work orders or civil penalties in the event of a violation of the ordinance.

In addition to the legal authority established through the ordinance, the City has also developed a centralized database where plans and construction sites are being tracked. This database tracks plan receipt, approval/denial, construction site inspections, as well as enforcement actions. This will allow the City to keep track of all construction activity within the UA, as well as provide thorough follow up to violations.

4.4.2 Planned Programs

Through the extensive ordinance revisions discussed above, the City of Sumter has established the legal authority necessary to successfully implement the Construction Site Storm Water Runoff Control MCM within the regulated area. Further ordinance modifications will be implemented within the first year of Permit coverage. In addition, they have revised their plan review process to incorporate the more stringent sediment and erosion control requirements of the Phase II program. The focus of the current permit term will be improving the current Construction Site Storm Water Runoff program already in place, and fully implementing the centralized database that has been developed to track all construction activity.

Utilizing construction site tracking database, the City is working toward streamlining their inspection and enforcement program to provide more consistent enforcement throughout the UA. A big part of this will be officially delegating enforcement responsibilities so that there is no confusion regarding who is responsible for enforcement. To aid this process, the City is updating the Enforcement Response Guide (ERG). The updated ERG will provide the City with a guidance document that lists all the potential violations at a construction site, and the resulting enforcement actions that may be taken. The ERG also provides escalating penalties for repetitive non-compliance. The primary purpose of an ERG is to ensure fair, consistent enforcement action is taken throughout the City of Sumter MS4.

Also, due to recent TMDL development, the City is planning to reevaluate their method of prioritizing inspections so that those construction sites that are more likely to cause the greatest amount of adverse impact on impaired water bodies are inspected more frequently than those that are less like to impact sensitive and impaired waters within the City.

Another task that will need to be completed will be the evaluation of the need for the City to hire additional plan reviewers and inspectors due to the more stringent requirements of Phase II. It should be possible to begin this evaluation after approximately one year of implementing the new program requirements.

Education is a key component to this MCM. The City will continue their efforts to educate internal staff with regards to the Permit and changes that are occurring under this new cycle of coverage. The City will also utilize *Carolina Clear* to provide construction education to local contractors, developers and engineers.

4.4.3 Proposed Implementation Schedule

Table 6 on the next page provides an approximate schedule for the implementation of the Construction Site Storm Water Runoff Control MCM.

Table 6 – Proposed Implementation Schedule for Construction Site Storm Water Runoff Control

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Update ordinance to comply with 2014 NPDES General Permit	October 2014
Develop and implement the Enforcement Response Guide to provide consistency of actions taken to remedy violations of the Stormwater Management Ordinance.	January 2015
Provide training to all MS4 staff including inspectors and plan reviewers.	Annually
Develop a construction site operator education plan.	January 2015
Develop an inspection report form for public concerns related to the Construction Site Stormwater Control MCM.	July 2015
Maintain a public reporting mechanism for public concerns related to the Construction Site Stormwater Control MCM.	On-going

4.5 Post-Construction Storm Water Management in New Development and Redevelopment

Section 4.2.5.1 of the NPDES General Permit requires the following:

“Permittees shall implement a program to control stormwater discharges from new development and redeveloped sites that disturb at least one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale, LCP) that discharge into an SMS4. The program must apply to private and public development sites, including roads.”

Additionally, Section 4.2.5.2 states:

*“New Development Standards to be used can be either one, combination, or equivalent combination of design strategies, control measures, practices or provisions such as infiltration, evapotranspiration, rain harvesting, and stormwater reuse and recharge that demonstrate the runoff reduction and pollutant removal necessary to approximate pre-development conditions to the MEP and to protect water quality. **The first inch of runoff must be addressed.**”*

This component of the SWMP is closely linked with the Construction Site Storm Water Runoff Control component discussed in Section 3.4. These two SWMP elements are complimentary, and together are intended to aid in alleviating water quality concerns that arise due to land development. While Construction Site Storm Water Runoff Control deals with storm water pollution concerns that can arise when land is disturbed for the purpose of development; Post-Construction Storm Water Management in New Development and Redevelopment requires the City to plan appropriately for urbanization, and require suitable BMPs for protection of water quality after the development is complete.

