Storm Water Quality Management Program Plan

Permit No. NCS000395

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Prepared by:

Charlotte-Mecklenburg Storm Water Services
Mecklenburg County Water Quality Program
700 North Tryon Street, Suite 205
Charlotte, N.C. 28202-2236

Prepared for:

NPDES Phase II Storm Water Permit (NCS000395) Renewal Application Requirements for Mecklenburg County; Charlotte-Mecklenburg Schools; Central Piedmont Community College; and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville

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Acronyms:

BMP:	Best Management Practice
CMS:	Charlotte Mecklenburg Schools
CPCC:	Central Piedmont Community College
EDMS:	Environmental Data Management System
FY:	Fiscal Year
GIS:	Geographic Information System
GPS:	Global Positioning System
IDDE:	Illicit Discharge Detection and Elimination
LUESA:	Land Use and Environmental Services Agency
CMSWS:	Charlotte Mecklenburg Storm Water Services – County Water Quality Program
MEP:	Maximum Extent Practicable
MOA:	Memorandum of Agreement
MS4:	Municipal Separate Storm Sewer System
NCAC:	North Carolina Administrative Code
NCDENR:	North Carolina Department of Environment and Natural Resources
NPDES:	National Pollutant Discharge Elimination System
SWAC:	Storm Water Advisory Committee
S.W.I.M.:	Surface Water Improvement and Management
SWMP:	Storm Water Management Program
TMDL:	Total Maximum Daily Load
TSS:	Total Suspended Solids
W&LR:	Water & Land Resources
WLA:	Waste Load Allocation
WQRP:	Water Quality Recovery Plan

Section 1: Introduction

The Phase II Permit requires the development and implementation of a Storm Water Quality Management Program for the purpose of complying with permit requirements. A written Storm Water Plan is also required by the permit for the purpose of describing the various control measures and activities the permittee will undertake to implement the Storm Water Quality Management Program. The Stormwater Plan is a consolidation of all of the permittee's relevant ordinances or other regulatory requirements, the description of all programs and procedures (including standard forms to be used for reports and inspections) that will be implemented and enforced to comply with the permit and to document the selection, design, and installation of all storm water control measures. Implementation of the best management practices (BMPs) specified in the Storm Water Plan constitutes compliance with the permit provision for reducing pollutants to the maximum extent practicable. The provisions of the Storm Water Plan are incorporated by reference into the Phase II Permit and are thereby enforceable through the permit. The overall objectives of the Storm Water Plan are to:

- Reduce the discharge of pollutants from the municipally separate storm sewer system (MS4) to the maximum extent practicable;
- Protect water quality; and
- Satisfy the applicable water quality requirements of the Clean Water Act.

This document contains the Storm Water Plan that describes how the following jurisdictions/ entities in Mecklenburg County will comply with the requirements of NPDES Phase II Permit Number NCS000395:

- Mecklenburg County
- Charlotte-Mecklenburg Schools (CMS)
- Central Piedmont Community College (CPCC)
- Town of Cornelius
- Town of Davidson
- Town of Huntersville
- Town of Matthews
- Town of Mint Hill
- Town of Pineville

This Storm Water Plan contains the following information regarding the compliance measures identified in the aforementioned permit:

- Narrative description of the programs implemented to comply with the measures.
- Table that identifies the BMPs included in the programs.
- Frequency of the BMPs.
- Measurable goals for the BMPs.
- Implementation schedule for the BMPs.
- Position responsible for BMP implementation.

In addition, Section 2 of this Storm Water Plan includes a description of the funding mechanism for the development and implementation of the Storm Water Plan, including all associated BMPs. Appendix A provides a summary of all the BMPs included in the Storm Water Plan.

Staff of the Charlotte-Mecklenburg Storm Water Services – Mecklenburg County Water Quality Program (CMSWS) is responsible for developing, implementing, managing and overseeing the Storm Water Plan under the direction of Mecklenburg County's Water Quality Program Manager. The specific tasks, deadlines and assigned staff for fulfillment of this plan are described in an annual Work Plan. A copy of this Work Plan is available upon request to Mecklenburg County's Water Quality Program Manager. As specified in the Phase II Permit, each co-permittee is responsible for compliance with the terms and conditions of the permit for storm water activities and watershed specific requirements within their jurisdictional area. The permit further specifies that the State can administer and enforce the permit requirements with respect to individual co-permittees found in non-compliance with the permit. The Storm Water Management Program Interlocal Agreements entered into between Mecklenburg County and all the co-permittees provides further clarification by stating that each co-permittee is responsible for taking the actions necessary within their respective jurisdictions/entities as described by CMSWS staff to ensure compliance with permit requirements. For example, CMSWS staff is responsible for inspecting municipal facilities under the Pollution Prevention and Good Housekeeping Program (see Section 8) and providing written notification to the responsible jurisdiction/entity regarding inspection results, including all deficiencies. The jurisdiction/entity and not CMSWS is responsible for implementing the actions necessary to correct all deficiencies. Each co-permittee is responsible for performing all activities related to the maintenance and repair of their property and infrastructure for compliance with permit requirements, including facility maintenance as well as inlet, parking lot and street cleaning.

Section 2: Funding

CMSWS's costs for the development and implementation of this Storm Water Plan are shared by all the co-permittees. For FY12, the completion of all Work Plan activities by CMSWS for implementation of the plan is estimated at $645,735 with approximately 89% associated with personnel costs and the remaining 11% with laboratory fees and equipment costs for water quality monitoring activities. Over 93% of the funding for the program comes from revenue generated by storm water fees received by Mecklenburg County and the Towns. The remaining 7% is generated from the budgets for CMS and CPCC who do not receive storm water fee revenue. For Mecklenburg County and the Towns, program costs are shared based on what is referred to as a "Shared Program Multiplier" that is calculated by averaging the percentages of impervious cover and stream miles located within the jurisdictions. The percentage of impervious cover is used as a component of the multiplier because it is an indicator of each jurisdiction's contribution to the storm water pollution problems in the Phase II area. It also determines the amount of storm water revenue received by each jurisdiction. The percentage of stream miles is used in the multiplier because it is an indicator of the jurisdiction's level of responsibility for the protection of water quality. Since CMS and CPCC do not receive revenue from storm water fees, a Shared Program Multiplier is not used in calculating their cost.

CMSWS tracks staff time devoted to the development and implementation of the Storm Water Plan, including over 50 individual program elements. Personnel costs are established by multiplying this time by a set billing rate that covers CMSWS's staff salaries and fringes but does not cover the associated operating and administrative overhead costs. For FY12, this billing rate was set at $47.13/hour. CMSWS also tracks the laboratory and equipment costs associated with the implementation of the Storm Water Plan. The Shared Program Multiplier for each jurisdiction is applied to the personnel, laboratory and equipment costs to calculate each jurisdiction's cost share, which is invoiced quarterly by CMSWS. The time and cost associated with completing Storm Water Plan activities for CMS and CPCC is tracked separately from the Towns and County and quarterly invoices are issued by CMSWS to cover personnel costs using the above described billing rate. Monitoring is not performed for CMS and CPCC; therefore, no laboratory or equipment costs are included. Despite the cost sharing, approximately forty-four percent of the costs for implementation of the Storm Water Plan are covered by CMSWS, including 100% of the operating and administrative overhead. Table 1 below provides an estimate of the cost to each co-permittee for the development and implementation of the Storm Water Plan in FY12.

The process discussed above is described in detail in a document entitled the "Mecklenburg County Water Quality Program Funding Strategy" that was approved by all the co-permittees and implemented effective July 1, 2009 through June 30, 2014. All costs are incorporated into an annual Work Plan, which is provided to each co-permittee for review and comment prior to the beginning of each new fiscal year. A copy of this Funding Strategy and Work Plan is available upon request to Mecklenburg County's Water Quality Program Manager.

Table 1: Phase II Storm Water Plan Cost Breakdown by Jurisdiction/Entity for FY12

Jurisdiction/Entity	Estimated Cost	% of Total
Cornelius	$40,645.24	6.29%
Davidson	$18,323.26	2.84%

Jurisdiction/Entity	Estimated Cost	% of Total
Huntersville	$92,924.07	14.39%
Matthews	$73,626.61	11.40%
Mint Hill	$50,745.81	7.86%
Pineville	$38,675.13	5.99%
Mecklenburg County	$286,492.82	44.37%
CMS	$31,577.10	4.89%
CPCC	$12,725.10	1.97%
Totals	**$645,735.15**	**100.00%**

The activities performed by the co-permittees to maintain and repair property and infrastructure in compliance with permit requirements is not covered by CMSWS's annual Work Plan and is therefore not included in the annual cost described above. The funding for these activities typically comes from storm water fees in the case of Mecklenburg County and the Towns and from the annual budgets for CMS and CPCC.

Section 3: Public Education and Outreach

CMSWS has developed and implemented a Public Education and Outreach Program for Mecklenburg County's Phase II jurisdictions/entities. The following Sections provide a description of this program.

3.1 Program Goals and Objectives

The goals of the Public Education and Outreach Program are as follows:

1. Change public behaviors to reduce sources of water pollution and improve water quality.
2. Promote participation in activities aimed at restoring water quality conditions.

The objectives of the Public Education and Outreach Program are as follows:

1. Develop and distribute educational materials to the community and conduct outreach activities to inform the public of the negative impacts that storm water discharges have on water quality by promoting the following concepts:
    - All storm drains flow directly to creeks and lakes without treatment.
    - Storm drains are only for rain.
    - Anything other than rain that enters a storm drain becomes storm water pollution.
    - Buffers around lakes and streams act to filter pollutants and are important for protecting water quality.
2. Develop and distribute public education and outreach materials to inform the public of the steps they can take to reduce the negative impacts from storm water discharges and restore water quality conditions by promoting the following concepts:
    - Do not pour anything down a storm drain or in a creek or lake.
    - Volunteer to mark storm drains, adopt streams and participate in Big Sweep.
    - Become a "Water Watcher" and report pollution to 311.
    - Maintain a vegetated buffer around lakes and streams.

3.2 BMP Summary Table

Table 2 describes the BMPs implemented as part of the Public Education and Outreach Program.

Table 2: BMP Summary Table for the Public Education and Outreach Program

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
PE-1	Distribute Biannual (twice a year) Newsletter	Distribute biannual newsletter to residents in the Phase II jurisdictions and make available at event displays. Include information regarding the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollution, including participating in volunteer programs.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PE-2	Develop & Distribute Pollution	Develop and distribute educational brochures and storm water pollution prevention awareness information	X	X	X	X	X	Erin Oliverio (Senior Environmental

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
	Prevention Brochures & Educational Materials	through responses to citizen requests for service, special events, workshops, and other appropriate venues. Include information regarding the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollution, including participating in volunteer programs and reporting suspected pollution problems.						Specialist)
PE-3	Promote and Maintain Informational Web Pages at http://stormwater.charmeck.org	Promote and maintain informational pages on CMSWS's website that contain information on current water quality conditions, storm water pollutants and ways to minimize them, and municipal storm water projects/activities as well as provide a means to register for various volunteer initiatives discussed in Section 4. Also provide contacts for reporting pollution problems/concerns and submitting questions to staff.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PE-5	Conduct Media Campaign	Develop and implement a media campaign designed to reach the targeted audience described in Section 3.4. Promote the 311 helpline as the mechanism for reporting suspected pollution problems.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PE-6	Conduct Presentations for Schools/ Teachers	Develop age-specific educational information for use in schools and for presentations to school age children. Present information in appropriate format.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PE-7	Conduct Outreach Program for Commercial/ Industrial Facilities	Conduct an educational campaign to inform commercial/industrial facilities of the sources of pollutants and actions they can take to improve water quality.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PE-9	Evaluate Effectiveness of Public Education and Outreach Program	Evaluate the effectiveness of the storm water education/outreach program at meeting established goals. Include in this evaluation a review of the effectiveness of volunteer initiatives. Also, include an estimate of the extent of exposure for the media campaign and a comparison to previous years. Modify programs activities as necessary to enhance its overall effectiveness at meeting established goals.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)

3.3 Targeted Pollutants and Pollutant Sources

Table 3 provides the targeted pollutants, their associated sources and the issues contributing to these sources as well as the audiences targeted for addressing these issues and sources. A more

detailed description of the targeted audiences and why they were selected is provided in Section 3.4. Additional detail regarding the Public Education and Outreach Program is provided in a document referred to as the "The Umbrella" plan developed and implemented by CMSWS to coordinate public education efforts between the Phase I and Phase II jurisdictions in Mecklenburg County. The Umbrella is updated annually to meet the changing needs of the community. A copy of this plan is available upon request to Mecklenburg County's Water Quality Program Manager.

Table 3: Targeted Pollutant, Pollutant Sources, Audience and Contributing Issues

Targeted Pollutant	Targeted Pollutant Source	Targeted Audience	Issues Contributing to the Pollutant Source
Bacteria (fecal coliform bacteria is the indicator)	Human Waste	Residential & Commercial	1. Illicit connections to surface waters and storm drains. 2. Illegal dumping. 3. Disposal of cooking grease to sanitary sewer causing blockages.
	Pet Waste	Residential & Commercial	4. Failure to collect and properly dispose of pet waste. 5. Discharges from kennels and other commercial pet facilities.
Turbidity	Sediment	Residential & Commercial	6. Improper erosion control measures at land development sites. 7. Inadequate post-construction storm water controls. 8. Inadequate buffers and unstable stream channels.
Phosphorus, Nitrogen and Organics	Fertilizers, Pesticides and Yard Waste	Residential, Commercial & Institutional	9. Improper application, handling and storage of lawn care products. 10. Improper disposal of grass clippings and leaves. 11. Use of non-native vegetation.
Surfactants	Waste from Car Washing, Pressure Washing and Other Cleaning Activities	Residential & Commercial	12. Mobile car wash discharges. 13. Discharges from car lots and other commercial automotive activities. 14. Discharges from cleaning buildings, sidewalks, etc. 15. Illegal connections to surface waters or storm drains.
Hydrocarbons and Chemicals	Used Oil and Other Automobile Fluids	Residential, Commercial& Institutional	16. Illicit connections to surface waters and storm drains. 17. Illegal dumping. 18. Poor housekeeping at commercial and institutional facilities.
pH and Toxic Compounds	Chemicals & Hazardous Waste	Residential, Commercial & Institutional	19. Illegal dumping. 20. Poor housekeeping at commercial and institutional facilities.

3.4 Targeted Audiences

Provided below is a description of the targeted audiences selected for the Public Education and Outreach Program followed by an explanation as to why they were selected. The process for selecting these targeted audiences began with the identification of the problem pollutants in Mecklenburg County based on an analysis of water quality data and staff experience. Secondly, staff identified the major sources of these pollutants. Thirdly, the issues contributing to these pollutant sources were identified. Lastly, the targeted audiences were identified based on their potential to positively impact the contributing issues thus resulting in reduced pollutant sources and improved water quality. In addition, the list of targeted audiences was developed based on those groups in Mecklenburg County that have the ability to expand our volunteer programs for protecting and restoring water quality conditions.

Residential: This group has the ability to positively impact all 20 of the issues contributing to the pollutant sources identified in Table 3 above. They also have a significant potential to increase participation in volunteer programs for protecting and restoring water quality conditions. This is a large targeted audience composed of many subsets, including but not limited to homeowners, renters, pet owners, community groups, scout troops, etc. CMSWS has developed educational materials for reaching these different subsets and will develop and implement outreach initiatives on an as needed basis to address specific water quality issues as they arise.

Commercial: This group, like the residential group, has a significant potential to positively impact water quality and has several subsets, including landscapers, grading contractors, building maintenance companies, mobile washers, automotive repair shops, etc. CMSWS has developed educational materials for reaching these subsets and will develop and implement outreach initiatives on an as needed basis to address specific water quality issues as they arise.

Institutional: This group predominantly includes schools, colleges and universities and their related facilities. These institutions have a significant potential to aid in the reduction of pollution sources as well as to expand volunteer programs. CMSWS conducts water quality educational presentations in school classrooms and many schools, colleges and universities have become involved in the volunteer programs. In addition, CMSWS provides internship opportunities for students to become actively engaged in program activities.

3.5 Storm Water Helpline

Charlotte-Mecklenburg maintains a 24-hour phone helpline at 311. One of the many functions of 311 is to provide public education and outreach regarding water quality issues as well as a mechanism for promoting public involvement and participation in volunteer efforts to restore water quality conditions. Toward this end, CMSWS has provided the staff at 311 with a "key word" index that is used to trigger select responses to water quality related questions and requests. For example, if a caller uses the key word "Big Sweep" 311 staff has been provided with a select response that refers the caller to the appropriate staff contact at CMSWS for more information. 311 has been widely promoted through various media, including television, radio, print ads, brochures, etc., as the number to contact to report suspected pollution problems and sign-up for volunteer programs. 311 has been in use since September 8, 2008 and has proven to be an effective helpline service, resulting in CMSWS receiving an average of 600 reports of potential water quality problems annually as well as numerous requests to participate in volunteer programs. CMSWS maintains a 24-hour a day, 7 day a week response status for all water quality problems, spills, emergencies, etc. by working in close cooperation with 311 as well as the Charlotte-Mecklenburg Fire and Police Departments, including all the Towns.

3.6 Outreach Program

The outreach strategy for the Mecklenburg County Phase II jurisdictions/entities includes the following mechanisms, which are estimated to result in over 6,600,000 contacts for the protection and restoration of water quality conditions in the Charlotte-Mecklenburg area during

Figure 1: Utility Bill Insert

the five (5) year permit term. Contacts outside the Phase II jurisdictions are included in this calculation, which is unavoidable due to the manner in which the program is administered. For each media, event or activity included in the outreach program, the extent of exposure is estimated and recorded.

Utility Bill Inserts: This outreach mechanism involves the development and placement of a water quality insert into the utility bill distributed to over 220,000 households every month throughout Mecklenburg County for collection of water, sewer and storm water fees. These inserts reach the entire target audience described in Section 3.4 with general water quality messages such as how to report suspected pollution problems and measures for reducing storm water pollution as well as messages associated with targeted pollutant sources and volunteer opportunities. At least two (2) utility bills a year include a water quality insert resulting in an outreach to over 2,200,000 households in Charlotte-Mecklenburg during the five (5) year permit term. Figure 1 is the utility bill insert distributed in June 2011.

Printed Brochures and Newsletters: This outreach mechanism involves the development and distribution of printed brochures and newsletters to select members of the targeted audience described in Section 3.4, including but not limited to adults, homeowners, pet owners, non-English speaking residents, businesses and industries. This outreach includes general water quality messages regarding pollution prevention, reporting and regulatory compliance as well as messages associated with specific pollution sources from Table 3 and information regarding water quality volunteer opportunities. Printed brochures are distributed during responses to citizen requests for service, inspections and at event displays. Figure 2 is a brochure in the form of a "door hanger" that was developed to convey pollution prevention measures to the general population. A newsletter is also distributed at least twice a year to residents within the Phase II jurisdictions. Brochures and newsletters are also posted on the CMSWS website. This outreach mechanism is anticipated to reach a minimum of 100,000 residents in Charlotte-Mecklenburg during the five (5) year permit term.

Newspaper Ads: This outreach mechanism involves the development and publication of printed ads in local newspapers distributed in the Phase II jurisdiction, including but not limited to the Charlotte Observer (Mecklenburg Neighbors) and various weekly newspapers. These ads will reach the targeted audience described in Section 3.4 with information regarding water quality

Figure 2: Printed Brochure

events and training opportunities as well as news and information regarding general pollution prevention, reporting suspected pollution problems and volunteer opportunities. The ads are anticipated to reach a minimum of 100,000 residents in Charlotte-Mecklenburg during the five (5) year permit term.

Media: This outreach mechanism involves the use of radio and television ads to reach the entire targeted audience described in Section 3.4 with messages regarding the measures that can be taken to reduce storm water pollution as well as messages associated with specific pollutant sources. This outreach mechanism is also be used to promote participation in water quality volunteer activities. The ads run throughout the fiscal year. Based on distribution estimates from FY11, TV ads may reach up to 90.1% of the Mecklenburg County population with a frequency of 4.7 times a year. Radio ads may reach 71% of the Mecklenburg County population with a frequency of 7.9 times a year. Based on these estimates, the TV and radio ads should reach over 800,000 residents in Charlotte-Mecklenburg multiple times during each fiscal year resulting in over 4,000,000 outreach contacts during the five (5) year permit term.

Workshops and/or Video Taped Messages: This outreach mechanism involves the use of workshops and/or video taped messages to reach a very select segment of the targeted audience described in Section 3.4, including mainly commercial facilities and institutions. The messages focus on select pollutant sources from Table 3. At least two (2) workshops and/or video taped messages will be provided during the five (5) year permit term reaching an estimated 150 persons. Video taped messages will also be made available through the website.

Web Pages: This outreach mechanism involves the use of web pages focused on specific water quality topics maintained on the CMSWS website located at http://stormwater.charmeck.org. Web pages describe the specific actions necessary to prevent water pollution and instructions for reporting suspected pollutant sources. In addition, the web pages include a description of all the volunteer programs with instructions on how to register for participation. Web pages are also available that describe water quality monitoring activities in Mecklenburg County and general water quality conditions. This website is promoted through a variety of outreach mechanisms and is available through a link to Mecklenburg County's main website. During FY2011, the

CMSWS website logged over 58,000 visitors but not all these visits included views of water quality information. It is anticipated that visits to the site will exceed 290,000 during the five (5) year permit term.

Educational Presentations: This outreach mechanism involves the use of educational presentations to reach a very select segment of the targeted audience described in Section 3.4, including mainly adults, dog owners, civic groups, students, landscapers, realtors, and land developers. The messages focus on controlling one or more of the pollutant sources in Table 3 as well as promoting volunteerism. These presentations occur throughout the year. During FY2011, educational presentations reached over 876 residents. It is anticipated that this total will remain relatively unchanged through the five (5) year permit term resulting in over 4,300 contacts.