As land is developed, the amount of impervious area increases significantly, as paved streets, driveways, rooftops, parking lots and other components of the development take the place of trees, grass and open space. There is a direct correlation between the amount of imperviousness in an area and the quantity of pollutants entering the storm water discharges from that area. This is due in part to the high rate of speed at which storm water leaves the area, which decreases the amount of time and opportunity the runoff has to infiltrate into the soil, filter through foliage, and undergo other natural filtration processes. It is for this reason that runoff control from construction sites during and after development is so strongly emphasized in the Phase II program.

In order to alleviate many of the storm water pollution issues that arise due to development, the Post-Construction Storm Water Management in New Development and Redevelopment MCM requires MS4s to encourage developers to be proactive about implementing the use of BMPs

within their developments, and also requires them to create a plan to successfully maintain those BMPs once construction is complete. This may include the use of grass swales in place of a curb-and-gutter drainage system, or the construction of a retention pond designed to retain flood waters for a period of time long enough to allow for the sedimentation of pollutants. Some developers may even construct rain gardens or similar bioretention facilities. As discussed previously, structural BMPs typically require regular maintenance in order for them to function properly and provide the desired water quality control.

4.5.1 Existing Programs

Section 7 of the City ordinance contains provisions directly related to the Post-Construction Storm Water Management in New Development and Redevelopment MCM. Section 7.3.C. requires preventive maintenance of all completed storm water management practices by the responsible agent. This section also requires periodic inspections of completed stormwater management practices to ensure preventive maintenance occurs in a timely manner.

Section 7.3.A. provides the procedures to ensure that deficiencies noted during inspections are rectified. These procedures include the notification of the person responsible for maintenance of deficiencies, (including a time frame), subsequent inspections to ensure completion of repairs, and effective enforcement procedures. These procedures would refer projects to the City if repairs are not undertaken or are not completed properly.

4.5.2 Planned Programs

AS part of compliance requirements with the new Permit, the City shall revise the existing stormwater ordinance to address site performance standards for construction and post construction. While the existing ordinance requires storage of the first one inch of runoff from developments containing a dry pond, the requirement is less than one inch for wet ponds. The ordinance will be revised to address all structural BMP types and their storage requirements for the site. Once this has been updated in the first year of the permit cycle, the revised ordinance references will be updated within the SWMP.

The existing GIS structure within the City tracks construction sites and some stormwater BMPs. In the first year of the permit cycle, the City will develop a database of structural BMPs. Concurrent with the development of the database, the City will develop inspection protocol for these BMPs and outline a schedule for inspection that addresses BMPs in the high priority area first. Beginning in year 2, the City will begin BMP inspections at a rate of 25% per year for the remainder of the permit cycle. Where new BMPs are added to the system, the City will inspect these new BMPs within 30 days of completion and stabilization and add them to the long-term inspection schedule. The inspection records will be kept in a database to be developed by the City.

One additional component of the post-construction program that the City has implemented is the use of a “Statement of Responsibility” form that is signed by the person responsible for post-

construction maintenance. The purpose of this document is to establish, in writing, the person responsible for adhering to the maintenance schedule contained in the approved SWPPP. In addition, this person assumes all responsibilities for repair and preventive maintenance of the storm water management facilities of the site. If ownership responsibility is transferred, the City is required to be notified in writing of the transfer in ownership and maintenance responsibility.

This form also grants the City and DHEC authority to access private property for the purpose of site inspections during construction, and for maintenance inspections after construction is complete. A copy of this form is included in Appendix I.

The City has the same authority and enforcement options for ordinance violations relating to post-construction as it does for ordinance violations related to active construction sites. These enforcement actions will be outlined in the updated Enforcement Response Guide.

It may be possible either to develop a unique database to house post-construction inspection and maintenance activities, or to revise the current construction site database to incorporate post-construction activities. The same principles that will be applied to construction sites may also be applied to permanent storm water management facilities: sites should be prioritized for inspection based on their potential to adversely impact water quality. A complete list of all permanent storm water facilities should be developed and updated as new development occurs, and an inspection schedule of these facilities should be created and followed.

Additionally, the evaluation of the number of plan reviewers and inspectors discussed in the Construction Site Storm Water Runoff section of this report should include consideration of the post-construction inspection requirements as well.

4.5.3 Proposed Implementation Schedule

Table 7 on the next page provides an approximate schedule for the implementation of the Post-Construction Storm Water Management in New Development and Redevelopment MCM.

Table 7 – Proposed Implementation Schedule for Post-Construction Storm Water Management in New Development and Redevelopment

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Update ordinance to comply with 2014 NPDES General Permit	October 2014
Develop site performance standards for new and re-developed sites located within the MS4.	October 2014
Adopt a standard long-term maintenance agreement for all new and existing structural stormwater controls.	January 2015
Develop an inventory/database of all post-construction stormwater control measures within the MS4. (Minimum requirement to include all BMPs constructed after the Effective Date of the current Permit)	January 2015
Develop BMP inspection procedures	January 2015
Develop prioritized BMP inspection schedule	January 2015
Inspect all BMPs a minimum of once per permit cycle and maintain inspection records.	Annually
Inspect all new BMPs within 30 days of completion and maintain inspection records.	On-going

4.6 Pollution Prevention/Good Housekeeping for Municipal Operations

Section 4.2.6.1 of the NPDES General Permit requires the following:

“Permittees shall develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations as an integral part of the SWMP.”

At a minimum the City must:

- Develop a municipal facility and stormwater control inventory;
- Assess all municipally owned facilities for pollutant discharge potential and identify “High Priority” facilities;
- Complete yearly inspections of all “High Priority” facilities;
- Prioritize storm sewer system maintenance activities and implement a maintenance schedule;
- Develop a set of pollution prevention measures that will reduce the discharge of pollutants in stormwater during municipal operations and maintenance activities;
- Develop an annual employee training program for appropriate employees implementing pollution prevention and good housekeeping practices; and
- Require contractors performing municipal maintenance activities to comply with all of the SMS4 stormwater control measures, good housekeeping practices, and facility-specific stormwater management procedures.

The purpose of this MCM is to ensure that the owners/operators of small MS4s are applying the same stringent pollution prevention requirements to themselves as they are applying to other interest groups within the MS4. This measure requires the development and implementation of Storm Water Pollution Prevention Plans (SWPPPs) for all applicable City operations. These operations include facilities such as fire stations, police stations, parks, etc. The development of a SWPPP requires the City to examine and subsequently alter its operations to help ensure a reduction in the amount and type of pollution associated with storm water discharged from City facilities to local waterways.

The SWPPPs provide guidance for pollution prevention and good housekeeping minimum controls for City operations. Pollution prevention and good housekeeping MCMs require that the City examine and subsequently alter their operations to help ensure a reduction in the amount and type of pollution associated with storm water discharged from City-owned facilities to local waterways. The SWPPPs contain the BMPs utilized by the City to eliminate or minimize potential storm water impacts associated with these operations.

The key SWPPP elements include:

- Identification and location of City operations with SWPPP potential.
- Designation of a Pollution Prevention Team that is responsible for the implementation, maintenance, and revision of the SWPPP.
- A potential pollutant source assessment that summarizes operational related activities that may contribute potential pollutants to storm water.
- Designation of BMPs utilized by the City to manage storm water quality and reduce pollutants in storm water (e.g., vehicle washing, solid waste management, material and equipment storage, etc.).
- Guidance and instruction for conducting a SWPPP inspection.
- Requirements and content of SWPPP training.

4.6.1 Existing Programs

During the initial permit term the City of Sumter identified all City-owned operations that would require SWPPP coverage.

To date, the City has generated all required SWPPPs for City-owned facilities, and the City has also developed a training program for all those who are affected by, or are responsible for implementing components of, the SWPPP.

4.6.2 Planned Programs

The City currently maintains a database of all municipally owned and operated facilities. SWPPPs have been developed for these facilities. Based on new permit conditions, these facilities will be evaluated to determine their level of potential for stormwater runoff impacts. Facilities that have a high potential for spills or other water quality contamination will be listed as high priority and inspected according to the permit requirements. All SWPPPs will be reevaluated to determine their effectiveness and revised accordingly.

The City will develop a Citywide SOP for operational and maintenance activities to allow for consistent operational procedures across departments and functions within the City. This SOP will be developed consistent with the new Unified Development Ordinance and exist as comprehensive operational procedures for City staff and vendors operating within the City limits.

The City performs routine maintenance activities based on previous inspection and maintenance reports as well as public reporting of spills and stormwater system related issues. This information has allowed the City to identify areas that necessitate routine maintenance. The City will continue this routine maintenance and develop an overall inspection schedule consistent with this information as well as including areas for inspection identified as high priority in MCM3.