Video: CMSWS has developed a "Water Watchers" video that is available on its website at http://stormwater.charmeck.org (select "Videos & Publications," select "Water Watchers video"). This video describes the importance of clean water to the community and the impacts of water pollution as well as how to detect and report illicit discharges. Each of the Phase II jurisdictions/entities is responsible for ensuring that its staff watches this video if as part of their normal job responsibilities they may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer. During the five (5) year permit term, over 1,000 media contacts are anticipated through the use of the video.

3.7 Decision Process

The targeted audience for the Public Education Program for the Mecklenburg County Phase II jurisdictions/entities includes a wide range of age, ethnic and economic groups. These groups rely on varying mechanisms for receiving information; therefore, a multifaceted educational program was designed to achieve effective communication. The individual BMPs identified in Table 2 reflect this approach as do the measurable goals associated with each BMP. The biannual newsletters, utility bill inserts, brochures and newspaper ads use the printed word to disseminate information and focus on specific pollutants as well as general water quality issues. This information can be distributed to a broad audience via mailings as well as handed out to individuals when responding to citizen requests for service or conducting inspections. Web pages will provide a variety of specific information to a broad audience including the general public, commercial and industrial facilities. Workshops and presentations focus on a relatively small audience but are an effective tool for addressing specific pollutant sources and gaining volunteer participation. The TV and radio media campaigns broaden the approach to a wide audience and typically convey a more general pollution prevention message. The position responsible for conducting this public education program for the Mecklenburg County Phase II jurisdictions/entities is a Senior Environmental Specialist with CMSWS. This position was selected for its expertise in the development and implementation of a multifaceted public outreach campaign.

3.8 Program Evaluation

The measurable goals for each BMP are described in Table 2. Other measures of success for the

Public Education and Outreach Program are described below.

- Documentation of Storm Water Program Activities – As a baseline measure of success, CMSWS staff will document the completion of Work Plan activities annually that demonstrate achievement of each of the measureable goals for the BMPs associated with this program. All activities will be documented within CMSWS's Environmental Data Management System (EDMS).
- Raising Awareness – Storm Water Public Opinion Surveys are conducted annually of the general public to measure their awareness of water quality issues as well as their level of concern/interest. The measure of success for the Public Education and Outreach Program will be a minimum of 50% of survey respondents indicating an awareness of water quality issues based on an average of the responses to all the questions related to storm water awareness.
- Number of Contacts and Distribution Estimates – CMSWS estimates and records the extent of exposure from its Public Education and Outreach Program. In addition, the media campaign includes distribution estimates. This information will be compiled and tracked as a measure of program effectiveness.

On an annual basis, CMSWS staff will evaluate the BMPs for this program and assess progress toward achieving the measureable goals from Table 2 and the measures of success described above. Recommendations for improvement will be made as necessary. During the following fiscal year, program activities and BMPs will be modified as necessary based on the results of this evaluation in order to ensure that the specific goals and objectives of the Public Education and Outreach Program and Storm Water Plan are being effectively and efficiently fulfilled. Staff will also evaluate the continued relevance of Table 3 and the effectiveness of the targeted audience as part of this process.

Section 4: Public Involvement and Participation

CMSWS has developed and implemented a Public Involvement and Participation Program for Mecklenburg County's Phase II jurisdictions/entities. The following Sections provide a description of this program.

4.1 Program Goals and Objectives

The goal of the Public Involvement and Participation Program is to create opportunities for the public to participate in Phase II program development and implementation, as well as to get involved in activities aimed at protecting and restoring water quality conditions. The objectives of the program are as follows:

1. Make a minimum of one presentation annually to the Charlotte-Mecklenburg Storm Water Advisory Committee (SWAC) to describe the activities performed to comply with Phase II permit requirements and receive feedback. All SWAC meetings are open to the public. A minimum of one of these presentations during the five (5) year permit term will be advertised for public comment.
2. Develop and implement volunteer programs to involve the public in activities aimed at protecting and restoring water quality conditions.

4.2 BMP Summary Table

Table 4 describes the BMPs implemented as part of the Public Involvement and Participation Program.

Table 4: BMP Summary Table for the Public Involvement and Participation Program

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
PI-1	Conduct Phase II Public Meeting	Meet with SWAC in a public forum to provide information regarding activities performed to comply with Phase II requirements and to receive input from the public regarding storm water issues and the storm water program.	X	X	X	X	X	Rusty Rozzelle (Water Quality Program Manager)
PI-2	Implement Adopt-A-Stream Program	Implement an Adopt-A-Stream Program for the Phase II jurisdictions/entities. This program will include the adoption of stream sections by the general public, businesses and institutions. These stream sections will be walked at least annually by the adoption group, pollution sources will be identified and eliminated and trash removed.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PI-3	Implement Storm Drain Marking Program	Implement a Storm Drain Marking Program for the Phase II jurisdictions/entities. This program will include the placement of markers on storm drain inlets with the message "Do Not Dump – Drains To Creek."	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
PI-4	Conduct	Conduct annual surface water cleanup	X	X	X	X	X	Erin Oliverio

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
	Annual Surface Water Clean Up	event in coordination with N.C. Big Sweep aimed at removing trash and debris from lakes and streams and identifying pollutant sources.						(Senior Environmental Specialist)
PI-5	Conduct Annual Volunteer Appreciation Event	Conduct annual volunteer appreciation event. The purpose of the event will be to recognize volunteer efforts for protecting water quality.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)

4.3 Targeted Audience

The targeted audience for the Public Involvement and Participation Program includes all age, ethnic and economic groups in Mecklenburg County. Participation in the Program will be promoted through the Public Education and Outreach Program described in Section 3. Volunteer opportunities will be made available to all stakeholder groups, including commercial and industrial facilities, environmental groups, homeowners' associations, civic groups, educational organizations, and interested citizens.

4.4 Mechanisms for Public Involvement and Participation

The Mecklenburg County Phase II jurisdictions/entities utilize SWAC to provide and promote a mechanism for public involvement, including receiving input on storm water issues and the development and implementation of the Storm Water Plan. The public is also be actively involved in ongoing efforts to restore water quality conditions through volunteer participation in the Adopt-A-Stream and Storm Drain Marking Programs as well as through involvement in annual surface water cleanup events coordinated through N.C. Big Sweep. The following sections provide additional information concerning these mechanisms.

4.4.1 Charlotte Mecklenburg Storm Water Advisory Committee (SWAC)

The City of Charlotte, Mecklenburg County and the six (6) Towns established SWAC as its local storm water management panel in 1994 with the development of their storm water utility (Charlotte-Mecklenburg Storm Water Services). SWAC was established to review policies, capital and operational programs and appeals for the storm water programs in Charlotte-Mecklenburg. SWAC reviews storm water management policies and long-range plans and budgets to make recommendations or offer comments to elected officials. The advisory committee also hears appeals and decides on water quality penalties, service charges, credits and adjustments. SWAC members are appointed by the Mecklenburg Board of County Commissioners, Charlotte City Council, Charlotte Mayor and Town Boards. SWAC includes representation from all the Phase II jurisdictions in Mecklenburg County. All SWAC meetings are open to the public. Effective January 1, 2003, SWAC began serving as the mechanism for public involvement for the Phase II Permit in Mecklenburg County.

4.4.2 Public Meetings

On November 19, 2009, a public meeting was held before SWAC for the purpose of receiving public comments concerning the submittal of the Phase II Permit renewal application and associated Storm Water Plan. The public meeting was advertised in the Charlotte Observer on November 8 and 15, 2009. During the meeting, a presentation was given by CMSWS staff describing the measures implemented to control storm water pollutant sources in the Phase II jurisdictions/entities and the various activities performed to fulfill Phase II Permit requirements. Staff informed SWAC that the only substantial change in the new Permit and Storm Water Plan was the addition of CMS and CPCC. The Permit application and Storm Water Plan received SWAC support via unanimous vote. No member of the general public provided comments. An advertised public meeting is held prior to the submittal of the Permit renewal application every five (5) years. The purpose of this meeting is to provide the public with an opportunity to review the Permit application and Storm Water Plan and provide comments. In addition, an unadvertised public meeting is held before SWAC every year as part of the process for receiving input regarding the next year's budget. During these meetings, the Phase II Storm Water Plan is described and public input is invited regarding storm water issues and the storm water program.

4.4.3 Adopt-A-Stream Program

Mecklenburg County developed a countywide Adopt-A-Stream Program as part of the Surface Water Improvement and Management (S.W.I.M.) initiative beginning in 1998. This program was significantly expanded with the implementation of the Phase I and Phase II Storm Water Programs by the City of Charlotte and Mecklenburg County, respectfully. The Adopt-A-Stream Program engages volunteers in removing trash and locating pollutant sources in Mecklenburg County streams. Adoption groups include Boy/Girl Scout troops, environmental interest groups, homeowners' associations, schools, families, garden clubs, businesses, industries, etc. Training is offered to Adopt-A-Stream groups upon request. The purpose of this training is to familiarize the volunteers with methods for detecting common water quality problems, proper stream walk techniques, and important safety measures. Typically, volunteer groups will adopt a mile long stream segment. Groups walk their assigned stream segment at least twice a year. The groups are also encouraged to clean their stream segment during the N.C. Big Sweep event typically held on the first Saturday in October. The groups keep records of their Adopt-A-Stream activities. These records are submitted to CMSWS following the completion of stream cleanup activities. All records are input by staff into the Volunteer Database, which is maintained as part of EDMS. CMSWS follows up on identified pollution problems to ensure that they are eliminated and water quality is restored as well as coordinates the proper disposal of all trash and debris removed from streams by adoption groups.

4.4.4 Storm Drain Marking Program

Mecklenburg County developed a countywide Storm Drain Marking Program as part of the S.W.I.M. initiative beginning in 1998. This program was significantly expanded with the implementation of the Phase I and Phase II Storm Water Programs by the City of Charlotte and Mecklenburg County, respectfully. The Storm Drain Marking Program uses volunteers to place decals on storm drains with the message "Do Not Dump – Drains to Creek" (see Figure 3). Volunteer groups include Boy/Girl Scout troops, environmental interest groups, homeowners' associations, schools, garden clubs, families, businesses, industries, etc. Typically, volunteer

Figure 3: Storm Drain Marker

groups will select several streets within a neighborhood for marking. CMSWS provides the groups with decals, adhesive, safety vests and information forms. Following the completion of storm drain marking activities, the groups submit a completed information form to CMSWS that includes the street names and number of drains that were marked as well as information concerning the condition of storm drains and whether any pollutants were detected. All information is input by staff into the Volunteer Database, which is maintained as part of EDMS. CMSWS follows up to ensure the elimination of illegal dumping activities and maintains records of storm drains that have been marked.

4.4.5 Surface Water Clean Up

Since 1993, CMSWS has held an annual surface water cleanup day working in cooperation with N.C. Big Sweep. The purpose of the event is to use volunteers to remove trash and debris from streams and lakes. This cleanup event has been expanded under the Phase II Program to include increased activities in the Phase II jurisdictions. During the event, Adopt-A-Stream groups are encouraged to clean up their assigned stream segments and additional volunteers are used to expand the effort to include un-adopted stream segments and the shoreline of lakes. Ads are commonly run in the Charlotte Observer to announce the event and solicit volunteers. Records are kept concerning the number of volunteers, miles of shoreline/streams cleaned, and tons of trash removed. The event is coordinated county-wide by CMSWS.

4.4.6 Volunteer Appreciation Event

An annual volunteer appreciation event is held to acknowledge the achievements of volunteers toward restoring the quality and usability of Mecklenburg County's surface water resources. During the event, awards are given to volunteer groups and they are recognized before the Mecklenburg County Board of County Commissioners.

4.5 Decision Process

Mecklenburg County's public involvement and participation program focuses on the use of multiple mechanisms for getting the public involved in efforts to restore the quality of Mecklenburg County's surface water resources. The rationale for the development of such a program is that multiple approaches are needed in order to involve all age, ethnic and economic groups in Mecklenburg County. Some individuals will prefer more passive involvement through participation in public meetings whereas others may elect to become more actively involved through participation in the Adopt-A-Stream and Storm Drain Marking Programs. The Adopt-A-Stream Program is more physically challenging and is popular among the age group ranging from 10 to 50 years of age. The Storm Drain Marking Program appeals to volunteers who are

not interested in walking streams but who are willing to place markers on storm drains in their neighborhoods. This is particularly popular among volunteers less than 10 and greater than 50 years of age. The individual BMPs identified in Table 4 reflect this approach as do the measurable goals associated with each BMP.

4.6 Program Evaluation

The measurable goals for each BMP are described in Table 4. Other measures of success for the Public Involvement and Participation Program are described below.

- Documentation of Storm Water Program Activities – As a baseline measure of success, staff will document completion of Work Plan activities that demonstrate successful fulfillment of the BMPs associated with this program. All activities will be documented within EDMS.
- Number of Volunteer Events – A minimum of 110 volunteer events annually is the desired target for a successful Public Involvement and Participation Program. This includes stream cleanups by Adopt-A-Stream groups as well as storm drain marking events and other volunteer activities. This information is maintained in the Volunteer Database, which is a component of EDMS, and is included in each annual report for this Phase II Permit.

On an annual basis, CMSWS staff will evaluate the BMPs assigned to this program and assess progress toward achieving the measureable goals from Table 4 and the measures of success described above. Recommendations for improvement will be made as necessary. During the following fiscal year, program activities and BMPs will be modified as necessary based on the results of this evaluation in order to ensure that the specific goals and objectives of the Public Involvement and Participation Program and Storm Water Plan are being effectively and efficiently fulfilled.

Section 5: Illicit Discharge Detection and Elimination

CMSWS has developed, implemented and enforced an Illicit Discharge Detection and Elimination (IDDE) Program in Mecklenburg County's Phase II jurisdictions/entities. The following Sections provide a description of this program.

5.1 Program Goals and Objectives

The goal of the IDDE Program is to detect and eliminate illicit discharges into the MS4, which are defined in 40 CFR 122.26(b)(2)) as discharges that are not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities as well as incidental non-storm water discharges or flows that are not significant contributors of pollutants as described in Section 5.7 of this document. The details regarding this program are described in CMSWS's "Illicit Discharge Detection and Elimination Policies and Procedures" available at the following website: http://stormwater.charmeck.org (select "Regulations", select "Manuals & Guidelines"). The objectives of the program are as follows:

1. Develop, implement and enforce a program to detect and eliminate illicit discharges into the MS4, including appropriate policies, procedures, form letters and enforcement guidance.
2. Maintain a storm sewer system map, showing the location of all major outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;
3. Prohibit, through ordinances, or other regulatory mechanisms, non-storm water discharges except incidental non-storm water discharges or flows that are not significant contributors of pollutants as described in Section 5.7 and implement appropriate enforcement procedures and actions;
4. Implement a plan to detect and address non-storm water discharges, including illegal dumping, to the MS4;
5. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste; and
6. Address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to the MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the United States).

5.2 BMP Summary Table

Table 5 describes the BMPs implemented as part of the IDDE Program.

Table 5: BMP Summary Table for the IDDE Program

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
ID-1	Maintain Storm Sewer System Maps	Maintain and update as necessary maps of the storm sewer systems serving all Phase II jurisdictions/entities in Mecklenburg County showing the locations of inlets, outlets and receiving waters.	X	X	X	X	X	Meredith Moore (Senior Environmental Specialist)
ID-2	Conduct Field Screening for Non-Storm Water Flows	Conduct field investigations for identifying dry weather flows to the storm sewer system including sampling and elimination of identified pollution sources.	X	X	X	X	X	Meredith Moore (Senior Environmental Specialist)
ID-3	Enforce Surface Water Pollution Control Ordinance	Prohibit non-storm water discharges in accordance with IDDE Policies and Procedures through the enforcement of the surface water pollution control ordinances, except those discharges specifically allowed by the ordinances. At least annually, assess the effectiveness of these ordinances at prohibiting illicit connections and discharges and update/revise as necessary.	X	X	X	X	X	Erin Hall (Environmental Specialist)
ID-4	Implement Water Quality Monitoring Program	Conduct water quality monitoring activities and follow up as necessary to identify and eliminate illicit discharges to the storm sewer system and surface waters in accordance with IDDE procedures.	X	X	X	X	X	Jon Beller (Senior Environmental Specialist)
ID-5	Public Outreach Program for Illicit Discharges & Improper Waste Disposal	Develop and implement a program to inform the general public, businesses, industries, and public employees (including municipal 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), of the hazards associated with illegal discharges and improper disposal of waste. This will be incorporated into activities conducted for the Public Education and Outreach Program.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)
ID-6	Conduct Follow up Inspections and Respond to Citizen Requests and Emergencies	Respond to citizen requests for service and emergency situations as well as conduct follow up inspections as necessary to identify and eliminate pollution problems and restore water quality conditions in accordance with IDDE Policies and Procedures.	X	X	X	X	X	John McCulloch, David Caldwell and Richard Farmer (Environmental Supervisors)
ID-8	Stream Walk/Outfall Inventory & Inspection/ Dry Weather Flow Analysis	Conduct stream walk activities, inventory and inspect storm drain outfalls and identify dry weather flows as well as identify and eliminate illegal discharges and other pollution sources in accordance with IDDE Policies and Procedures.	X	X	X	X	X	Meredith Moore (Senior Environmental Specialist)
ID-9	Intensive Stream	Investigate and monitor select locations on a regular, recurring schedule for the	X	X	X	X	X	Heather Sorensen (Environmental

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
	Investigation & Survey (ISIS)	identification and elimination of pollution problems using physical observations in accordance with IDDE Policies and Procedures.						Specialist)
ID-10	Evaluate Effectiveness of IDDE Program	Evaluate the effectiveness of the IDDE program and modify as necessary. Include in this assessment a review of the written IDDE Policies and Procedures.	X	X	X	X	X	John McCulloch (Environmental Supervisor)

5.3 Storm Sewer System Map

On August 31, 2006, CMSWS completed the storm sewer maps for all the Phase II jurisdictions in Mecklenburg County. These maps show the locations of inlets, outlets and receiving waters as well as identify the corresponding six-square mile drainage areas. As part of this mapping program, CMSWS also identified dry weather flows to the storm sewer system and initiated the measures necessary to eliminate pollution sources. The source of information for the development of these storm sewer maps was 2002 digital aerial photography (1 foot per pixel resolution .tif images, compressed 50:1 into .sid format) provided by Mecklenburg County Mapping/GIS Services. The aerial photography was loaded into Hewlett-Packard iPAQ handheld computers that were equipped with both ESRI ArcPad 6.0.3 GIS software and Trimble GPS Correct. This mapping software package was configured to store important information relevant to the storm sewer system and the water quality conditions observed. A Trimble Pathfinder Pocket GPS unit was connected to the handheld computer in order to geo-reference all data collected. CMSWS staff conducted field inspections to locate all storm sewer system inlets, outlets and receiving streams using the aerial photos loaded into the handheld computer as a reference. Once located, a geo-referenced position for the inlets and outlets was determined using the Trimble GPS unit. Other field data was also collected during the inspections including the general condition of the storm drain, the name of the receiving stream and whether dry weather flow or other potential pollution problems were observed. If dry weather flows or other pollution problems were detected, the following additional information was collected:

- Estimated flow rate;
- Odors; and
- Coloration.

All observed dry weather flows were sampled for fecal coliform bacteria, surfactants, fluoride, and oil and grease. Follow up field investigations were performed to identify and eliminate all pollution sources. All follow up activities were documented in a report maintained in CMSWS's computer database. Following the field inspections, the digital data was downloaded by CMSWS staff and stored in an ESRI shapefile format (with attributes). CMSWS staff post-processed the data to include the corresponding six-mile sub-basin identification number as an added attribute. After the inventory was completed, storm sewer system maps were created for use in the implementation of the IDDE Program. These maps are available to staff in the form of a GIS layer in EDMS as illustrated in Figure 4.

As new development occurs, CMSWS updates the storm sewer maps with new inlets, outlets and receiving streams using the methodology described above.

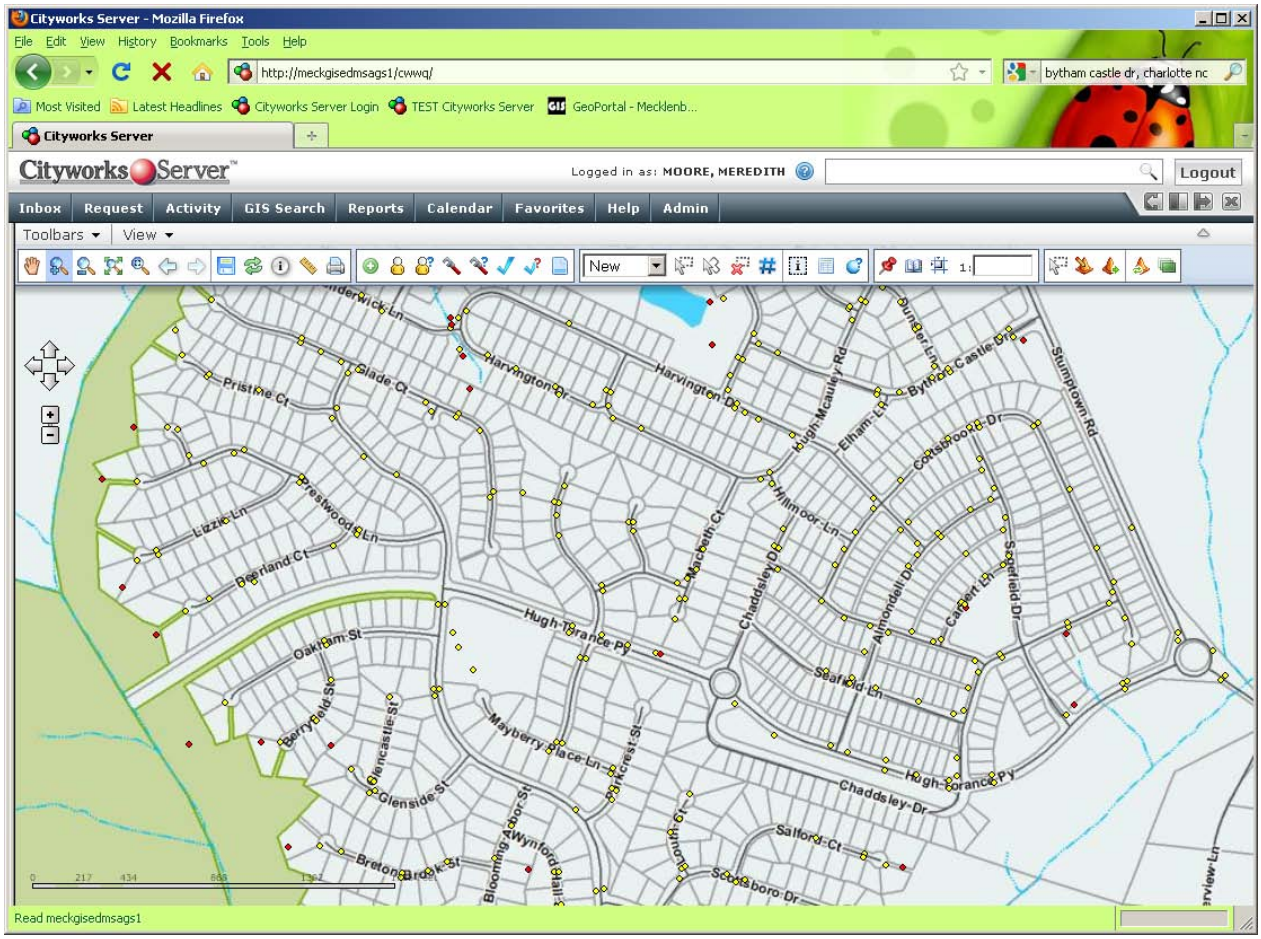

Figure 4: Computer Screen Shot of Storm Drain Inlets (yellow) and Outlets (red)

5.4 Regulatory Mechanism

In April 2004, the Town of Davidson adopted a "Surface Water Pollution Control Ordinance" that prohibits illicit discharges, illicit connections and improper disposal to surface waters and storm sewers within their corporate limits as authorized by North Carolina General Statute (NCGS) 160A-174. On May 5, 2004, Mecklenburg County adopted the same ordinance for the unincorporated areas of the county as authorized by NCGS 153A-121. A separate ordinance was required for the Town of Davidson because they have jurisdiction in Iredell County where the Mecklenburg County ordinance would not be applicable. On June 8, 2004, the Town of Pineville adopted a resolution allowing Mecklenburg County to enforce its ordinance within their corporate limits as authorized by NCGS 153A-122. On June 21, 2004, the Towns of Cornelius and Huntersville adopted the same resolution followed by the Town of Mint Hill on June 24, 2004. The Town of Matthews had adopted a separate Storm Water Pollution Control Ordinance on November 27, 2000. CMSWS is the agency responsible for enforcing these ordinances in cooperation with the respective jurisdictions. This regulatory mechanism was chosen for prohibiting illicit discharges to storm sewers and surface waters in the Phase II area due to the success of a similar ordinance in effect in the Phase I area in the City of Charlotte since November 25, 1995. Copies of the above ordinances are available on the following website: http://stormwater.charmeck.org (select "Regulations", select "Complying with Storm Water Regulations", select "Water Quality"). These ordinances prohibit illicit discharges, illicit

connections and improper disposal to the storm drain system except for the insignificant contributors of pollution described in Section 5.7 below.

CMSWS reviews the above described surface water pollution control ordinances each fiscal year, and modifies them as necessary to ensure that adequate legal authority is maintained to prohibit illicit connections and discharges, and to properly enforce the provisions of the IDDE Program described herein.

5.5 Enforcement

Enforcement guidance and procedures were developed and became effective at the same time as the ordinances. These procedures include guidelines on when a notice of violation is to be issued and the proper sections of the ordinance to cite. The procedures also provide guidance on the assessment of penalties. All appeals to the ordinances are heard by SWAC. Further information regarding the implementation of the ordinances and enforcement actions is contained in CMSWS's "Illicit Discharge Detection and Elimination (IDDE) Policies and Procedures" available at the following website: http://stormwater.charmeck.org (select "Regulations", select "Manuals & Guidelines").

5.6 Detection and Elimination

There are four primary steps involved in the detection and elimination of illicit discharge as follows:

1. Identify priority areas likely to have illicit discharges,
2. Confirm the presence of an illicit discharge,
3. Track the discharge to its source, and
4. Eliminate the source.

The following subsections briefly describe these four (4) components. More detailed information is provided in Sections 3, 4 and 5 of CMSWS's IDDE Policies and Procedures.

5.6.1 Identify Priority Areas

Priority areas with a higher likelihood of illicit discharges are typically identified through:

- Citizen requests for service regarding potential water quality problems;
- Routine water quality monitoring activities;
- Volunteer activities; and
- GIS mapping.

Citizen Requests for Service: CMSWS receives an average of 600 citizen requests for service annually. All citizen requests for service are forwarded to a Supervisor and if the request is associated with a potential pollution problem the Supervisor assigns the request to field staff for immediate investigation as a high priority area for identification of illicit discharges. Staff responds to these citizen requests for service immediately upon receipt for the purpose of identifying and eliminating pollution sources and restoring water quality conditions. Most of the pollution problems identified and eliminated by CMSWS are discovered through responses to citizen requests for service. Most of these service requests originate from citizen calls to the 311 helpline (see Section 3.5).

Routine Water Quality Monitoring Activities: The monitoring activities performed by CMSWS for identifying priority areas for illicit discharges include fixed interval monitoring and the use of a Continuous Monitoring and Alert Notification Network (CMANN). Samples for fixed interval monitoring are collected by hand (grab samples) every month at designated sites in the Phase II jurisdictions. A minimum of one (1) monthly sampling run a quarter is conducted under ambient (base flow) conditions to better facilitate the identification of illicit discharges. The following field parameters are measured at the time of sample collection: Temperature, Dissolved Oxygen, pH and Conductivity. In addition, samples are collected and analyzed by a certified laboratory for the following parameters: Fecal Coliform bacteria, E-Coli bacteria, Enterococcus, Ammonia Nitrogen (N-NH3), Nitrate + Nitrite (NO2+NO3), Total Kjeldahl Nitrogen (TKN), Total Phosphorus (TP), Suspended Solids (TSS), USGS Suspended Sediment Test (SSC), Turbidity, Copper, Zinc, Chromium, Hardness, and Lead. The primary purpose of the fixed interval monitoring program is to assess the general water quality conditions of the streams and to identify potential pollution problems at the watershed scale.

CMANN data is collected on a fixed time interval (usually every hour) using automated equipment set-up at designated sites in the Phase II jurisdictions. CMANN is used to measure turbidity, pH, temperature, conductivity, and dissolved oxygen. All data is stored in a data logger and transmitted via a wireless modem for display on the CMANN website at http://www.ysieconet.com/public/WebUI/Default.aspx?hidCustomerID=75. The primary purpose of the CMANN monitoring program is to continually assess water quality conditions for overall watershed health and identify pollution problems.

All data from the above monitoring activities is delivered electronically to a Quality Assurance and Quality Control (QA/QC) Officer with CMSWS, who is responsible for the compilation, review, verification, validation, and warehousing of all water quality monitoring data products. Immediately upon receipt of this data, the QA/QC Officer identifies all exceedances of local Watch/Action Levels and State water quality standards. Within one work day from receipt of the data, the QA/QC Officer reports all observed exceedances to Supervisors who establish the area upstream of the sample location as a priority area for the identification of illicit discharges. The Supervisor assigns all priority areas to staff for the initiation of immediate follow up actions for the purpose of identifying and eliminating pollution sources and restoring water quality conditions.

In addition to exceedances of local Watch/Action Levels and State water quality standards, CMSWS uses an index of water quality conditions referred to as the Stream Use Support Index or SUSI to identify areas with negatively impacted water quality conditions and a high likelihood of illicit discharges. These are areas where water quality conditions are on the decline but may not be degraded enough to trigger a follow up for an Action or Watch Level exceedance as described above. SUSI includes five (5) broad categories of parameters that were determined to be the most important indicators of pollution in Charlotte-Mecklenburg. These five (5) categories, which are called sub-indices, are as follows:

1. Bacteria (Fecal Coliform Bacteria)
2. Metals (Copper, Zinc, Lead and Chromium)
3. Biological (Macroinvertebrate and Habitat Score)
4. Physical (Turbidity, Dissolved Oxygen, Temperature and pH)

5. Nutrients (Total Phosphorus and Chlorophyll a)

SUSI also incorporates data collected over three (3) time horizons, including short term (data from the current month), middle term (data from the past 10 to 12 months) and long term (data from the past 1 to 2 years). SUSI rates water quality conditions across Mecklenburg County using data collected over these time horizons and displays these conditions in a color coded map as either Supporting, Partially Supporting, Impaired or Degraded (see Figure 5). The QA/QC Officer previously described generates SUSI maps monthly and provides them to the Supervisors who consider areas identified with Impaired and Degraded conditions as potential priority areas for illicit discharges or other pollution problems. Based on an evaluation of these areas, Supervisors assign specific locations to staff for follow up. In addition, once a quarter the QA/QC Officer makes a formal presentation to the Supervisors and Program Manager regarding all trends identified through SUSI and additional data analyses and makes recommendations regarding appropriate follow up actions. The Supervisors and Program Manager use this information to assign priority areas to staff for the initiation of follow up actions for the purpose of identifying and eliminating pollution sources and restoring water quality conditions.

Additional detail regarding water quality monitoring activities is available in CMSWS's Quality Assurance Project Plan (QAPP), which is available at the following website: http://stormwater.charmeck.org (select "Creeks, Lake, Ponds", select "Water Quality in our Creeks", select "Request specific water quality data", select "Data Management and Quality Assurance, select "additional monitoring program information, including quality assurance and quality control protocol").

Volunteer Activities: CMSWS has three (3) volunteer programs that contribute toward the identification of priority areas with a higher likelihood of illicit discharges, including Adopt-A-Stream, Storm Drain Marking and Volunteer Monitoring. The objective of these programs is to engage the citizens of Charlotte-Mecklenburg in activities for protecting and restoring surface water resources, including the identification illicit discharges. Typically, volunteers will report to the volunteer coordinator the potential presence of an illicit discharge. This report is forwarded to a Supervisor who will schedule staff activities to confirm the presence of an illicit discharge as described in Section 5.6.2.

GIS Mapping: CMSWS utilizes GIS mapping capabilities to identify priority areas for illicit discharges. CMSWS maintains all its water quality data and information, including Work Plan assignments, activity/inspection reports, asset information, etc., in EDMS. EDMS includes multiple databases; however, the database used for activity/inspection reports and GIS mapping is called Cityworks. Cityworks is a work management tool built around the use of ESRI's GIS environment, which tracks activities based on identified features referred to as assets. CMSWS has incorporated numerous GIS asset layers into Cityworks that are useful in prioritizing areas for illicit discharges as illustrated in Figure 6. The blue circle in the center of Figure 6 illustrates the location of a suspected water quality problem reported through the receipt of a citizen request for service that staff has geocoded into Cityworks. In addition, staff has activated the GIS asset layers in Cityworks for the storm sewer inventory, facility inspections and notices of violation issued. By selecting an asset, staff can access information useful in prioritizing specific locations for illicit discharges. This is one of the many techniques available to staff for identifying pollution sources through the use of GIS.

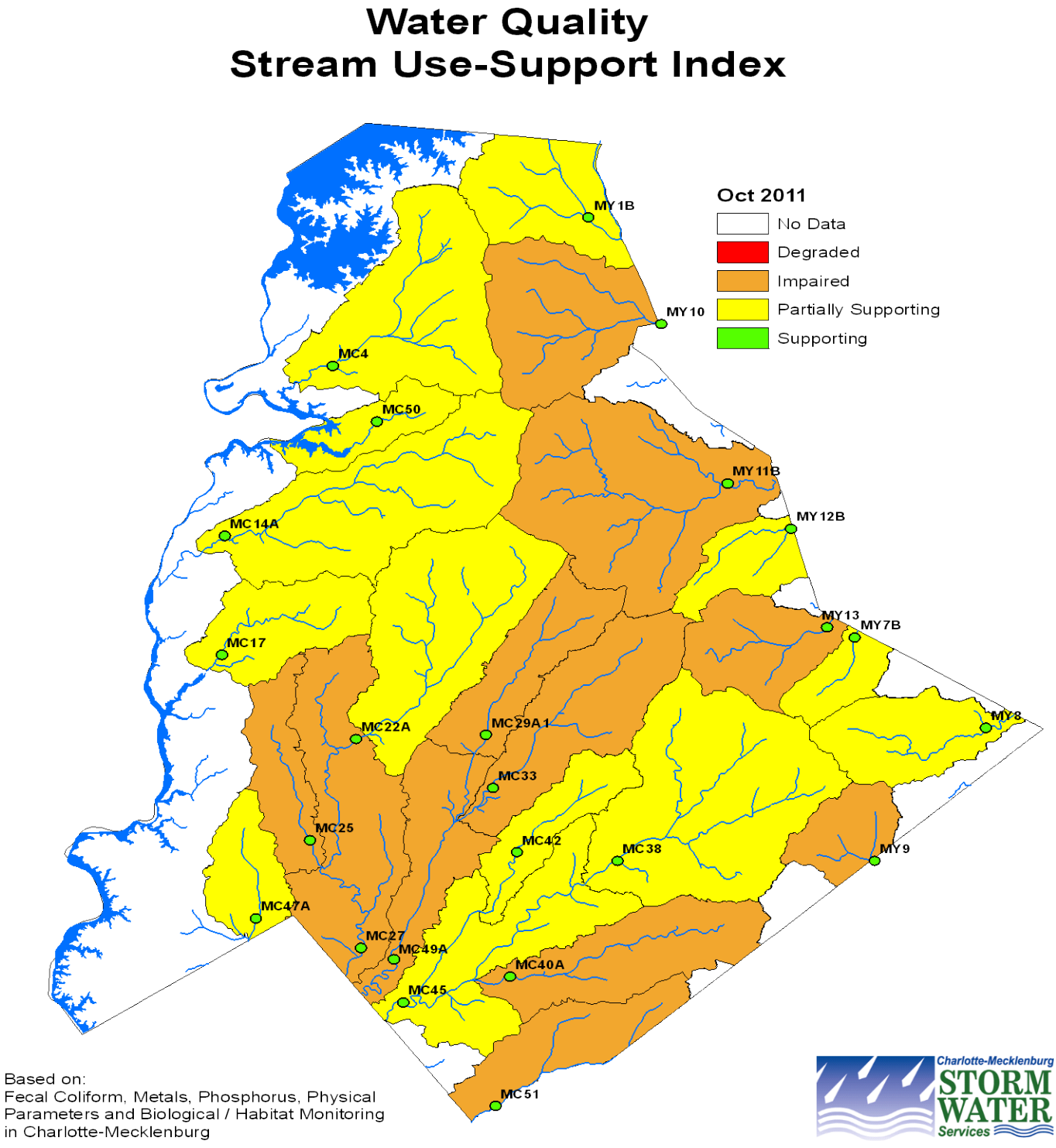

Figure 5: Stream Use Support Index (SUSI) Map (October 2011)

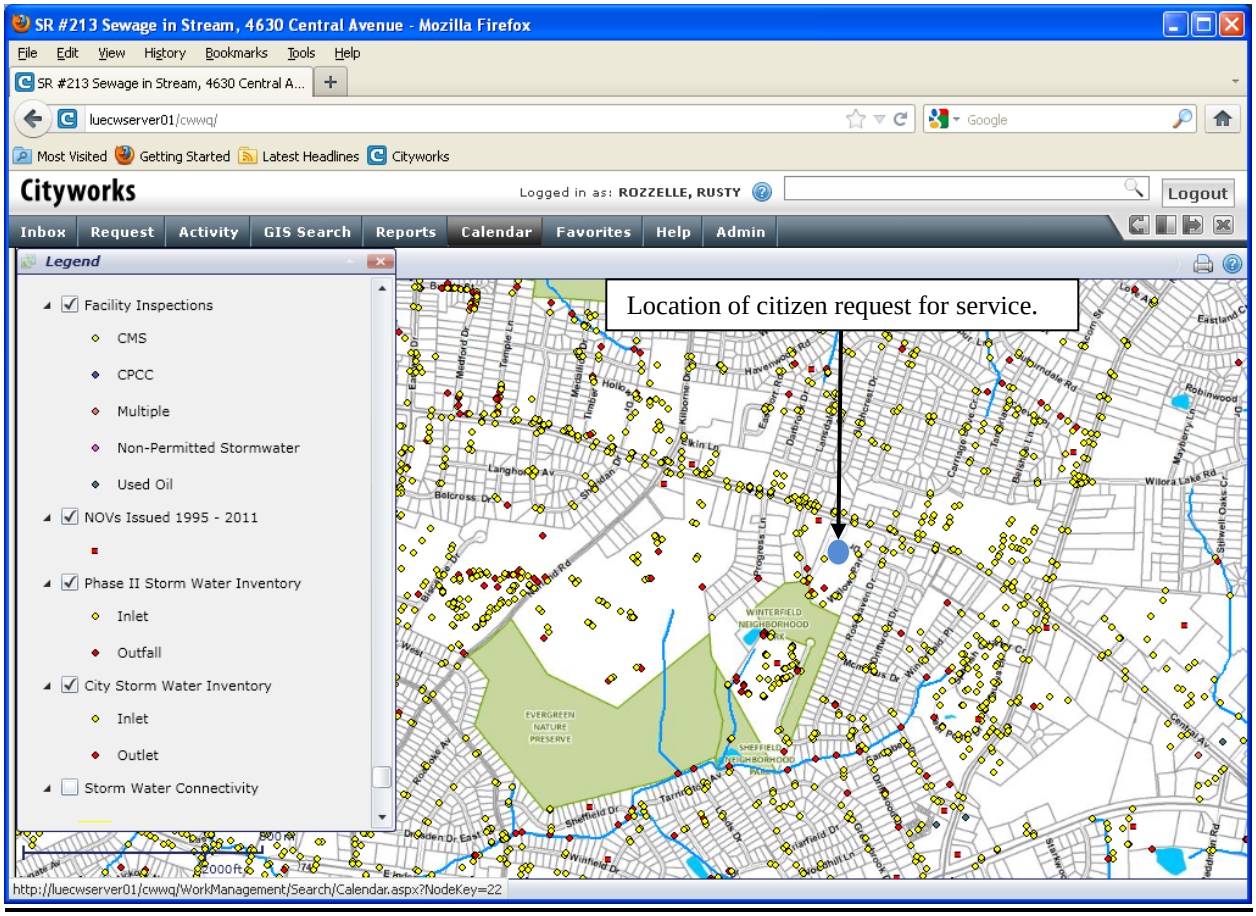

Figure 6: GIS Map Available Through Cityworks for Prioritizing Areas for Illicit Discharges

5.6.2 Confirming the Presence of an Illicit Discharge

Once a priority area for an illicit discharge source is identified, standardized follow up field screening activities are performed to confirm the presence of an illicit discharge, including but not limited to:

- Intensive Stream Investigation and Survey (ISIS);
- Short Term Monitoring;
- Hot Spot Investigations;
- Stream Walks;
- Facility Inspections; and
- Dry Weather Flow Investigations.

Intensive Stream Investigation and Survey (ISIS): Investigating select stream locations in identified priority areas to confirm illicit discharges using visual observations. An example is as follows: A Supervisor identifies a priority area for an illicit discharge from the receipt of a citizen request for service and assigns to staff for follow up action. Staff's investigation does not reveal a pollution problem; however, based on information provided by the citizen staff is convinced that the problem is associated with an intermittent discharge. One option available to the Supervisor for confirming the discharge is to establish an ISIS run in the area. This is accomplished by assigning staff to perform visual observations at specific intervals along the

stream section, usually at bridge crossings, on a short term, frequent schedule in order to confirm the presence of a discharge. This is particularly effective for discharges that are detectable using human senses such as a sewer overflow. Once the discharge is confirmed and the source identified, the ISIS activities are discontinued.

Short Term Monitoring: Monitoring for select parameters at specific stream locations and/or storm water outfalls in identified priority areas to confirm illicit discharges. An example is as follows: A Supervisor identifies a section of stream as a priority area for illicit discharges as a result of an Action Level exceedance from a fixed interval monitoring run. One option available to the Supervisor is to establish Short Term Monitoring along the stream section to confirm the presence of a discharge. This is accomplished by identifying sample collection locations along the stream reach and assigning staff to monitor these locations for select parameter(s) using field and/or laboratory analyses on a short term, frequent schedule in order to confirm the illicit discharge(s). This is particularly effective for discharges that are typically not detectable using human senses such as discharges of organics or metals. Once the discharge is confirmed and the source identified, the monitoring activities are discontinued.

Hot Spot Investigations: Investigating a select stream location, storm water outfall, sewer manhole, lift station, etc. with a history of problems in priority areas to confirm illicit discharges using visual observations. Hot spot investigations are similar to ISIS runs except they involve investigations of a single location as opposed to ISIS which incorporates multiple locations along a stream reach.

Stream Walks: Walking an entire stream reach in identified priority areas to confirm illicit discharges using visual observations and monitoring activities. Streams walks differ from ISIS and hot spot investigations because the entire stream reach is inspected as opposed to select locations along the stream.