The City will continue their on-going annual training program. With the new inspection and maintenance requirements associated with high priority facility, specific educational material and training will be provided to employees of these identified facilities.

4.6.3 Proposed Implementation Schedule

Table 8 on the next page provides an approximate schedule for the implementation of the Pollution Prevention and Good Housekeeping MCM.

Table 8 – Proposed Implementation Schedule for Pollution Prevention/Good Housekeeping for Municipal Operations

PROGRAM ELEMENTS (BMPs)	IMPLEMENTATION GOAL
Maintain a municipal facility and stormwater control inventory.	On-going
Complete a comprehensive assessment of pollutant discharge potential for all municipally owned or operated facilities once during permit term.	January 2015
Identify “High Priority” facilities.	September 2014
Complete first annual comprehensive inspections of “High Priority” facilities.	January 2016
Prioritize owned and/or operated stormwater management systems/structures and develop and implement a maintenance schedule.	July 2015
Develop a set of pollution prevention measures to reduce the discharge of pollutants from municipal operations and maintenance activities.	January 2016
Complete regularly scheduled maintenance activities of all municipally-owned or maintained structural stormwater controls.	On-going
Provide annual employee training and education.	Annually

MONITORING, RECORD KEEPING AND REPORTING

5.1 Monitoring

All monitoring conducted within the City of Sumter MS4, including IDDE investigations and TMDL monitoring must be carried out in accordance with Section 5.1 of the NPDES General Permit, which requires the following:

“You must evaluate program compliance, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals. If you discharge to a water body for which a TMDL has been established, you have additional monitoring requirements under Part 3 of this permit.”

Monitoring conducted within the permitted City of Sumter MS4, must comply with the following:

Representative monitoring. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

Test Procedures. Monitoring results must be conducted according to test procedures approved under 40 CFR part 136.

Records of monitoring information shall include:

- The date, exact place, and time of sampling measurements;
- The name(s) of individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The names of the individuals who performed the analyses;
- The analytical techniques or methods used; and
- The results of such analysis

Discharge Monitoring Report. Monitoring results must be reported on a Discharge Monitoring Report (DMR)

5.2 Recordkeeping

Regarding recordkeeping, Section 5.2 of the NPDES General Permit requires the following:

- *“You must retain records of all monitoring information...for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer...”*
- *You must submit your records to the Department when specifically asked to do so. You must retain a description of the SWMP required by this permit (including a copy of the permit language) at a location accessible to the Department.*
- *You must make your records, including the notice of intent (NOI) or application and the description of the SWMP, available to the public if requested to do so in writing.”*

5.3 Reporting

Section 5.3 of the NPDES General Permit requires the following regarding Annual Reports:

1. *The first report covering years 1 and 2 must be submitted to SCDHEC twenty-seven (27) months after the effective date of the permit; January 1, 2014.*
2. *The following annual report, covering years 3 and 4 shall be submitted 180 days before the permit expiration date as part of renotification.*
3. *While, and if the expired permit is continued, Annual Reports are due every year on the anniversary date of the expired permit; December 31, 2018.*

Section 5.3.1 – 5.3.6 of the NPDES General Permit requires that the Annual Report include:

- *The status of your compliance with permit conditions, an assessment of the appropriateness of the identified best management practices, progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and the measurable goals for each of the minimum control*

measures.

- *Results of the information collected and analyzed, if any, during the reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP.*
- *A summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule).*
- *Proposed changes to your SWMP, including changes to any BMPs or any identified measurable goals that apply to the program elements.*
- *Notice that you are relying on another entity to satisfy some of your permit obligations (if applicable).*
- *Information requested in the permit including, but not limited to: sections 1.4.7, 3.1.1.1, 3.2.1.1, 3.2.1.2.2, 3.3.6, 4.1.6 and in the additional conditions applicable to NPDES MS4 permits contained in Appendix B of the permit.*

The City of Sumter will submit an Annual Report according to the schedule provided in the General Permit which will include these requirements. Annual Reports will be due to SCDHEC on April 1, 2016 and July 4, 2018. The Notice of Intent (NOI) for coverage under the subsequent NPDES General Permit will be submitted to SCDHEC on July 4, 2018, and the current permit expires on December 31, 2018. The information required for submittal as the first Annual Report is included in this SWMP. All subsequent Annual Reports will be developed using the template developed by SCDHEC, which is included in Appendix J.