Facility Inspections: Inspecting a facility in a priority area to confirm the presence of an illicit discharge using visual observations and water quality monitoring.

Dry Weather Flow Investigations: Inspecting a storm water outfall after a minimum of 72 hours of no measureable rainfall and identifying dry weather flows. The sources of such flows are typically either groundwater infiltration into the storm drain pipe, lawn watering, air conditioning condensate or an illicit discharge. To confirm an illicit discharge, CMSWS staff will physically observe the discharge for pollutant indicators such as discoloration, odor, solids, etc. and perform water quality monitoring for select parameters, including temperature, dissolved oxygen, conductivity, pH, fecal coliform bacteria, total phosphorus and flow.

5.6.3 Tracking the Source of an Illicit Discharge

Once an illicit discharge has been confirmed, standardized follow up procedures are followed to track the discharge to its source, including but not limited to:

- Record Reviews;
- On-Site Inspections and Monitoring;
- Storm Drain and Sanitary Sewer Inspections; and
- Mobile Deployment of CMANN units.

Record Reviews: CMSWS staff reviews available records and information to assist in the identification of potential pollution sources, including digital information available through EDMS and the Mecklenburg County Property Ownership Land Records Information System (POLARIS) as well as hard file records available at CMSWS's office. The GIS capabilities of EDMS are a valuable component of this review process.

On-Site Inspections and Monitoring: An on-site inspection is conducted of the area around and upstream of the confirmed illicit discharge. The IDDE Policies and Procedures contain standardized methods for performing these inspections that include the use of visual observations and water quality monitoring to narrow the search area until the specific discharge location can be identified.

Storm Drain and Sanitary Sewer Inspections: In some cases, on-site inspections will isolate the discharge to a storm drain or sanitary sewer system. It is then necessary to inspect these systems in order to identify the specific source of the discharge. The IDDE Policies and Procedures contain specific methods for performing these inspections, including dye testing, smoke testing, and pipe videos.

Mobile Deployment of CMANN Units: CMSWS's has four (4) CMANN units that are available for mobile deployment. These units can be set-up to automatically collect data on a fix interval for turbidity, pH, temperature, conductivity, and dissolved oxygen. The units are capable of alerting staff via a cell phone when established data thresholds are exceeded. Staff responds by conducting on-site inspections to track discharges upstream to their source. This technique is particularly effective for tracking intermittent discharges.

5.6.4 Procedures for Removing the Source of the Illicit Discharge

Once the source of an illicit discharge has been confirmed, a standardized process is followed by CMSWS staff for eliminating the source and stopping the discharge as described in the IDDE Policies and Procedures. This process includes the issuance of a verbal and/or written notice of the violation for the applicable Storm Water Pollution Control Ordinance (see Section 5.4) to the party responsible for the discharge. The notice requires that the responsible party discontinue the discharge and take action to prevent future discharges and restore all impacted areas. Staff conducts follow up activities to ensure compliance. Failure to comply could result in the assessment of civil penalties. The use of form letters and shell documents are included in the process.

5.6.5 Documentation

CMSWS tracks all investigations and documents the date(s) the illicit discharge was observed; the results of the investigation; any follow up investigations; and the date the investigation is closed in its EDMS database using Cityworks Service Request and/or Activity Report forms. All documentation is reviewed and approved by a Supervisor prior to being closed in the system. Cityworks is also used by CMSWS as the mechanism for tracking the issuance of notices of violation and enforcement actions and includes the capability of identifying chronic violators for the initiation of actions to reduce noncompliance. GIS is integrated into the Cityworks database

thus adding a very useful spatial component to data entry and retrieval. This is illustrated in Figure 7, which is a screen shot from Cityworks showing the locations of the notices of violation issued across Mecklenburg County since 1995. Prior to the issuance of a notice of violation, staff geocode the location into Cityworks and activate the "history record" search engine for a specified radius. Cityworks produces a list of all the notices of violation issued as well as service requests received and inspections conducted within this radius, including a link to the report that provides all the detailed information for use in identifying repeat offenders. Mobile capabilities are under development for the use of Cityworks, which will further enhance its capabilities for identifying and eliminating pollution sources.

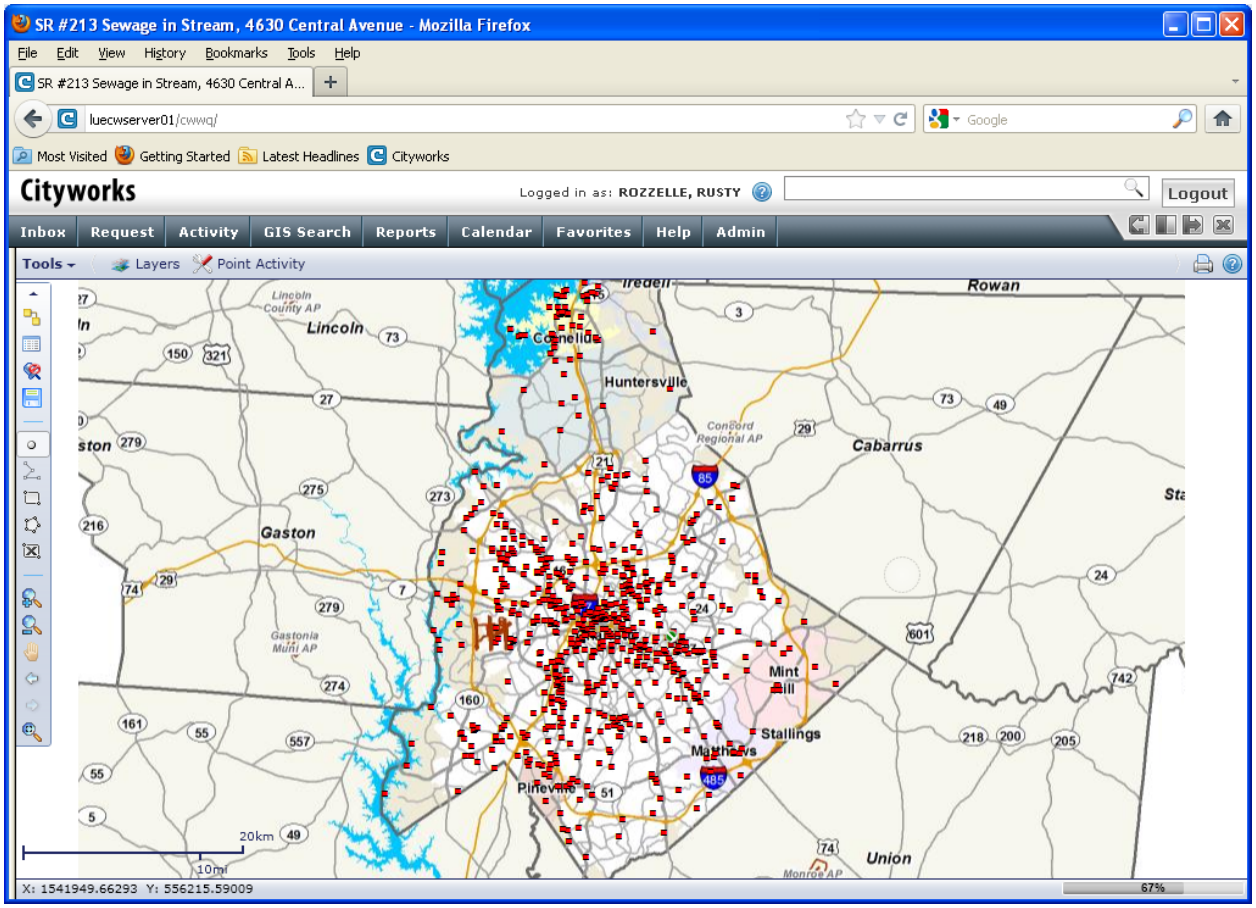

Figure 7: Notices of Violation Issued Since 1995

5.7 Incidental Non-Storm Water Discharges

CMSWS very infrequently detects water quality problems associated with the following incidental non-storm water discharges or flows (i.e., illicit discharges) and has therefore determined that they are not significant contributors of pollutants and will not be regulated by the Phase II Storm Water Pollution Control Ordinances pursuant to Section D(1)(f) of NPDES Permit Number NCS000395:

- water line flushing;
- landscape irrigation;
- diverted stream flows;

- rising ground waters;
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20));
- uncontaminated pumped ground water;
- discharges from potable water sources;
- foundation drains;
- air conditioning condensation;
- irrigation water;
- springs;
- water from crawl space pumps;
- footing drains;
- lawn watering;
- individual residential car washing (Note: Designated vehicle wash areas at multi-family residential complexes are not allowed if they connect, directly or indirectly to the storm water system or surface waters. Charity vehicle washing performed by the same organization or at the same location on a routine basis (more than one time in a thirty-day period) is also not allowed.);
- flows from riparian habitats and wetlands;
- dechlorinated swimming pool discharges;
- street wash water; and
- discharges from fire fighting activities.

5.8 Non-Storm Water Discharges

All non-storm water discharges not listed in Section 5.7 are considered significant contributors of pollutants and are prohibited by the Storm Water Pollution Control Ordinances described in Section 5.4 with the exception of permitted NPDES discharges, which are regulated by the State.

5.9 Outreach

CMSWS has developed and implemented a public outreach program to inform public employees, businesses, industries and the general public of the hazards associated with illicit discharges and improper disposal of wastes. This outreach campaign includes instructions for properly reporting these problems to CMSWS. Print and television ads as well as handouts and brochures are the primary outreach mechanisms. A minimum of one ad is produced annually. Handouts and brochures have been developed and are typically distributed during the performance of facility inspections, when responding to citizen request for service, and at event displays. This public outreach campaign for the IDDE Program is conducted by a Senior Environmental Specialist with CMSWS and is included as a component of the Outreach Program described in Section 3.6.

Problem businesses and industries that have a history of illicit discharges are informed of the threat to the environment from these discharges as well as the requirements of the Storm Water Pollution Control Ordinance(s) through the use of “Environmental Notices.” These notices are distributed at Mecklenburg County’s Business License Office to applicants for these identified problem businesses. In addition, these notices are distributed by staff when responding to citizen requests for service, conducting facility inspections and performing other field activities.

At a minimum of once during the five (5) year permit term, CMSWS will provide training to appropriate municipal 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. This training informs staff of the threat to the environment from these discharges and the proper reporting process as well as the requirements of the Storm Water Pollution Control Ordinances. New employees receive this training within 12 months of being hired.

5.10 Decision Process

The IDDE Program for the Mecklenburg County Phase II jurisdictions/entities relies primarily on public involvement and participation as well as data collected through water quality monitoring activities and field investigations to identify priority areas for illicit discharges. The program also relies on the implementation of standardized follow up field screening activities in these identified priority areas to confirm pollution sources that are eliminated through the enforcement of the local Storm Water Pollution Control Ordinances. The decision process followed in the development of this approach included an examination of techniques used successfully in the past by CMSWS for the identification and elimination of pollution sources as part of the City of Charlotte's Phase I Program. Public involvement has always played a key role in the identification of problem areas. The outreach campaign included as part of the program is designed to increase public awareness of water quality issues and inform them of the correct process for reporting suspected pollution problems.

CMSWS water quality monitoring activities have been performed in the Phase II jurisdictions for over 25 years and they have proven successful at identifying water quality problem areas. This ongoing monitoring effort was expanded as part of the Phase II Permit. This expanded monitoring program includes the use of continuous automated water quality monitoring equipment. Water quality monitoring data is summarized using the Stream Use Support Index or SUSI at least quarterly and is used by CMSWS staff to target/direct future pollution control activities.

Another tool that has proven effective in the implementation of Charlotte's Phase I Program and thus has been applied in the Phase II Program areas is the enforcement of local Storm Water Pollution Control Ordinances. CMSWS has found these ordinances to be an effective tool for the elimination of pollution sources and also for deterring future violations.

The storm sewer mapping effort has assisted in the implementation of the IDDE Program by providing a thorough examination of the inlets and outlets to the MS4s as well as identifying dry weather flows, both of which have led to the elimination of pollution sources. The availability of storm sewer maps and other data in GIS has facilitated the tracking of discharges to their source.

The selection of CMSWS staff for the execution of the measurable goals associated with the IDDE Program was based on their familiarity with the identification and elimination of pollution problems as well as their expertise in the enforcement of pollution control ordinances. The selection of the Senior Environmental Specialist to implement the Public Outreach component of the program was based on that positions experience and expertise at the development and implementation of media campaigns and other public outreach and community involvement efforts.

5.11 Program Evaluation

The measurable goals for each BMP are described in Table 5. Other measures of success for the IDDE Program are described below.

- Documentation of Storm Water Program Activities – As a baseline measure of success, staff will document the completion of Work Plan activities that demonstrate the successful fulfillment of the BMPs associated with this program element. All activities will be documented in the EDMS.
- Number of Notices of Violation Issued – CMSWS will track the number of notices of violations issued compared to the number of inspections conducted as a measure of success at improving compliance.

On an annual basis, CMSWS staff will evaluate the BMPs assigned to this program and assess progress toward achieving the measureable goals from Table 5 and the measures of success described above. Recommendations for improvement will be made as necessary. During the following fiscal year, program activities and BMPs will be modified as necessary based on the results of this evaluation in order to ensure that the specific goals and objectives of the IDDE Program and Storm Water Plan are being effectively and efficiently fulfilled.

Section 6: Construction Site Storm Water Runoff Control

CMSWS has developed, implemented and enforced a Construction Site Storm Water Runoff Control Program for addressing the discharge of sediment and other pollutants from construction sites in Mecklenburg County's Phase II jurisdictions. This is a delegated program under NCGS 113A-60. The following Sections provide a description of this program.

6.1 Program Goals and Objectives

The goal of the Construction Site Storm Water Runoff Control Program is to reduce pollutants in storm water runoff from construction activities that result in a land disturbance of greater than or equal to one acre. Construction activities disturbing less than one acre are included in the program if they are part of a larger common plan of development or sale that would disturb one acre or more. The objectives of the program are as follows:

1. Implement and enforce a program to ensure the proper permitting, installation and maintenance of erosion control measures in compliance with local ordinances as well as the N.C. Sediment Pollution Control Act of 1973 and Chapter 4 of Title 15A of the North Carolina Administrative Code.
2. Ensure the proper control of waste at construction sites to prevent illicit discharges and negative impacts to surface water quality, including but not limited to discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site.
3. Provide and promote a means for the public to notify CMSWS of observed erosion and sedimentation problems.
4. Educate contractors, developers and others engaged in land disturbing activities in the proper methods for installing and maintaining erosion control measures and preventing pollutants from discharging from construction sites.

6.2 BMP Summary Table

Table 6 describes the BMPs implemented as part of the Construction Site Storm Water Runoff Control Program.

Table 6: BMP Summary Table for the Construction Site Storm Water Control Program

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
CS-1	Enforce Erosion Control Ordinances	Enforce erosion and sedimentation control ordinances for the Phase II jurisdictions by permitting and controlling develop activities disturbing one or more acres of land surface and those activities less than one acre that are part of a larger common plan of development as authorized under the Sediment Pollution Control Act of 1973.	X	X	X	X	X	Corey Priddy (Senior Environmental Specialist)
CS-2	Erosion Control Education	Develop and implement an outreach program to educate contractors and land developers regarding proper erosion control.	X	X	X	X	X	Jason Klingler (Environmental Specialist)
CS-3	Evaluate Effectiveness	Evaluate the effectiveness of the program and modify as necessary. Include in this	X	X	X	X	X	Corey Priddy (Senior

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
	of Erosion Control Program	assessment a review of written policies and procedures.						Environmental Specialist)

6.3 Regulatory Mechanism

Mecklenburg County has a delegated Sediment and Erosion Control Program and is therefore responsible for compliance with the Sediment Pollution Control Act of 1973 and Chapter 4 of Title 15A of the North Carolina Administrative Code. The delegated Sediment and Erosion Control Program effectively meets the maximum extent practicable (MEP) standard for Construction Site Runoff Controls by permitting and controlling development activities disturbing one or more acres of land surface and those activities less than one acre that are part of a larger common plan of development as authorized under the Sediment Pollution Control Act of 1973 and Chapter 4 of Title 15A of the North Carolina Administrative Code. The regulatory mechanism established for this program is the Mecklenburg County Soil Erosion and Sedimentation Control Ordinance effective October 21, 1974 and amended 14 times as follows: March 5, 1979, June 16, 1980, April 2, 1984, October 7, 1985, February 27, 1986, April 21, 1987, December 7, 1987, February 4, 1991, May 10, 1993, February 7, 1995, June 3, 1997, September 6, 2000, May 21, 2002, and October 7, 2008. The County's ordinance is currently enforced by CMSWS in the Towns of Cornelius, Huntersville, Pineville and Matthews. The Towns of Davidson and Mint Hill have their own sediment and erosion control ordinances, which are very similar to Mecklenburg County's and are also enforced by CMSWS. These ordinances require an approved Erosion Control Plan for all land disturbing activities that uncover an acre or more. The ordinances further require that all construction site operators implement appropriate erosion and sediment control BMPs, including those sites that disturb less than an acre. Copies of the ordinances are available at the following website: http://stormwater.charmeck.org (select "Sediment & Erosion"). Pollutants other than sediment that are generated from construction sites and have the potential to negatively impact water quality such as discarded building material, concrete truck washout, chemicals, litter, and sanitary waste are regulated by the Surface Water Pollution Control Ordinance (see Section 5). CMSWS staff inspecting for compliance with soil erosion and sediment control ordinance also inspect for compliance with the pollution control ordinance.

The Phase II jurisdictions chose local over State regulation of erosion and sediment control measures because they desired an increased level of inspection and enforcement activity that could not be provided by the State. The Mecklenburg County Soil Erosion and Sedimentation Control Policies and Procedures describe how the local program is implemented and enforced, including inspection procedures, record keeping requirements, form letters for notices of violation and enforcement guidance. A copy of these policies and procedures is available upon request to Mecklenburg County's Water Quality Program Manager.

6.4 Erosion Control Plan Reviews

Section 6(b) of the Mecklenburg County Soil Erosion and Sedimentation Control Ordinance requires an approved Erosion Control Plan for all land disturbing activities that uncover more

than one acre. Erosion control inspectors conduct a site plan review and on-site inspection prior to plan approval. Section 10 of the ordinance specifies the content of the plan, which includes all BMPs planned for the control of erosion and sedimentation. County staff reviews all Erosion Control Plans for the Phase II jurisdictions in Mecklenburg County, except for government projects which are reviewed by the N.C. Department of Environment and Natural Resources (NCDENR). Mecklenburg County's reviews are typically completed within 30 days of submittal and the person submitting the plan is notified as to whether the plan is approved, approved with modifications, approved with performance reservations, or disapproved. If a plan is disapproved, the County Engineer or designee will typically notify the applicant within 10 days. The applicant will be informed in writing as to the specific reasons the plan was disapproved. The applicant has the right to appeal the disapproval before the Charlotte-Mecklenburg Storm Water Advisory Committee. Plan approval is considered void if land disturbing activities do not commence within three (3) years of the approval date. The Mecklenburg County Soil Erosion and Sedimentation Control Policies and Procedures describe the process for site plan review, which incorporates consideration of potential water quality impacts.

6.5 Enforcement

Section 13 of the Mecklenburg County Soil Erosion and Sedimentation Control Ordinance specifies that any person who violates any of the provisions of the ordinance is subject to a civil penalty in an amount not to exceed $5,000 per day for each day the violation continues. CMSWS has established guidance in its policies and procedures for establishing penalty amounts for different types of violations. For example, a $5,000/day penalty is recommended for grading without a permit unless a hardship or extenuating circumstances are known to exist in which case the penalty may be reduced to between $2,500 to $4,000/day. For the first offense of sedimentation in a wetland, lake, or watercourse, a penalty of $1,000 to $3,000/day is recommended. No adjustment is made for land-disturbing activities that damage protected waters or wetlands, including 303(d) listed streams and other waters with special State or local designation. Second offenses typically result in a $5,000/day fine without adjustment. CMSWS uses a Storm Water Advisory Committee (SWAC) to assist in hearing appeals to enforcement actions. The Mecklenburg County Soil Erosion and Sedimentation Control Policies and Procedures describe the enforcement process, including procedures for issuing notices of violation, assessing penalties and handling appeals.

6.6 Inspections

All erosion and sedimentation control inspections in the Phase II jurisdictions are performed by staff of CMSWS, except for government projects which are inspected by NCDENR staff. Following plan approval and prior to initiating land disturbing activities, CMSWS staff conducts a pre-construction meeting involving all parties associated with the land disturbing activity to ensure that everyone is familiar with the approved Erosion Control Plan and ordinance requirements. The construction site is evaluated during this pre-construction meeting and a checklist completed. Following the pre-construction meeting, erosion control measures are installed by the contractor after which CMSWS conducts an inspection to confirm proper installation in accordance with the approved Erosion Control Plan and ordinance requirements. Following this confirmation, the inspector issues a permit authorizing grading of the site. Once

grading activities commence, staff perform compliance inspections on a routine interval based on an established prioritization scheme. If inspections reveal noncompliance with the approved Plan or other ordinance violations, a written or verbal notice of violation is issued identifying the violation(s) and specifying the specific action(s) needed to ensure compliance. Follow up inspections are conducted to verify compliance after which penalties may be assessed depending on the nature of the violation and effectiveness of the response. The Mecklenburg County Soil Erosion and Sedimentation Control Policies and Procedures describe the inspection process and include inspection logs and checklists.

6.7 Erosion Control Hotline

Mecklenburg County provides a means for the public to notify CMSWS of observed erosion and sedimentation control problems in the Phase II jurisdictions through contacting the 311 helpline as described in Section 3.5. This reporting mechanism is promoted through the media campaign conducted as part of the Public Education and Outreach Program. CMSWS staff conducts follow up investigations on reported problems and initiates the actions necessary to ensure proper erosion and sedimentation control and the protection of water quality.

6.8 Erosion Control Education

CMSWS provides erosion control education through its "Charlotte Mecklenburg Certified Site Inspector" (CMCSI) course, which includes six (6) hours of training on proper erosion and sedimentation control and a written test. Courses are held a minimum of twice a year. Section 8(f) of the Soil Erosion and Sedimentation Control Ordinances for Mecklenburg County and the Towns of Davidson and Mint Hill requires that persons conducting land-disturbing activity or their agent perform inspections of all erosion and sedimentation control measures at least once a week and within 24 hours after any storm event of greater than 0.5 inches of rain per 24 hour period. CMSWS Policies and Procedures state that the person performing these inspections must be a certified and technically competent and that a self-inspection log must be maintained. Satisfactorily completing the CMCSI training qualifies a person to perform these activities.

6.9 Government Projects

All government projects within the Phase II jurisdictions are regulated by NCDENR's Erosion and Sediment Control Program, which conducts plan reviews, inspections and enforcement activities. This includes construction activities performed directly by the Phase II entity or by a company under contract with the entity.

6.10 Decision Process

Construction site pollutants have been successfully controlled in the Phase II jurisdictions through a locally delegated program for almost 40 years. The Phase II jurisdictions have elected to continue their reliance on this local program due to its past successes and the improvements recently brought about through program modifications.

6.11 Program Evaluation

The measurable goals for each BMP are described in Table 6. Other measures of success for the Construction Site Storm Water Runoff Control Program are described below.

- Documentation of Storm Water Program Activities: As a baseline measure of success, staff will document completion of Work Plan program activities annually that demonstrate successful fulfillment of BMPs associated with this program element. All activities will be documented within EDMS.
- Improved Compliance: CMSWS will track the number of notices of violations issued compared to the number of inspections conducted as a measure of success at improving compliance.

On an annual basis, CMSWS staff will evaluate the BMPs assigned to this program and assess progress toward achieving the measureable goals from Table 6 and the measures of success described above. Recommendations for improvement will be made as necessary. During the following fiscal year, program activities and BMPs will be modified as necessary based on the results of this evaluation in order to ensure that the specific goals and objectives of the Construction Site Storm Water Runoff Control Program and Storm Water Plan are being effectively and efficiently fulfilled.

Section 7: Post-Construction Site Runoff Control

CMSWS has developed, implemented and enforced a Post-Construction Site Runoff Control Program for addressing post-construction storm water runoff from new development and redevelopment projects in Mecklenburg County's Phase II jurisdictions. The following Sections provide a description of this program.

7.1 Program Goals and Objectives

The goal of the Post-Construction Site Runoff Control Program is to reduce pollutants in storm water runoff during post-construction conditions at new developments and redevelopments, including public transportation maintained by the permittee, that disturb greater than or equal to one acre. Developments and redevelopments disturbing less than one acre are included in the program if it is part of a larger common plan of development or sale that would disturb one acre or more. The objectives of the program are as follows:

1. Implement and enforce a program to address storm water runoff from new development and redevelopment projects, including public transportation maintained by the permittee.
2. Implement strategies which include a combination of structural and/or non-structural BMPs appropriate for the community.
3. Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects.
4. Ensure adequate long-term operation and maintenance of BMPs.

7.2 BMP Summary Table

Table 7 describes the BMPs implemented as part of the Post-Construction Site Runoff Control Program.

Table 7: BMP Summary Table for the Post-Construction Site Runoff Control Program.

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
PC-1	Implement Post-Const. Storm Water Ordinances	Implement the post-construction ordinances adopted in the Phase II areas.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PC-2	Implement BMP Inspections	Conduct site inspections of structural storm water controls installed for compliance with ordinance requirements.	X	X	X	X	X	Heather Davis (Environmental Specialist)
PC-3	Implement a Program to Educate and Assist Developers	Implement a program to educate the development community and the general public concerning the post-construction storm water management requirements.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PC-5	Evaluate Effectiveness of Post-Construction Control Program	Evaluate the effectiveness of the program and modify as necessary. Include in this assessment a review of written policies and procedures.	X	X	X	X	X	Don Ceccarelli (Project Manager)

7.3 Regulatory Mechanism

The post-construction storm water ordinances developed by the Phase II jurisdictions were reviewed and approved by the State and subsequently adopted effective June 30, 2007. These regulations meet or exceed the minimum requirements for the control of post-construction storm water runoff specified in North Carolina Session Law 2006-246 and Phase II Storm Water Permit requirements. Administrative and BMP Manuals have been developed and are being maintained by CMSWS along with the ordinances to guide the implementation and enforcement of ordinance requirements. The Administrative Manual includes application requirements and forms, submission schedules, fee schedules, maintenance plans and agreements, criteria for mitigation approval, criteria for recordation of documents, inspection report forms, requirements for submittal of bonds, and other information and forms used in the administration of the post-construction ordinances. The BMP Manual includes the designs for structural storm water controls as well as methods for calculating built-upon area and other information used in the construction of BMPs required by the ordinances. Copies of the ordinances as well as the Administrative and Design Manuals are available at the following website: http://stormwater.charmeck.org (select "Regulations").

Mecklenburg County works cooperatively with the Towns to ensure the proper enforcement of the post-construction storm water ordinances. This includes the review and approval of Storm Water Plans and Maintenance Covenants for structural BMPs. In addition, CMSWS's Water Quality Program Manager serves as the Storm Water Administrator responsible for the implementation and enforcement of the post-construction ordinances for the Towns and County except for the Town of Cornelius, which uses its Planning Director to fulfill this role. All appeals and variances are heard by the Charlotte-Mecklenburg Storm Water Advisory Committee (SWAC) very similar to the process used for the Sediment and Erosion Control Program described in Section 5. The only exceptions are that the Towns of Cornelius and Huntersville use their Board of Adjustment to hear all appeals and variances.

Implementation of the post-construction ordinances consists of the following activities:

- Maintaining and updating the ordinances as necessary.
- Providing interpretations regarding the applicability of ordinance requirements to new developments and redevelopments.
- Maintaining and updating the Charlotte-Mecklenburg BMP Design Manual as necessary.
- Maintaining and updating the Administrative Manual as necessary.
- Conducting site plan reviews to ensure compliance with ordinance requirements.
- Conducting site inspections during construction to ensure compliance with approved plans and all ordinance requirements. Before issuing a certificate of occupancy, conduct a post-construction inspection to verify that performance standards have been met or a bond is in place to guarantee completion.
- Maintaining an inventory of public and private projects with structural storm water control measures installed for compliance with post-construction ordinance requirements.
- Ensuring that mechanisms are in place to guarantee that projects will be maintained in compliance with post-construction ordinance requirements.
- Ensuring the implementation of long-term operation and maintenance plans for structural BMPs in accordance with ordinance requirements, including ensuring that the owner of

each structural BMP has a qualified professional perform annual inspections and maintains records of these inspections.

- Conducting site inspections of structural storm water controls installed for compliance with ordinance requirements at least once during the permit term. Records of inspection findings and enforcement actions are maintained. Notices of violation and enforcement actions are tracked and used to identify chronic violators for initiation of actions to reduce noncompliance.
- Implementing a program to educate the development community and the general public concerning the post-construction storm water management requirements. Ordinances, post-construction requirements, design standards checklist, and other materials appropriate for developers are made available through paper or electronic means.

7.4 Compliance by Co-Permittees with Post-Construction Ordinance Requirements

New developments and redevelopments constructed by or under contract with the Phase II entities are required to comply with the local post-construction ordinance requirements adopted by Mecklenburg County and the Towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill, and Pineville on June 30, 2007 and by the City of Charlotte on July 1, 2008. Roads within the boundaries of a larger common plan of development such as a subdivision that is required to comply with local post-construction ordinance requirements are subject to these same requirements regardless of whether these roads will be privately maintained or maintained by the Town. For such projects, the built-upon area for the roads is incorporated into the built-upon area for the project and BMPs are installed as necessary to comply with ordinance requirements. An exception is made for road projects located outside the boundaries of a larger common plan of development due to their linear nature that makes conventional BMP installation extremely difficult. These road projects are not required to comply with local post-construction ordinance requirements but must comply with the following guidelines to the maximum extent practicable:

- minimize built-upon area,
- divert storm water away from surface waters, and
- employ BMPs to minimize water quality impacts.

The Phase II jurisdictions will work with CMSWS on a project-by-project basis to ensure that the minimum guidelines listed above are effectively and efficiently fulfilled. All roads constructed to NCDOT standards that are to be turned over for maintenance to NCDOT following construction must comply with the minimum guidelines listed above except that BMPs will be maintained in accordance with NCDOT requirements and shall not be subject to the local post-construction ordinance maintenance requirements. To the extent practicable, the jurisdictions will use BMPs from the North Carolina Department of Transportation's "Best Management Practices Toolbox" developed for linear systems, which has been approved by NCDWQ to meet post-construction requirements for linear roadway systems. The designs in the Charlotte-Mecklenburg BMP Design Manual may also be used where practicable.

CMSWS maintains a current inventory of the structural storm water controls owned and/or operated by the Phase II jurisdictions/entities that were installed for compliance with post-construction ordinances. The Phase II jurisdictions/entities maintain and implement an Operation and Maintenance Program for these structural storm water controls, which specify the

frequency of inspections and routine maintenance requirements. The Phase II jurisdictions/ entities inspect and maintain their structural storm water controls in accordance with the schedule contained in the Operation and Maintenance Program and document inspection and maintenance activities.

7.5 Requirements for Non-Structural BMPs

The post-construction ordinances include stream buffer and undisturbed open space requirements as summarized in Table 8, which serve as non-structural BMPs. Prior to the adoption of the post-construction ordinances, non-structural storm water controls were in effect in the Phase II jurisdictions that continue to apply, including zoning ordinances to direct growth to identified areas. In addition, Mecklenburg County's Park and Recreation Department actively acquires and maintains open space for parks and nature preserves. This program concentrates on preserving environmentally-sensitive and natural resource areas within the County, including wetlands and riparian buffers.

Table 8: Non-Structural BMPs Required by Post-Construction Ordinances

Jurisdiction	Post-Construction Ordinance Watershed District	Undisturbed Open Space Requirements Based on Project Area <24% BUA = 25%; ≥24% BUA = 17.5%; ≥50% BUA = 10%	Buffer Widths		
			Streams draining <50 acres = 30 ft; ≥50 acres = 35 ft.; ≥300 acres = 50 ft.: ≥640 acres = 100 ft. + floodplain	Streams draining <50 acres = 50 ft; ≥50 acres = 100 ft for all intermittent & perennial streams	200-ft on streams inside FEMA floodplain; 100 ft on all other perennial and intermittent streams
Cornelius	N/A	N/A	X		
Davidson	Catawba	X	X		
	Yadkin	X		X (3 zone buffer)	
Huntersville	N/A	N/A	X		
Matthews	Catawba	X	X		
	Yadkin	X		X(3)	
Mint Hill	Catawba	(1)	X		
	Yadkin	(1)	X		
	Goose Cr.	(1)			X (undisturbed)
Pineville	N/A	X	(2)		
Mecklenburg	N/A	X	(2)		

(1) <20% BUA = no undisturbed open space is required; ≥20% BUA = 15%; ≥50% = 10%
(2) Streams draining <100 acres = 30 ft; ≥100 acres = 35 ft.; ≥300 acres = 50 ft.; ≥640 acres = 100 ft + 50% of floodfringe.
(3) Buffer also includes 100% of the floodplain and is undisturbed.

Since 1999, buffers ranging in width from 35 feet to the entire FEMA floodplain have been required along perennial streams in the Phase II jurisdictions. These buffer requirements were implemented as part of Mecklenburg County's Surface Water Improvement and Management (S.W.I.M.) Program. The northern Towns of Cornelius, Davidson and Huntersville have portions of their jurisdictions in WS-IV watersheds and have maintained water supply watershed rules in their zoning ordinances since the mid 1990s. These rules require buffers ranging from 50 to 100 feet in width along the lake shoreline as well as along perennial streams delineated on USGS quadrangle maps.

7.6 Requirements for Structural BMPs

The post-construction ordinances adopted on June 30, 2007 by the Phase II jurisdictions contain requirements for the installation of structural BMPs to control and treat storm water runoff to meet specific volume, peak and water quality requirements when a built-upon area threshold is reached. These BMPs must meet the design criteria contained in the Charlotte-Mecklenburg BMP Design Manual. This manual includes design criteria for the following types of BMPs: bioretention, wet pond, storm water wetland, enhanced grass swale, grass channel, infiltration trench, filter strip/woody buffer strip, sand filter, extended dry detention, and proprietary BMPs. Table 9 provides a general summary of the structural BMP requirements.

Table 9: Structural BMPs Contained in the Post-Construction Ordinances

Jurisdiction	Post-Construction Ordinance Watershed District	Treatment Threshold (BUA)	Treatment Type			Treatment Volume	
			85% TSS Removal	70% TP Removal	LID	Runoff from 1st inch of rainfall	Runoff from pre minus post development for 1-yr, 24-hr storm
Cornelius	N/A	>12%	X		Optional	X	
Davidson	Catawba	>12%	X	X	Optional	X	
	Yadkin	>10%	X	X	Optional	X	
Huntersville	N/A	>6%			Required(2)	X	
Matthews	Catawba	>24%	X		Optional	X	
	Yadkin	>10%	X	X	Optional	X	
Mint Hill	Catawba	>24%	X		Optional	X	
	Yadkin	>12%	X		Optional	X	
	Goose Cr.	None(1)	X		Required(3)		X
Pineville	N/A	>24%	X		Optional	X	
Mecklenburg	N/A	>24%	X		Optional	X	

(1) Treatment required for all built-upon area.
(2) A combination of LID and conventional storm water treatment measures is allowed in the form of a treatment train.
(3) Water quality treatment systems that promote the infiltration of flows and groundwater recharge (LID) shall be used unless it can be demonstrated that such treatment systems are not a practical alternative for the site.

Prior to the adoption of the post-construction storm water ordinances, the installation of structural storm water controls was required for developments and redevelopments located in the WS-IV watersheds in the Towns of Davidson, Cornelius and Huntersville. In addition, beginning in 1979 the Phase II jurisdictions required the submission and approval of a drainage plan for all commercial land development activities that involved the creation of more than 20,000 square feet of impervious ground cover. If the impervious cover proposed in the plan increased the peak level of storm water runoff from the site, then the plan was required to identify measures to control and limit runoff to peak flows no greater than would occur from the site if impervious area were not increased for the 2-year and 10-year storm events. BMPs installed for compliance with the WS-IV watershed ordinances and those BMPs installed for the 1979 drainage plan requirements are not subject to the post-construction ordinance requirements for inspection and maintenance.

7.7 Green Infrastructure Practices

The post-construction storm water ordinances adopted by the Phase II jurisdictions contain the following green infrastructure practices:

- The submittal of a Concept Plan early in the review process to effectively demonstrate the measures to be implemented to comply with post-construction requirements (except for the Town of Cornelius).
- The use of vegetated conveyances for the transport storm water to the maximum extent practicable.
- The optional use of permeable pavement systems as a structural BMP to help manage storm water runoff.
- The optional use of green roofs as structural BMPs to help manage storm water runoff.
- The optional use of consultation meetings early in the development review process to discuss the post-construction storm water management measures necessary for the proposed project, as well as to discuss and assess constraints, opportunities and potential approaches to storm water management designs before formal site design engineering is commenced.
- The designation of undisturbed open space areas ranging from 25% to 10% of the total project area based on the jurisdiction (except in Cornelius and Huntersville) (see Table 8).
- The protection of buffers ranging in width from 30 feet to the entire FEMA floodplain depending on the watershed area and jurisdiction (see Table 8).
- The optional use of low impact development techniques except in the Town of Huntersville where it is required (see Table 9).
- The optional use of payment-in-lieu as well as off-site and on-site mitigation to satisfy post-construction storm water ordinance requirements in cases where on-site alternatives are not technically feasible. These options provide money for tree planting, open space acquisition, installation of off-site BMPs, etc.

Practices are in place to ensure the long term maintenance of green infrastructure, including recording the infrastructure on final plats at the Mecklenburg County Register of Deeds Office and performing periodic inspections.

7.8 Operation and Maintenance

The Phase II jurisdictions have included requirements in their post-construction ordinances to ensure the adequate long-term operation and maintenance of structural and non-structural BMPs as summarized below.

1. A BMP Operation and Maintenance Agreement must be completed and recorded at the Mecklenburg County Register of Deeds Office for all structural BMPs. A BMP Maintenance Plan must be included as an addendum to this agreement. This is a binding legal agreement prepared using the format provided by the Storm Water Administrator that specifies the party responsible for performing BMP maintenance and provides a description of the maintenance activities to be performed, including a schedule. In addition, the following language must be included on the final plat: “This plat contains Water Quality features that must be maintained in accordance with the recorded

Maintenance covenant. Removal of plants or disturbance of the BMP structure or otherwise affecting the overall functionality of the BMP for reasons other than maintenance is prohibited."

2. As-built plans are required that show the final design specifications for all structural BMPs and the field location, size, depth, and planted vegetation associated with the BMP as installed, as well as the location and size of all undisturbed open space areas and tree plantings. The designer of the storm water management measures and plans must certify, under seal, that the as-built storm water measures, controls, and devices are in compliance with the approved plans and designs and with the requirements of the post-construction ordinance.
3. Maintenance and access easements must be established and recorded on the final plat for all BMPs except those installed for public facilities. The following language must be included on the final plat: "The maintenance access must extend to the forebay, safety bench, riser, and outlet and, to the extent feasible, allow vehicles to turn around."
4. The location and dimensions of all BMPs must be included on the final plat recorded at the Mecklenburg County Register of Deeds Office. The following language must be included on the final plat: "The purpose of the BMP is to treat/reduce the pollutants associated with storm water runoff in order to minimize negative effects to downstream receiving waters. The easement around the BMP is to allow storm water conveyance and system maintenance. The removal of plants or disturbance of the BMP structure or otherwise affecting the overall functionality of the BMP for reasons other than maintenance is strictly prohibited."
5. The location of undisturbed open space must be included on the final plat recorded with the Mecklenburg County Register of Deeds Office. The following language must be included on the final plat: "Undisturbed Open Space Area: Future disturbance is prohibited in these areas except for greenway trails with unlimited public access, new Charlotte-Mecklenburg Utility lines and channel work/maintenance activities by Charlotte-Mecklenburg Storm Water Services."
6. The location of water quality buffers must be included on the final plat recorded with the Mecklenburg County Register of Deeds Office. The top of the stream bank and the limits of each buffer zone must be delineated on the plat. In addition, for 30-foot buffers required on perennial and intermittent streams draining less than 50 acres, the following language must be included on the final plat: "30-foot Vegetated buffer including a 10-foot zone adjacent to the bank. Disturbance of the buffer is allowed; however any disturbed area must be revegetated and disturbance of the 10 foot zone adjacent to the bank shall require stream bank stabilization using bioengineering techniques."
7. An escrow account must be established and maintained in accordance with requirements specified in the Administrative Manual for all BMPs maintained by a property owner or homeowner association.
8. Mecklenburg County and all the Towns except Cornelius and Huntersville will accept the maintenance responsibility for structural BMPs that are installed pursuant to the post-construction storm water ordinance following a warranty period of two (2) years from the date of the final approval of the BMP, provided the BMP:
    - Serves a single-family detached residential development or townhomes all of which have public street frontage;

- Is satisfactorily maintained during the two-year warranty period by the owner or designee;
- Meets all the requirements of the applicable post-construction storm water ordinance and the Design Manual; and
- Includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection, maintenance, repair or reconstruction.

The maintenance of all BMPs not covered by this provision is the responsibility of the owner or their designee.

9. The Towns, Mecklenburg County, CMS and CPCC will maintain the BMPs that they install for their respective projects when they retain ownership.
10. BMP Maintenance Bonds are required for all structural BMPs installed for both residential and commercial developments. BMP Maintenance Bonds are not required for BMPs installed for public facilities. The purpose of these bonds is to ensure that funds are available to maintain BMPs if the owner should fail to do so in which case the Town or Mecklenburg County would cash the bond to obtain the money to perform the necessary maintenance. The bonds must be posted by the owner for a period of not less than two (2) years from the final approval of the BMP by the Storm Water Administrator.
11. All BMPs must be inspected by a qualified registered N.C. professional engineer or landscape architect at a minimum of annually. The Storm Water Administrator has developed inspection forms for this purpose available on the website. In addition, all BMPs maintained by a property owner or homeowner association must attach to the inspection form documentation of BMP maintenance escrow account activity. This may be provided in the form of a bank statement, which includes the current balance, as well as deposits and withdraws for the previous 12 months.
12. CMSWS will inspect structural BMPs installed for compliance with post-construction storm water ordinance requirements at a minimum of once during the five (5) year permit term.

7.9 Decision Process

Between April 2004 and September 2005, a stakeholders' group deliberated in the development of a draft post-construction ordinance for Charlotte-Mecklenburg. The resulting consensus document was subsequently reviewed and modified as necessary by the Phase II jurisdictions to meet their specific requirements. These documents were submitted to NCDENR and following approval were adopted into law effective June 30, 2007. Following adoption, workshops were held for the development community and staff to help ensure effective implementation.

It was decided that a stakeholders' process would be used in the development of the post-construction ordinance based off the successes of previous such efforts. For example, CMSWS relied on a similar approach in the development of the S.W.I.M. stream buffer ordinances and local water supply watershed rules.

During the development of the draft post-construction ordinances, efforts were undertaken to conform these rules to each jurisdiction's specific water quality needs. For example, the Towns of Matthews, Mint Hill and Pineville have streams within their jurisdictions identified on the N.C. 303(d) list for fecal coliform bacteria and TMDLs have been developed. In addition, Goose

Creek in the Town of Mint Hill is an identified habitat for the Carolina heelsplitter, a federally-endangered species of freshwater mussel. The Towns in northern Mecklenburg County have similar challenges. McDowell Creek in Huntersville and Cornelius as well as Long Creek and Clarke Creek in Huntersville and the Rocky River in Davidson are identified on the N.C. 303(d) list for biological impairment, fecal coliform bacteria and/or turbidity. These are all high priority issues that were taken into consideration during the stakeholder process for development of the post-construction ordinances for the Phase II jurisdictions.

7.10 Program Evaluation

The measurable goals for each BMP are described in Table 7. Other measures of success for the Post-Construction Storm Water Runoff Control Program are described below.

- Documentation of Storm Water Program Activities – As a baseline measure of success, staff will document completion of Work Plan program activities annually that demonstrate successful fulfillment of BMPs associated with this program element. All activities will be documented within EDMS.
- Structural and Non Structural BMP Evaluations – Annual inspection reports for structural BMPs submitted to CMSWS will be carefully reviewed and problems followed up on. In addition, CMSWS will inspect all structural BMPs installed for compliance with post-construction ordinance requirements at a minimum of once during the five (5) year permit term. CMSWS will also periodically inspect buffers, undisturbed open space and other non-structural BMPs to ensure their long-term effectiveness. The number of problems detected during these inspections will be tracked and compared to the number of inspections conducted as a measure of success at improving compliance.

On an annual basis, CMSWS staff will evaluate the BMPs assigned to this program and assess progress toward achieving the measureable goals from Table 7 and the measures of success described above. Recommendations for improvement will be made as necessary. During the following fiscal year, the program activities and BMPs will be modified as necessary based on the results of this evaluation in order to ensure that the specific goals and objectives of the Post-Construction Storm Water Runoff Control Program and Storm Water Plan are being effectively and efficiently fulfilled.

Section 8: Pollution Prevention/Good Housekeeping for Municipal Operations

CMSWS has developed and implemented a Pollution Prevention/Good Housekeeping Program for municipal facilities and operations. The following Sections provide a description of this program.

8.1 Program Goals and Objectives

The goal of the Pollution Prevention/Good Housekeeping Program is to reduce pollutants in storm water runoff from municipal operations. The objectives of the program are as follows:

1. Develop and implement an operation and maintenance program for facilities and operations owned and/or operated by the Phase II jurisdictions/entities that have a significant potential for generating polluted storm water runoff.
2. Train the employees at these facilities and operations to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

8.2 BMP Summary Table

Table 10 describes the BMPs implemented as part of the Pollution Prevention/Good Housekeeping Program.

Table 10: BMP Summary Table for the Pollution Prevention/Good Housekeeping Program

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
PP-1	Implement Employee Training Program	Implement a training program for employees involved in implementing pollution prevention and good housekeeping practices.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-2	Conduct Inspections of Municipal Operations	Conduct annual inspections of all municipal owned and operated facilities with the significant potential for generating polluted storm water runoff. Once every 5 years, conduct inspections of private operations located on property owned by a co-permittee that has the significant potential for generating polluted storm water runoff. Identify potential pollution sources and work with each jurisdiction/entity to ensure that these sources are eliminated. Distribute and explain written guidance materials developed in PP-1 as needed.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-3	Maintain and Update Spill Response Procedures	Develop and implement spill response procedures for municipal owned and operated facilities with the significant potential for generating polluted storm water runoff.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-4	Maintain and Implement Storm Water	Maintain, implement, evaluate annually and update as necessary Storm Water Pollution Prevention Plans (SWPPP) for municipal owned and operated facilities with the significant	X	X	X	X	X	Don Ceccarelli (Project Manager)

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
	Pollution Prevention Plans	potential for generating polluted storm water runoff. Once every 5 years, evaluate SWPPPs for private operations located on property owned by a co-permittee that has the significant potential for generating polluted storm water runoff. This SWPPP must include the frequency of inspections and routine maintenance requirements.						
PP-5	Maintain and Update an Inventory of Municipal Operations	Maintain an inventory of all facilities and operations owned and/or operated by the County, Towns, CMS and CPCC that have a significant potential for generating polluted storm water runoff, including (but not limited to) those facilities that are subject to NPDES storm water general permits or individual NPDES permits for discharges of storm water associated with industrial activity. Include in this inventory the permit number and certificate of coverage number for each facility.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-6	Develop and Implement BMPs for Streets, Roads and Parking Lots	Develop and implement BMPs to reduce polluted storm water runoff from municipally-owned streets, roads, and public parking lots. Evaluate the effectiveness of these BMPs based on cost and the estimated quantity of pollutants removed.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-7	Develop and Implement Operation and Maintenance Plans for Conveyance System	Develop and implement an O&M program for storm water sewer systems, including catch basins and conveyance systems.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-8	Pesticide, Herbicide, Fertilizer Application Management	Ensure that municipal employees and contractors are properly trained and all permits, certifications, and other compliance measures for applicators are followed.	X	X	X	X	X	Don Ceccarelli (Project Manager)
PP-9	Evaluate Effectiveness of Pollution Prevention/ Good Housekeeping Program	Evaluate the effectiveness of the program and modify as necessary.	X	X	X	X	X	Don Ceccarelli (Project Manager)

8.3 Inventory of Municipally Owned or Operated Facilities

During the first permit term, CMSWS completed an inventory of over 1530 properties owned and/or operated by the Phase II jurisdictions/entities and identified those municipal facilities and operations that have a significant potential for generating polluted storm water runoff using procedures developed by CMSWS, which are based on guidelines provided by NCDENR. This

inventory is updated annually and all identified facilities and operations are incorporated into the Pollution Prevention/Good Housekeeping Program. Tables 11, 12, 13 and 14 below include the facilities and operations identified to date. Table 11 includes a list of facilities operated by Mecklenburg County and the Towns. Five (5) private operations located on property owned by a co-permittee that has the significant potential for generating polluted storm water runoff are also included in Table 11. Tables 12 and 13 include facilities operated by CMS and CPCC, respectively. Of the facilities and operations included in Tables 11, 12 and 13, a total of four (4) are subject to NPDES storm water general or individual permits as described in Table 14. These four (4) facilities are owned and/or operated by Mecklenburg County.

As activities, operations and ownership change at these municipal facilities, CMSWS will continue to add and delete facilities from these tables. Also, beginning in FY2013, CMSWS will evaluate procedures used to determine if an operation has a significant potential to pollute and update (if necessary) the procedures used to list municipal operations. If the procedures are updated, CMSWS will re-evaluate existing municipal operations over the permit term for inclusion into the Pollution Prevention/Good Housekeeping Program.

Table 11: Municipal Operations Owned and/or Operated by the County and Towns

Facility	Contact Name & Title	Phone Number	Physical Address
Matthews Public Works	C.J. O'Neill, Town Engineer	704-847-3661	1600 Tanktown Road, Matthews
Huntersville Public Works	Kevin Fox, Engineer	704-875-6541	11316 Sam Furr Road, Huntersville
Cornelius Public Works	Ricky Overcash, Public Works Director	704-895-5212	18520 Starcreek Drive, Cornelius
Mint Hill Public Works	Dwayne Dorton, Public Works Director	704-545-9726	7151 Matthews-Mint Hill Road, Mint Hill
Davidson Public Works	Doug Wright, Public Works Director	704-892-7591	151 W. Walnut Street, Davidson
Pineville Public Works	Bobby Howington, Public Works Director	704-889-2291	402 Dover Street, Pineville
Fleet Management	Leon Miller, Division Director	704-353-1738	900 West Twelfth Street, Charlotte
Emergency Management Services	Gary Moore, Fleet & Building Manager	704-943-6000	4525 Statesville Road, Charlotte
Storm Water Operations	Eric Bulman, CPM Storm Projects	704-336-3751	5841 Brookshire Blvd., Charlotte
Parks & Recreation	Peter Cook, Park & Rec Mgr.	704-336-7762	5841 Brookshire Blvd., Charlotte
Parks & Recreation Horticulture Center	Tim Turton, Horticulture Team Leader	704-549-5617	11826 Mallard Creek Road, Charlotte
North Mecklenburg Recycling	Henry Allison, Recycling Ops Supervisor	704-622-0981	12100 Statesville Rd., Huntersville
Mecklenburg County White Goods & Tire	Henry Allison, Recycling Ops Supervisor	704-622-0981	5740 Rozzelles Ferry Road, Charlotte
GreenFiber Recovery Facility *	Ron Cobb, Mgr. Permits & Compliance	704-697-2000	809 West Hill Street, Charlotte

Facility	Contact Name & Title	Phone Number	Physical Address
Compost Central	Joe Hack, Sr. Project Manager	704-336-6513	5631 West Blvd. Charlotte
Hickory Grove Recycling	Henry Allison, Recycling Ops Supervisor	704-622-0981	8007 Pence Road, Charlotte
Harrisburg Road Landfill	Joe Hack, Sr. Project Manager	704-336-6513	7817 Harrisburg Road, Charlotte
CT Myers Golf Course *	Del Ratcliffe, President, Ratcliffe Golf Services	704-622-0105	7817 Harrisburg Road, Charlotte
Fox Hole Recycling	Henry Allison, Recycling Ops Supervisor	704-622-0981	17131 Lancaster Highway, Charlotte
Fox Hole Landfill	Joe Hack, Sr. Project Manager	704-336-6513	17131 Lancaster Highway, Charlotte
West Mecklenburg Recycling	Henry Allison, Recycling Ops Supervisor	704-622-0981	5631 West Blvd. Charlotte
Tradition Golf Course *	Larry Benson, IRI Golf Group	704-822-4899	3800 Prosperity Church Road, Charlotte
Revolution Golf Course *	Del Ratcliffe President, Ratcliffe Golf Services	704-622-0105 704-392-0018	2661 Barringer Drive, Charlotte
Sunset Hills Golf Course *	Del Ratcliffe President, Ratcliffe Golf Services	704-622-0105 704-392-0018	800 Radio Road, Charlotte

* Private operations located on property owned by a co-permittee that has the significant potential for generating polluted storm water runoff.

Table 12: Municipal Operations Owned and/or Operated by CMS

Facility	Contact Name & Title	Phone Number	Physical Address
Bain Elementary School	Glenn Warren, Environmental Specialist	980-343-1681	11524 Bain School Rd.
Bus Staging Site	Glenn Warren, Environmental Specialist	980-343-1681	11719 Downs Rd.
Independence High School	Glenn Warren, Environmental Specialist	980-343-1681	1967 Patriot Dr.
Harding/West Meck Transportation	Glenn Warren, Environmental Specialist	980-343-1681	2817 Wilkinson Blvd.
Building Services	Glenn Warren, Environmental Specialist	980-343-1681	3301 Stafford Dr.
Transportation	Glenn Warren, Environmental Specialist	980-343-1681	3901, 3903, 3905 Craig Ave,
Northpointe Transportation	Glenn Warren, Environmental Specialist	980-343-1681	4440 Northpointe Industrial Blvd.
Orr Road Transportation	Glenn Warren, Environmental Specialist	980-343-1681	6500 Orr Rd.

Table 13: Municipal Operations Owned and/or Operated by CPCC

Facility	Contact Name & Title	Phone Number	Physical Address

Facility	Contact Name & Title	Phone Number	Physical Address
CPCC Central Campus	Rich Rosenthal, Associate V.P. for Facilities	704-330-6166	East 7th Street (1203 Elizabeth Avenue)
CPCC North Campus	Rich Rosenthal, Associate V.P. for Facilities	704-330-6166	11930 Verhoeff Drive
CPCC Cato Campus	Rich Rosenthal, Associate V.P. for Facilities	704-330-6166	9400 East WT Harris Blvd.
CPCC Harper Campus	Rich Rosenthal, Associate V.P. for Facilities	704-330-6166	317 West Hebron Street

Table 14: Municipal Operations that have been Issued Storm Water Permits

Facility	Permit Number	Contact Name & Title	Phone Number	Physical Address
Mecklenburg County and Towns Phase II MS4 permit	NCS000395	Dave Canaan, Director of Water & Land Resources	704-336-3736	700 North Tryon St. Charlotte
Compost Central (composting & recycling facility)	NCS000382	Joe Hack, Sr. Project Manager	704-336-6513	5631 West Blvd. Charlotte
Fleet Management Facility (vehicle, equip. maintenance)	NCG080063	Vic Reese, Division Director	704-353-1738	900 West Twelfth Street, Charlotte
Fox Hole Landfill (Hwy 521 Landfill)	NCG120068	Joe Hack, Sr. Project Manager	704-336-6513	5631 West Blvd. Charlotte

8.4 Training

CMSWS conducts an annual training seminar for the employees involved in implementing pollution prevention and good housekeeping practices at the municipally-operated facilities listed in Tables 11, 12, 13, and 14 above. Privately-operated facilities located on properties owned by a co-permittee as identified in Table 11 are responsible for conducting their own training. Training is also provided for other employees involved in municipal operations that have the potential to cause negative water quality impacts. The goal of this training seminar is to inform employees of the actions necessary to reduce the discharge of pollution and protect water quality from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, storm sewer system maintenance, and other municipal activities as well as the steps for reporting suspected illicit discharges and actions required for compliance with permit requirements. The following topics are covered in the training seminar:

1. Overview of general water quality conditions in Mecklenburg County and reasons for protecting water quality.
2. Description of common pollutants, their sources and water quality impacts associated with illicit discharges.
3. Description of the actions that each facility and/or operation should take to reduce discharges of pollutants, including good housekeeping and proper herbicide, pesticide, and fertilizer application and management.
4. Description of effective spill prevention measures that should be employed at each facility and/or operation.

5. Discussion of typical pollution sources at municipal operations and the specific action that should be taken to eliminate these sources and protect water quality.
6. Description of techniques for identifying and reporting illicit discharges and connections. This training is a permit requirement for all municipal 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.
7. Description of new requirements in the permit issued in November 2011 as follows:
    - Post-construction storm water controls for municipally-owned transportation projects (see Section 7.4).
    - Minimizing pollution from municipally-owned streets, roads, and public parking lots (see Section 8.6).
    - Operation and maintenance of municipally owned and maintained storm sewer system including catch basins and conveyance systems (see Section 8.7).
    - Management of pesticide, herbicide and fertilizer application (see Section 8.8).
8. Review of the Storm Water Pollution Prevention Plan and/or Spill Response Plan.
9. Explanation of the consequences of failing to control pollutants at facilities and/or pollutants associated with municipal operations.

The above training is conducted separately from the outreach programs conducted for the IDDE Program previously described under program element ID-5, which includes training for municipal 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. The training for the Pollution Prevention and Good Housekeeping Program described under program element PP-1 focuses on municipal staff involved in implementing pollution prevention and good housekeeping practices. Due to the very distinct differences in the two (2) target audiences it is necessary to separate this training.

8.5 Operation and Maintenance Programs for Municipal Operations

Storm Water Pollution Prevention Plans (SWPPPs) have been developed and implemented that describe the Operation and Maintenance Programs implemented at the facilities listed in Tables 11, 12, 13, and 14 above for the purpose of reducing the discharge of pollution in storm water runoff. At a minimum, SWPPPs include the following:

1. Site Map that shows the location of the facility and all access roads. The map must also indicate the name of the receiving stream and specify if it is impaired and the source of that impairment. A USGS quadrangle map is acceptable.
2. Site Plan that shows the location of all structures on the site and the general uses of these structures (i.e. storage, vehicle maintenance, offices, etc.) as well as the locations of all storm water inlets and outlets at or adjacent to the facility, potential pollution sources and access on and off the site.
3. Storm Water Management Plan that includes an evaluation of BMPs (if any) on the site, and descriptions of storage practices, waste handling and disposal methods and the potential on-site pollution sources including exposed significant materials.
4. Spill Prevention and Response Plan that identifies the specific actions to be taken to prevent and respond to spills, including clean up contractors and their contact information, etc.

5. Preventative Maintenance and Good Housekeeping Plan that describes the measures taken to prevent or minimize contamination of storm water runoff from areas identified as potential pollution sources, including but not limited to areas used for vehicle and equipment cleaning. The Plan must also describe the type and frequency of site inspections and routine maintenance and the staff responsible for performing these activities.
6. Training Schedule that describes the employees that will receive training, the type of training to be provided and the schedule for that training. This training must include a discussion of all the material contained in the Storm Water Pollution Prevention Plan. All staff must be made aware of the location of this Plan at the facility.

CMSWS conducts inspections of all the facilities listed in Tables 11, 12, 13 and 14 above. Facilities operated by a co-permittee are inspected annually and facilities operated by private entities on property owned by a co-permittee are inspected once every 5 years. These inspections include the following:

1. Thorough assessment of facility operations, maintenance activities, maintenance schedules and long term inspection procedures for controls to reduce floatables and other pollutants. Pollution sources will be identified and minimized to the maximum extent practicable.
2. Evaluation and documentation of the procedures for the disposal of waste removed from the MS4 and municipal operations, including street sweeping wastes, dredge spoil, accumulated sediment, floatables, and other debris, as applicable.
3. Visual evaluation of water quality conditions downstream of the facility and identification and minimization of pollution sources to the maximum extent practicable.
4. Review of spill response and clean up procedures. Procedures will be revised as necessary to ensure protection of water quality.
5. Evaluation of housekeeping practices that will be revised as necessary to minimize potential pollution sources to the maximum extent practicable.
6. Identification of all potential discharges of pollution, including parking lots, maintenance and storage yards, waste transfer stations, fleet and maintenance facilities, outdoor storage areas, salt/sand storage areas, etc.
7. Evaluation of areas used for vehicle and equipment cleaning to ensure that all discharges are to the sanitary sewer system.
8. Identification and elimination of dry weather discharges.
9. Review of Storm Water Pollution Prevention Plans annually.
10. Review of educational materials.
11. Review the timeliness of any monitoring reports required by the NPDES permits issued to the facilities listed in Table 14 above.
12. Evaluation of the co-permittees status regarding compliance with the new November 11, 2011 permit requirements as described in PP-1 above, including: post-construction storm water controls for transportation projects; maintenance of municipally-owned streets, roads, and public parking lots; operation and maintenance of municipally-owned or maintained catch basins and conveyance systems; and management of pesticide, herbicide and fertilizer application.
13. Completion of a written report documenting findings and listing actions taken to minimize pollution sources and protect water quality to the maximum extent practicable.

Additional inspection details are contained in the Storm Water Inspection Checklist that is reviewed and updated as necessary as part of the Phase II Work Plan developed and implemented annually by CMSWS. A copy of this checklist is provided in Appendix B. Follow up inspections are conducted as necessary to ensure the minimization of all potential pollution sources to the maximum extent practicable and documentation of corrective actions. The supervisor of each facility will be contacted and provided with a copy of the written report.

The co-permittees are required to maintain an inventory of projects with post-construction structural storm water control measures installed and implemented at new development and redeveloped sites, including both public and private sector sites that are covered by post-construction ordinance requirements. Co-permittees are also required to maintain and implement an Operation & Maintenance Program for these BMPs, including the frequency of inspections and routine maintenance requirements. All BMPs must be inspected and maintained in accordance with this schedule. Section 7.4 and 7.6 above describes how these requirements are being fulfilled for the public and private sector, respectfully.

8.6 Minimizing Pollution from Municipally-Owned Streets, Roads, and Parking Lots

CMSWS has evaluated BMPs for reducing the discharge of floatables and other pollutants from municipally owned streets, roads, and public parking lots and has selected the following for use by the Phase II jurisdictions/entities:

- Ordinances – Each co-permittee will continue enforcement of existing litter and illicit discharge ordinances adopted by each jurisdiction.
- Solid Waste Collection and Recycling – Each co-permittee will continue existing solid waste collection and recycling services.
- Public Education – Each co-permittee will continue public education to encourage citizens to properly dispose of waste and to recycle as many materials as possible.
- Parking Lot Cleaning – Each co-permittee will clean parking lots on an as needed basis particularly after special events and festivals where additional trash loading is expected. Each co-permittee will continue providing trash receptacles at public parking lots and performing scheduled manual trash pick-up.
- Street Sweeping – With the exception of the Town of Huntersville, each co-permittee will sweep municipal streets at a minimum of twice annually, including once in the spring (when citizens are fertilizing their lawns) and once in the fall (after the leaves drop). The Town of Huntersville will sweep at least 25 percent of their municipal streets every year. Each co-permittee will maintain records documenting the date, location and number of curb miles swept. By July 31st of each year, the Towns will provide a report to CMSWS summarizing these records for the past 12 months for inclusion in the annual report to NCDWQ.
- Waste Disposal – Each co-permittee will be responsible for characterizing the street sweeping waste that they collect and for proper disposal of this waste based on this characterization. CMSWS will be contacted if unusual conditions are observed with the collected waste, such as the presence of oil or chemicals, unusual odors or discoloration, etc., so that testing can be performed prior to disposal. Recycling or composting is the preferred method for handling street sweeping waste. Any disposal should occur at an

approved landfill. The land application of this waste onto public or private property is discouraged; however, if this does occur the application area should be a minimum of 50 feet from any stream or other water body and proper erosion control measures must be utilized to prevent off-site discharges.

By November 11, 2013, the above BMPs will be implemented by the Phase II jurisdictions/ entities. CMSWS will assess the effectiveness of these BMPs based on cost and the estimated quantity of pollutants removed as part of its annual evaluation of the Pollution Prevention and Good Housekeeping Program. CMSWS will change the Storm Water Plan as necessary based on the results of this evaluation and will work with the Phase II jurisdictions/entities to ensure the timely implementation of these changes.

8.7 Operation and Maintenance of Municipally Owned Storm Sewer System

CMSWS has evaluated BMPs for reducing the discharge of floatables and other pollutants from the municipally-owned storm sewer system, including catch basins and conveyance systems and has selected the following for use by the Phase II jurisdictions/entities:

- Catch Basin and Conveyance System Cleaning – Each co-permittee to continue catch basin and conveyance system cleaning in identified problems areas for blockages and flooding. Maintain records documenting the date, location and number of inlets and pipe miles cleaned. By July 31st, provide a report to CMSWS summarizing these records from the previous fiscal year for inclusion in the annual report to NCDWQ.
- Waste Disposal – Same as for 8.6 above.

Before November 11, 2012, the above BMPs will be implemented by the Phase II jurisdictions/entities. CMSWS will assess the effectiveness of these BMPs as part of its annual evaluation of the Pollution Prevention and Good Housekeeping Program. CMSWS will change the Storm Water Plan as necessary based on the results of this evaluation and will work with the Phase II jurisdictions/entities to ensure the timely implementation of these changes.

8.8 Management of Pesticide, Herbicide and Fertilizer Application

CMSWS has evaluated BMPs for ensuring that municipal employees and contractors are properly trained in pesticide, herbicide and fertilizer application as well as for ensuring compliance with all applicable permits and certifications. Based on this evaluation, the following BMPs have been selected for use by the Phase II jurisdictions/entities:

- Training – Proper pesticide and fertilizer application is covered as a component of the municipal employee training described in Section 8.4.
- Applicator Licenses – Each co-permittee is responsible for verifying that an employee or contractor has the proper license and/or certification for the pesticide and/or herbicide applications to be performed. This is best achieved by collecting and storing copies of licenses and certifications. These licenses and certifications should be updated at least annually and within 30 days of hiring a new employee or contractor. This documentation must be available in the event of an audit. Training is required for obtaining and renewing an applicator license; therefore, by verifying a license the co-permittee is also verifying that the proper training has been received.

- Treatment Areas – Each co-permittee is responsible for maintaining a list of all locations treated with pesticides listed in Table 15 and documenting the date and quantity of material applied. If either or both of the following conditions apply, CMSWS must be contacted prior to initiating application activities so that the co-permittee can obtain guidance and information regarding compliance with the applicable procedures contained within general permit NCG560000:
    - Co-permittee believes a treatment event may reasonably exceed an annual applicable threshold quantity as described in Table 15.
    - Co-permittees discharges pesticide in response to a declared pest emergency situation.

Table 15: Annual Treatment Area Thresholds

Pesticide Use	Annual Threshold
Mosquitoes and Other Flying Insect Pests	15,000 acres of treatment area (adulticide applications only)(1)
Aquatic Weed and Algae Control - In Water	1,000 acres of treatment area
Aquatic Weed and Algae Control - At Water's Edge	200 linear miles of treatment area at water's edge(2)
Aquatic Nuisance Animal Control - In Water	200 acres of treatment area
Aquatic Nuisance Animal Control - At Water's Edge	200 linear miles of treatment area at water's edge(2)
Forest Canopy Pest Control	10,000 acres of treatment area
Intrusive Vegetation Control	500 linear miles(3)

(1) Multiple applications to the same area are added together only for mosquito and other flying insect pest control.
(2) Applications that occur at the water's edge in a ditch or canal are counted only once when one or both sides are treated.
(3) Applications to both sides of a road are added together for the total miles.

The N.C. Pesticide Board regulates pesticide application in the Goose Creek watershed in 02 NCAC 09L .2201 through .2203. These rules apply to critical habitat areas in Goose Creek outside of the Phase II jurisdiction in Mecklenburg County. However, since critical habitat areas are prone to change, these rules will be applied in the Phase II jurisdiction/entities as one of the BMPs for this Storm Water Plan as described in Table 16.

Table 16: Limits on Pesticide Applications in the Goose Creek Watershed

Pesticide Active Ingredient	Code/Limitations
Azinphos-methyl	(2)
Benomyl	(1)
Captan	(1)
Carbaryl	(2)
Carbofuran	(1)
Chlorpyrifos	(3)
Diazinon	(2)
Dicofol	(2)
Dimethoate	(2)
Endosulfan	(2)
Esfenvalerate	(1)
Ethion	(2)
Ethoprop	(1)
Fenamiphos	(2)
Fonofos	(2)
Malathion	(2)
Methidathion	(2)
Methomyl	(1)

Pesticide Active Ingredient	Code/Limitations
Mevinphos	(2)
Naled	(1)
Parathion (ethyl)	(2)
Pendimethalin	(2)
Permethrin	(1)
Phorate	(1)
Phosmet	(1)
Phosphamidon	(1)
Propiconazole	(1)
Pyrethrins	(2)
Terbufos	(2)
Trichlorfon	(2)

Code/Limitations:

(1) This pesticide shall not be applied within 20 yards from the edge of water for ground applications and within 100 yards for aerial applications;

(2) This pesticide shall not be applied within 40 yards from the edge of water for ground applications and within 200 yards for aerial applications;

(3) This pesticide shall not be applied within 100 yards from the edge of water for ground applications and within one-fourth mile for aerial applications.

By November 11, 2012, the above BMPs will be implemented by the Phase II jurisdictions/entities. CMSWS will assess the effectiveness of these BMPs as part of its annual evaluation of the Pollution Prevention and Good Housekeeping Program. CMSWS will change the Storm Water Plan as necessary based on the results of this evaluation and will work with the Phase II jurisdictions/entities to ensure the timely implementation of these changes.

8.9 Minimizing Pollution from Vehicle and Equipment Cleaning Areas

Practices have been employed by the Phase II jurisdictions/entities to ensure that the wash water generated from vehicle and equipment cleaning activities does not result in point source discharges or contamination of storm water runoff. The standard practice is for vehicle and equipment cleaning activities to occur indoors with wash water discharged to the sanitary sewer system. In situations where this practice is infeasible, the wash water is collected, pumped and contained for recycling or for transport and disposal into the sanitary sewer system. These types of cleaning activities are typically performed on a tarp and wash water is collected using a boom. A vacuum is then used to pump the wash water into containers where it can be recycled or transported off-site for disposal into the sanitary sewer system. In situations where cleaning is performed in the vicinity of a storm drainage collection system or drainage collection feature such a ditch or swale, the storm drain is covered or the drainage feature is blocked during cleaning activities and ponded water is collected and removed for proper disposal or recycling prior to the removal of the drain cover or blockage. For rinsing operations that do not use high temperature water, detergents or other cleaning agents, wash water is discharged to a grassed area where it is filtered into the soil and not allowed to flow to storm drains or surface waters.

During the inspections described in Section 8.5 above, CMSWS will evaluate the areas used for vehicle and equipment cleaning to ensure that all discharges are to the sanitary sewer system in accordance with permit requirements.

8.10 Waste Disposal

During the inspections described in Section 8.5 above, CMSWS will evaluate methods for disposing of waste removed from each jurisdiction's MS4 and municipal operations, including dredging spoil, accumulated sediments, cooking oils, trash, wash water, and debris. Actions will be taken as necessary to minimize pollution sources associated with these waste storage and disposal measures by working closely with the facility supervisor and/or public works director.

8.11 Flood Management Projects

CMSWS designs and constructs flood management and stream restoration projects in the Mecklenburg County Phase II jurisdictions as well as the City of Charlotte. Where practicable, CMSWS incorporates structural BMPs into these projects to reduce pollutant loads and improve aquatic habitat. In some cases, chemical, physical and/or biological monitoring is performed upstream, downstream and within the boundaries of the project. This monitoring usually begins prior to the initiation of construction activities and continues throughout the duration of the project and for a minimum of one year following project completion. Data generated from these monitoring activities is evaluated to identify those construction techniques that are most effective at reducing negative water quality impacts for use in future projects. Figure 8 illustrates one such project in the Hidden Valley community in Charlotte where wet ponds, wetlands and stream meanders were incorporated into a flood management project for enhancement of water quality.

Figure 8: Hidden Valley Project in Charlotte

8.12 Decision Process

The individual BMPs for the Pollution Prevention/Good Housekeeping Program were selected because they have proven effective when used by the City of Charlotte for compliance with their Phase I Permit requirements. CMSWS's Project Manager was selected as the person responsible for implementation of the BMPs for the Pollution Prevention/Good Housekeeping Program due to their knowledge of proper facility operation and pollution prevention.

8.13 Program Evaluation

The measurable goals for each BMP are described in Table 10. Other measures of success for the Pollution Prevention and Good Housekeeping Program are described below.

- Documentation of Storm Water Program Activities: As a baseline measure of success, staff will document completion of Work Plan program activities annually that demonstrate successful fulfillment of BMPs associated with this program element. All activities will be documented within EDMS.
- Facility Inspection Findings: If the program is successful, the number of findings related to storm water pollution should decrease each year following employee training and facility inspections. Additionally, repeat findings at a facility should be minimized as a measure of success. CMSWS will track these measures and adjust the program as necessary to improve effectiveness.

On an annual basis, CMSWS staff will evaluate the BMPs assigned to this program and assess progress toward achieving the measureable goals from Table 10 and the measures of success described above. Recommendations for improvement will be made as necessary. During the following fiscal year, the program activities and BMPs will be modified as necessary based on the results of this evaluation in order to ensure that the specific goals and objectives of the Pollution Prevention and Good Housekeeping Program and Storm Water Plan are being effectively and efficiently fulfilled.

Section 9: Total Maximum Daily Loads (TMDLs)

CMSWS has developed and implemented a program for addressing non-point source pollutant loading associated with the Total Maximum Daily Loads (TMDLs) approved by EPA for the receiving waters of the Phase II MS4 storm water discharges and/or waters downstream of these discharges. The following Sections provide a description of this program.

9.1 Program Goals and Objectives

The goal of the TMDL Program is to reduce non-point source pollutant loading to the receiving stream to the maximum extent practicable. The objectives of the program are as follows:

1. Determine whether a TMDL has been developed and approved or established by EPA for the receiving waters of the MS4 storm water discharges and/or downstream waters into which the receiving waters directly flow.
2. Develop and implement BMPs to reduce non-point source pollutant loading to the maximum extent practicable if the TMDLs identified in #1 above include an approved Waste Load Allocation (WLA) assigned to storm water.
3. Tailor and/or expand BMPs within the scope of the six (6) minimum measures to enhance water quality recovery strategies to the maximum extent practicable if the TMDLs identified in #1 above do not include an approved Waste Load Allocation (WLA) assigned to storm water.

The 303(d) list for N.C. will be evaluated at least annually to identify those impaired waters with an approved TMDL that are the responsibility of the Phase II jurisdictions. Compliance with a TMDL is achieved by developing and implementing appropriate BMPs to reduce non-point source pollutant loading to the maximum extent practicable. While improved water quality is the expected outcome, the NPDES MS4 Permit obligation is to reduce non-point source pollutant loading to the maximum extent practicable. The Phase II jurisdictions/entities are not responsible for attaining water quality standards at the ambient monitoring stations. Attaining the water quality standards will only be achieved through reduction from the MS4, along with reductions from other nonpoint source contributors.

9.2 BMP Summary Table

Table 17 describes the BMPs implemented as part of the TMDL Program.

Table 17: BMP Summary Table for the TMDL Program

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
IW-1	Evaluate Impaired Waters	Evaluate the 303(d) list to identify those impaired waters with an approved TMDL that are the responsibility of the Phase II jurisdictions.	X	X	X	X	X	David Kroening (Project Manager)
IW-2	Develop and Implement Water Quality Recovery Plans	Develop and implement written Water Quality Recovery Plans (WQRPs) for those watersheds with TMDLs that include a Waste Load Allocation (WLA) assigned to storm water.	X	X	X	X	X	David Kroening (Project Manager)

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff
			1	2	3	4	5	
IW-3	Develop and Implement Water Quality Recovery Strategies	Develop and implement Water Quality Recovery Strategies (WQRSs) for those watersheds with TMDLs that do not include a Waste Load Allocation (WLA) assigned to storm water.	X	X	X	X	X	David Kroening (Project Manager)
IW-4	Assess, Report and Modify WQRPs	Assess the effectiveness of the WQRPs and WQRSs, summarize in a written report and submit the report to NCDENR.	X	X	X	X	X	David Kroening (Project Manager)

9.3 Approved TMDLs Applicable to Mecklenburg County's Phase II Jurisdictions

Table 18 describes the receiving waters for Mecklenburg County's Phase II MS4 storm water discharges and/or downstream waters into which the receiving waters directly flow where a TMDL has been developed and approved by EPA based on the N.C. 2010 Final 305(b) integrated report. Figure 9 shows the locations of these receiving waters and their corresponding watershed areas in the Phase II jurisdictions. Specific requirements are contained in the Phase II Permit for these waters depending on whether the TMDL contains a Waste Load Allocation (WLA) assigned to storm water as described in Sections 9.4 and 9.5.

Table 18: Approved TMDLs for Mecklenburg County's Phase II Jurisdictions

AU Name	AU Number	TMDL Parameter	Reason for Rating	Use Category	Integrated Reporting Category	MS4 Allocation?
Long Creek	11-120-(2.5)	Turbidity	Standard Violation	Aquatic Life	4t(2)	Yes
Little Sugar	11-137-8b	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
Little Sugar	11-137-8c	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	Data Inconclusive	Aquatic Life	4t(2)	No
		Low DO	No Criteria Exceeded	Aquatic Life	1t(1)	No
McAlpine Creek (Waverly Lake)	11-137-9a	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
		Low DO	No Criteria Exceeded	Aquatic Life	1t(1)	No
McAlpine Creek (Waverly Lake)	11-137-9c	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
		Low DO	No Criteria Exceeded	Aquatic Life	1t(1)	No
McAlpine Creek (Waverly Lake)	11-137-9d	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
		Low DO	No Criteria Exceeded	Aquatic Life	1t(1)	No
Sugar Creek	11-137b	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
Sugar Creek	11-137c	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No

AU Name	AU Number	TMDL Parameter	Reason for Rating	Use Category	Integrated Reporting Category	MS4 Allocation?
McKee Creek	13-17-8-4	Fecal Coliform	Standard Violation	Recreation	4t(2)	Yes
Rocky River	13-17a	Fecal Coliform	Standard Violation	Recreation	4t(2)	Yes
Steele Creek	11-137-10	Fecal Coliform	Standard Violation	Recreation	4t(3)	Yes
Lake Wylie	11-122	Chlorophyll a	No Criteria Exceeded	Aquatic Life	1t(1)	No
Lake Wylie	11-(123.5)a	Chlorophyll a	Potential Standard Violation	Aquatic Life	3t(4)	No
Goose Creek	13-17-18a	Fecal Coliform	No Criteria Exceeded	Recreation	1t(1)	Yes

(1) Parameter is supporting uses in the AU and there is an approved TMDL for the parameter.
(2) Parameter assessment is impaired and there is an approved TMDL for the parameter.
(3) This is a TMDL for South Carolina waters. Parameter assessment is impaired and there is an approved TMDL for the parameter.
(4) Parameter is Not Rated in the AU and there is an approved TMDL for the parameter.

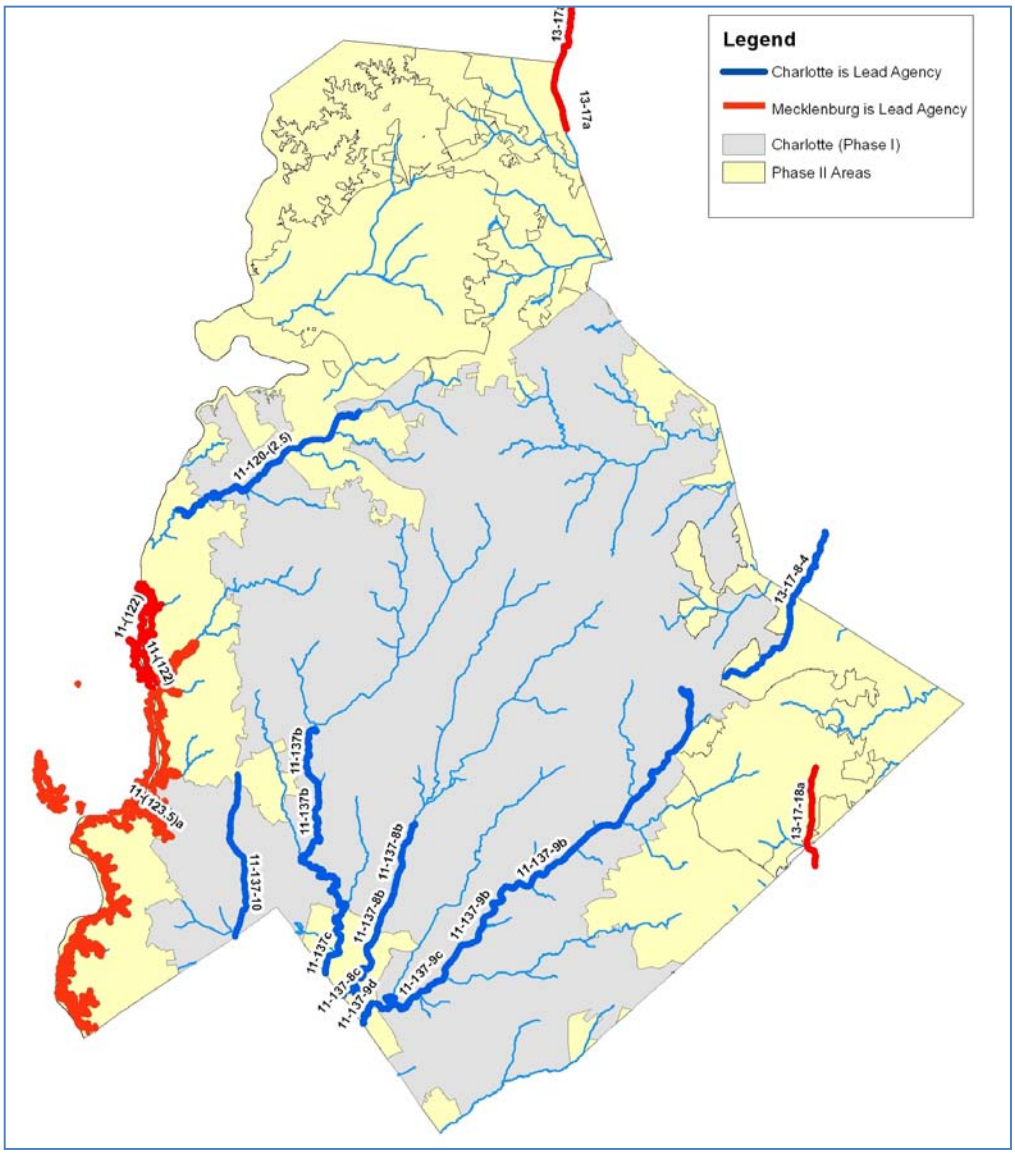

Figure 9: Surface Waters in Phase II Jurisdictions with Approved TMDLs

9.4 Water Quality Recovery Plans (WQRP)

Mecklenburg County's Phase II Permit requires the development and implementation of Water Quality Recovery Plans (WQRP) if the Phase II jurisdictions are or become subject to a TMDL that includes an approved Waste Load Allocation (WLAs) assigned to storm water. Table 19 describes the content of the WQRP as specified in the Phase II Permit as well as the associated schedule for completion.

Table 19: WQRP Requirements

Requirement	Schedule
1. Description of the watershed.	June 30, 2012
2. Map of the watershed showing streams and outfalls.	June 30, 2012
3. Locations of currently known major outfalls with the potential of contributing to the cause(s) of the impairment to the stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.	June 30, 2012
4. Schedule to discover and locate other major outfalls not included in #3 above.	June 30, 2012
5. Description of existing measures being implemented to enhance water quality.	June 30, 2012
6. Explanation as to how the measures in #5 above are designed to enhance water quality.	June 30, 2012
7. Assessment of available monitoring data. Where long-term data is available, this assessment should include an analysis of the data to show trends.	June 30, 2013
8. Development and submittal to NCDENR of a Monitoring Plan for each pollutant of concern or cause of impairment as specified in the TMDL. Implementation of the Monitoring Plan is required as additional outfalls are identified and as accumulating data may suggest. Following any review and comment by NCDENR, changes are to be incorporated into the Monitoring Plan and implementation is to occur within six (6) months. Modifications to the monitoring plan shall be approved by NCDENR. Upon request, the requirement to develop a Monitoring Plan may be waived by NCDENR if the existing and proposed measures are determined to be adequate to enhance water quality and reduce non-point source pollutant loading to the maximum extent practicable.	June 30, 2013
9. Description of additional measures to be implemented to enhance water quality.	June 30, 2014
10. Explanation as to how the measures in #9 above are designed to enhance water quality.	June 30, 2014
11. Description of activities to be implemented within the remainder of the permit term to enhance water quality.	June 30, 2015
12. Identification of a schedule for completing activities described in #11 above.	June 30, 2015
13. Description of methods for tracking and reporting successes designed to reduce non-point source pollutant loading to the maximum extent practicable. Successes could include increased inspections, expanded and/or tailored BMPs within the scope of the six (6) minimum measures, structural and non-structural BMPs installed and/or implemented, including retrofits, and strategies developed and implemented for development and redevelopment that include green infrastructure and LID practices.	June 30, 2015
14. Annual assessment of the program to enhance water quality and submittal of a report of the assessment to NCDENR. Any monitoring data and information generated from the previous year are to be submitted with each annual report.	Before October 1st of each year

Table 20 describes the receiving waters for storm water discharges from Mecklenburg County's Phase II MS4s where this requirement applies. The following subsections describe how this requirement is being fulfilled for these applicable waters.

Table 20: Waters that Require Water Quality Recovery Plans

AU Name	AU Number	TMDL Parameter	Reason for Rating	Use Category	Integrated Reporting Category	MS4 Allocation?
Long Creek	11-120-(2.5)	Turbidity	Standard Violation	Aquatic Life	4t(2)	Yes
McKee Creek	13-17-8-4	Fecal Coliform	Standard Violation	Recreation	4t(2)	Yes
Rocky River	13-17a	Fecal Coliform	Standard Violation	Recreation	4t(2)	Yes
Steele Creek	11-137-10	Fecal Coliform	Standard Violation	Recreation	4t(3)	Yes
Goose Creek	13-17-18a	Fecal Coliform	No Criteria Exceeded	Recreation	1t(1)	Yes

(1) Parameter is supporting uses in the AU and there is an approved TMDL for the parameter.
(2) Parameter assessment is impaired and there is an approved TMDL for the parameter.
(3) This is a TMDL for South Carolina waters. Parameter assessment is impaired and there is an approved TMDL for the parameter.

9.4.1 Long, McKee and Steele Creeks

Long, McKee and Steele Creeks have approved TMDLs that include storm water waste load allocations for turbidity and fecal coliform bacteria, respectively. The majority of the watershed areas for these creeks lies within the City of Charlotte's Phase I jurisdiction but a portion is also located in the Phase II jurisdictions for the Town of Huntersville for Long Creek and Mecklenburg County for McKee and Steele Creeks. The City of Charlotte developed WQRPs for Long and McKee Creeks in June 2009 for compliance with their Phase I Permit requirements. A WQRP is currently under development for Steele Creek. Instead of developing and implementing separate WQRPs for these creeks, the Phase II jurisdictions have reached an agreement with the City of Charlotte to partner on the implementation of their existing plans with the City taking the lead.

9.4.2 Rocky River

The Rocky River has an approved TMDL that includes a storm water waste load allocation for fecal coliform bacteria, which requires the development of a WQRP. Table 19 describes the required components of the WQRP and the schedule for completion. Requirements 1 through 6 in this table have been completed as of May 2012. The other requirements in this table will be completed for the Rocky River as scheduled.

9.4.3 Goose Creek

A fecal coliform TMDL was developed for Goose Creek in April 2005 and subsequently approved by the U.S. Environmental Protection Agency in July 2005. The TMDL applies to Goose Creek segments 13-17-18a and 13-17-18b. On August 10, 2006, NCDENR submitted a letter to CMSWS requiring the development of a Water Quality Recovery Program for fecal coliform bacteria impairment in Goose Creek. In September 2006, a Water Quality Recovery Program was implemented by CMSWS and the Town of Mint Hill in partnership with the Towns of Stallings and Indian Trail (both located in Union County). In the 2010 version of the 303d List, the fecal coliform impairment listing for the portion of Goose Creek in Mint Hill and Mecklenburg County was moved from Category 4t to Category 1t (no criteria exceeded). As a result, CMSWS and the Town of Mint Hill discontinued the implementation of the Water

Quality Recovery Program following approval from NCDENR and subsequently implemented expanded BMPs within the scope of the six (6) minimum measures to enhance water quality recovery efforts for reducing fecal coliform levels in Goose Creek. The specific expanded BMPs currently being implemented in Goose Creek are scribed below.

1. Public Education and Outreach: CMSWS and the Town of Mint Hill will continue public education and outreach in the Goose Creek Watershed through articles in the Mint Hill newsletter. The articles will focus on the continued implementation of practices targeted at limiting fecal coliform in storm water runoff. Specifically, proper pet waste disposal, maintenance of septic systems and green infrastructure will be focused upon. Newsletter articles will be distributed to residents in the Goose Creek Watershed promoting the sale of rain barrels and tree seedlings as well as encouraging the voluntary installation of rain gardens at private residences. A newsletter article will also be distributed regarding the proper disposal of pet waste and maintenance of septic systems.

2. Public Participation and Involvement: Residents and landowners in the Goose Creek Watershed will be targeted for voluntary participation in measures designed to minimize or reduce fecal coliform bacteria in storm water runoff as follows:
    - CMSWS and the Town of Mint Hill will partner with the Mecklenburg County Soil and Water Conservation District to sale rain barrels and tree seedlings in the Goose Creek Watershed as promoted in the newsletter article described in #1 above. These activities will occur in the fall and/or spring.
    - CMSWS and the Town of Mint Hill will work with residents to install rain gardens at private residences as promoted in the newsletter article described in #1 above. Mecklenburg County will provide free assistance with the design of the rain garden that the resident will have to install at their expense. These activities will occur in the fall and/or spring.

3. Illicit Discharge Detection & Elimination: CMSWS maintains two (2) monitoring sites in the Goose Creek Watershed. Monitoring site #MY14 is located on Duck Creek (tributary of Goose Creek) at the Mecklenburg/Union County line and #MY9 is located at Goose Creek and Stevens Mill Road. These sites are sampled monthly on a fixed interval regardless of weather conditions. Among other parameters, the samples are analyzed for fecal coliform bacteria. Sample results are reviewed for high levels of fecal coliform bacteria and, if found, follow up activities are assigned to CMSWS staff for the purpose of identifying and eliminating pollution sources in accordance with the established IDDE protocols.

4. Construction Site Runoff Control: CMSWS and the Town of Mint Hill recognize the Goose Creek Watershed as a Critical Area for the control of erosion. Therefore, all new sediment and erosion control plans submitted for land development projects in the watershed are required to contain the following enhanced erosion control measures:
    - Baffles or fore bays shall be installed in all sediment basins.
    - Surface water draw down devices (risers or skimmers) shall be installed in all sediment basins.
    - Polyacrylamides (PAM) shall be used to reduce turbidity and suspended solids

whenever a sediment trap, basin, pit, hole or building foundation is being pumped out to remove sediment laden water. This activity must be inspected and approved by the Mecklenburg County erosion control inspector.

- Double silt fence shall be used along wetlands, streams, lakes or other surface water bodies as well as adjacent to all S.W.I.M. Buffers. High hazard silt fence will be installed as determined necessary by the field inspector.
- The amount of uncovered area at any one time shall be limited to no more than 20 acres.
- A 10-foot undisturbed buffer shall be provided around the outside edge of drainage features such as ephemeral, intermittent and perennial streams, ponds and wetlands. Incidental drainage improvements or repairs will be permitted within the buffer as approved by Mecklenburg County staff.
- Installation of temporary ground cover or seeding must be performed within five (5) working days or slope drains installed after fill slopes are brought up in height.
- Permanent terraces shall be installed on all slopes over 10 feet in height to reduce runoff velocity coming down the slopes.

5. Post Construction Runoff Control: NCDENR developed a site-specific management plan for protection of the Carolina heelsplitter in Goose Creek under 15A NCAC 02B .0601, 15A NCAC 02B .0602, 15A NCAC 02B .0603, 15A NCAC 02B .0604, and 15A NCAC 02B .0605 effective January 1, 2009. The buffer requirements for the plan were developed under 15A NCAC 02B .0606, 15A NCAC 02B .0607, 15A NCAC 02B .0608, and 15A NCAC 02B .0609 effective February 1, 2009. The Town of Mint Hill subsequently modified its Post-Construction Storm Water Ordinance to comply with the site-specific management plan requirements. On October 30, 2009, CMSWS submitted a written request to NCDENR for delegation of authority to enforce the site specific plan on behalf of the Town of Mint Hill. On January 14, 2010, the N.C. Environmental Management Commission approved the delegation of authority and subsequently CMSWS has enforced the Goose Creek site specific management plan as a component of Mint Hill's Post-Construction Storm Water Ordinance. This Ordinance is available at the following website: http://stormwater.charmeck.org (select "Regulations", select "Post-Construction Programs & Manuals", select "Mecklenburg, Towns of…", select "Post-Construction Storm Water Ordinances", select "Mint Hill").

6. Pollution Prevention/Good Housekeeping: The Town of Mint Hill sweeps its municipal streets in the Goose Creek Watershed at a minimum of twice a year. Catch basins are cleaned by the Town on an as needed basis. Mint Hill maintenance staff receives annual training regarding measures necessary to reduce storm water pollutants from municipal operations. No municipal facilities are located in the Goose Creek Watershed.

9.5 Water Quality Recovery Strategies (WQRS)

Mecklenburg County's Phase II Permit requires the development and implementation of Water Quality Recovery Strategies (WQRS) if the Phase II jurisdictions are or become subject to a TMDL that does not include an approved Waste Load Allocation (WLAs) assigned to storm water. The WQRS includes tailored and/or expanded BMPs within the scope of the Phase II

Permit's six (6) minimum measures that are designed to enhance water quality recovery efforts as necessary to reduce storm water pollutant loads to the maximum extent practicable for the parameter(s) included in the TMDL. Table 21 describes the receiving waters for storm water discharges from Mecklenburg County's Phase II MS4s where this requirement applies. The following subsections describe how this requirement is being fulfilled for these applicable waters.

Table 21: Waters that Require Water Quality Recovery Strategies

AU Name	AU Number	TMDL Parameter	Reason for Rating	Use Category	Integrated Reporting Category	MS4 Allocation?
Little Sugar	11-137-8b	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
Little Sugar	11-137-8c	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	Data Inconclusive	Aquatic Life	4t(2)	No
		Low Dissolved Oxygen	No Criteria Exceeded	Aquatic Life	1t(1)	No
McAlpine Creek (Waverly Lake)	11-137-9a	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
		Low Dissolved Oxygen	No Criteria Exceeded	Aquatic Life	1t(1)	No
McAlpine Creek (Waverly Lake)	11-137-9c	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
		Low Dissolved Oxygen	No Criteria Exceeded	Aquatic Life	1t(1)	No
McAlpine Creek (Waverly Lake)	11-137-9d	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
		Low Dissolved Oxygen	No Criteria Exceeded	Aquatic Life	1t(1)	No
Sugar Creek	11-137b	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
Sugar Creek	11-137c	Fecal Coliform	Standard Violation	Recreation	4t(2)	No
		Turbidity	No Criteria Exceeded	Aquatic Life	1t(1)	No
Lake Wylie	11-122	Chlorophyll a	No Criteria Exceeded	Aquatic Life	1t(1)	No
Lake Wylie	11-(123.5)a	Chlorophyll a	Potential Standard Violation	Aquatic Life	3t(4)	No

(1) Parameter is supporting uses in the AU and there is an approved TMDL for the parameter.
(2) Parameter assessment is impaired and there is an approved TMDL for the parameter.
(3) This is a TMDL for South Carolina waters. Parameter assessment is impaired and there is an approved TMDL for the parameter.
(4) Parameter is Not Rated in the AU and there is an approved TMDL for the parameter.

9.5.1 Little Sugar, Sugar and McAlpine Creeks

Portions of Little Sugar, Sugar and McAlpine (Waverly Lake) Creeks have approved TMDLs for fecal coliform bacteria, turbidity and low dissolved oxygen that do not include storm water waste load allocations. The majority of the watershed areas for these creeks lies within the City of Charlotte's Phase I jurisdiction but a portion is also located in the Phase II jurisdictions for

Mecklenburg County and the Towns of Pineville and Matthews. The City of Charlotte has evaluated its strategies and tailored and/or expanded BMPs within the scope of its six (6) minimum measures to enhance water quality recovery efforts as necessary to reduce storm water pollutant loads for fecal coliform bacteria, turbidity and low dissolved oxygen in these watersheds. Instead of developing and implementing separate water quality enhancement efforts, the Phase II jurisdictions have reached an agreement with the City of Charlotte to partner on the implementation of their existing efforts with the City taking the lead. These efforts have been implemented in the Phase II jurisdictions where applicable, including:

1. Public Education & Outreach – Fecal coliform bacteria, turbidity and low dissolved oxygen are two (2) of the targeted pollutants for the Public Education and Outreach Program focusing on residential and commercial audiences (see Table 3 in Section 3.3). For fecal coliform bacteria and low dissolved oxygen, both human and animal wastes are identified as the targeted sources. The primary issues associated with these sources are the improper disposal of cooking grease to the sanitary sewer system causing blockages and sewer overflows, and the failure to collect and properly dispose of pet waste. To address these issues, specific radio, television and print ads have been incorporated into the media campaign. In addition, staff participates in events targeted at dog owners, including setting up displays and distributing educational materials to promote the proper disposal of dog waste. Utility bill inserts are also used to promote the proper disposal of grease and pet waste. For turbidity, sediment is identified as the targeted source. The primary issues associated with this source are improper erosion control measures at land development sites, inadequate post-construction storm water controls, inadequate water quality buffers, and unstable stream channels. The primary public education and outreach mechanism for addressing the erosion control issue is the Charlotte-Mecklenburg Certified Site Inspector (CMCSI) training described in Section 6.8. For addressing inadequate post-construction controls and water quality buffers, CMSWS provides public education and outreach through the use of brochures and workshops targeted at both residential and commercial audiences. The issue of unstable stream channels is addressed through workshops held in communities where CMSWS plans to perform channel restoration projects. The CMSWS website contains educational information and directions for reporting suspected pollution problems for both fecal coliform bacteria and sediment. The website includes a variety of information regarding both pollutants, including brochures, videos, newsletters, utility bill inserts, etc.

2. Public Involvement & Participation – Volunteers are informed to be watchful for the indicators of elevated bacteria and turbidity levels as well as low dissolved oxygen in surface waters and of the proper mechanism for reporting such problems. In addition, a volunteer monitoring program has been developed and implemented in both the Phase I and Phase II jurisdictions in Mecklenburg County with coliform bacteria, turbidity and dissolved oxygen included among the monitored parameters. Data is made available to staff for the initiation of appropriate follow up activities.

3. Illicit Discharge Detection & Elimination – CMSWS performs monthly monitoring for fecal coliform bacteria, turbidity and low dissolved oxygen at select stream sites in both the Phase I and Phase II jurisdictions and conducts follow up actions as necessary in

response to water quality standard violations and Action level exceedances for the purpose of identifying and eliminating pollution sources (see Section 3.3). In addition, CMSWS uses an index of water quality conditions referred to as the Stream Use Support Index or SUSI to identify areas with negatively impacted water quality conditions and a high likelihood of illicit discharges. Two (2) of the five (5) sub-indices included in SUSI are fecal coliform bacteria and physical parameters (including turbidity, dissolved oxygen and temperature), which are tracked over three (3) time horizons for the identification and elimination of pollution sources, including short term (data from the current month), middle term (data from the past 10 to 12 months) and long term (data from the past 1 to 2 years).

4. Post-Construction Ordinance – The water quality modeling that guided the development of the post-construction ordinances for the Phase II jurisdictions included consideration of fecal coliform bacteria and turbidity as primary pollutants of concern.

9.5.2 Lake Wylie

A TMDL for Chlorophyll a was developed for Lake Wylie in 1995. The TMDL does not include a storm water waste load allocation. According to the N.C. 2010 Final 305(b) integrated report, Lake Wylie is in category 1t, which indicates that the TMDL parameter is supporting uses and is no longer considered impaired. However, Assessment Unit 11-(123.5)a (Lake Wylie) is in category 3t, which indicates that the parameter is not rated in the Assessment Unit and there is an approved TMDL for the parameter. To reduce nutrient loading to Lake Wylie and maintain the current unimpaired status for Chlorophyll a, Mecklenburg County has evaluated its strategies and tailored and/or expanded BMPs within the scope of its six (6) minimum measures to enhance water quality recovery efforts as follows:

1. Public Education & Outreach – Phosphorus, nitrogen and organics are among the targeted pollutants for the Public Education and Outreach Program with fertilizers, pesticides and yard waste identified as the targeted sources (see Table 3 in Section 3.3). One of the primary issues associated with these targeted sources is the improper application, handling and storage of lawn care products, including fertilizers. To address these issues, specific radio, television and print ads have been incorporated into the media campaign. Utility bill inserts are also used to promote the proper application of fertilizers and disposal of yard waste.

2. Public Involvement & Participation – Volunteers are informed to be watchful for the indicators of elevated nutrient levels in surface waters and of the proper mechanism for reporting such problems. In addition, a volunteer monitoring program has been developed and implemented in both the Phase I and Phase II jurisdictions in Mecklenburg County with nitrate and phosphate as two (2) of the monitored parameters. In addition, volunteers are trained to physically assess surface waters for signs of elevated nutrient levels, such as algae blooms, and to report these findings. Data is made available to staff for the initiation of appropriate follow up activities.

3. Illicit Discharge Detection & Elimination – CMSWS performs water quality monitoring at select locations on Lake Wylie every other month throughout the year for the following

parameters: Chlorophyll a, Nitrate + Nitrite, Total Kjeldahl Nitrogen, Total Phosphorus, Secchi Disk (field), Temperature (field), Dissolved Oxygen (field), Conductivity (field), pH (field), Fecal Coliform, Alkalinity, Ammonia Nitrogen, Turbidity (lab/ field), Copper, Chromium, Lead, Zinc, Mercury, Manganese, Arsenic, Cadmium, Nickel, Selenium, Aluminum, Iron, and VOCs (annually). Staff conducts follow up activities as necessary in response to State standard and/or Action level exceedances for the purpose of identifying and eliminating pollution sources. In addition, CMSWS uses an index of water quality conditions referred to as the Lake Use Support Index or LUSI to identify areas with negatively impacted water quality conditions and a high likelihood of illicit discharges. One of the five (5) sub-indices included in LUSI is eutrophication, which utilizes the N.C. Trophic State Index (NCTSI). As a measurement of this sub-index, five (5) parameters are tracked over three (3) time horizons for the identification and elimination of pollution sources, including short term (data from the current month), middle term (data from the past 10 to 12 months) and long term (data from the past 1 to 2 years). These parameters include Chlorophyll a, Secchi Depth, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite. In response to trends, watershed initiatives are developed and implemented for the identification and elimination of point and non-point sources of pollution contributing to eutrophication and elevated Chlorophyll a levels.

4. Post-Construction Ordinance – The post-construction ordinance adopted for the watershed area draining to Lake Wylie requires applicable new development and redevelopment to install structural BMPs when built-upon area exceeds a threshold of 12%. These BMPs must be designed to have a minimum of 85% average annual removal for Total Suspended Solids as required by State law and must additionally be designed to have a minimum of 70% average annual removal for Total Phosphorus. This additional requirement for Total Phosphorus was specifically included in the ordinance to address the Chlorophyll a impairment in Lake Wylie.

9.6 Program Evaluation

By August 31st of each year, CMSWS will complete a written report and submit to NCDENR. This written report will include three (3) sections as follows: Mecklenburg County TMDL Overview, Storm Water Plan Assessment and TMDL Assessment. A brief description of the content of each of these sections is provided below.

Mecklenburg County TMDL Overview

Indicate that the lead responsibility for the development and implementation of water quality recovery programs and strategies has been broken out between the Phase I and Phase II jurisdictions as indicated in Table 18 of the Storm Water Plan (include this table in this section of the report).

Storm Water Plan Assessment

- BMPs: Review the BMPs as described in Table 17 of the Storm Water Plan. Identify whether the BMPs have been fully implemented and indicate the Activity Report number from Cityworks that provides the documentation. Indicate whether additional BMPs are

needed to fulfill permit requirements to the maximum extent practicable and describe these BMPs, including associated measureable goals.

- Measureable Goals: Review the measurable goals for each BMP as described in Table 17 of the Storm Water Plan. Identify whether the measureable goals have been met and indicate the Activity Report number from Cityworks that provides the documentation. Indicate whether changes to the measureable goals are needed to fulfill permit requirements to the maximum extent practicable and describe these measureable goals, including associated BMPs.
- Storm Water Plan: Review the Section 9 of the Storm Water Plan entitled Total Maximum Daily Loads (TMDLs). Identify whether the activities specified in this section have been fulfilled and indicate the Activity Report number from Cityworks that provides the documentation. Indicate whether changes to the Storm Water Plan are needed in order to fulfill permit requirements to the maximum extent practicable and describe these changes.

TMDL Assessment

Break this section out into the following two (2) subsections:

- TMDLs with a Water Waste Load Allocation Assigned to Storm Water (includes the TMDLs for Long Creek, McKee Creek, Steele Creek, Goose Creek, and Rocky River)
- TMDLs without a Water Waste Load Allocation Assigned to Storm Water (includes the TMDLs for Little Sugar Creek, Sugar Creek, McAlpine Creek, and Lake Wylie)

Include the following information for each of the TMDLs in these two (2) categories:

- Program Activities:
    - Rocky River (Phase II is the lead) – Provide a copy of the Water Quality Recovery Plan as it has been completed to date in accordance with Table 19 of the Storm Water Plan. Also list and briefly describe the specific activities completed, including water quality problems detected and eliminated and BMP measures implemented to enhance water quality Indicate completion of the requirements listed in Table 19 of the Storm Water Plan.
    - Long Creek, McKee Creek, and Steele Creek (City of Charlotte is the lead) – Provide a statement that the Water Quality Recovery Plans are being implemented by the City of Charlotte with input from Mecklenburg County representing the Phase II jurisdictions/entities. List and briefly describe the specific activities completed in the Phase II jurisdictions, including water quality problems detected and eliminated, BMP measures implemented to enhance water quality, and completion of the six (6) minimum permit compliance measures.
    - Goose Creek (Phase II is the lead) – List and briefly describe the specific activities completed, including water quality problems detected and eliminated and BMP measures implemented to enhance water quality as described in Section 9.4.3 of the Storm Water Plan (also see IW-2(d) and PE-1(c) of this Work Plan).
    - Little Sugar Creek, Sugar Creek, and McAlpine Creek (City of Charlotte is the lead) – Provide a statement that the Water Quality Recovery Plans are being implemented by the City of Charlotte with input from Mecklenburg County representing the Phase II jurisdictions/ entities. List and briefly describe the specific activities completed in the Phase II jurisdictions, including water quality

problems detected and eliminated, BMP measures implemented to enhance water quality, and completion of the six (6) minimum permit compliance measures as discussed in Section 9.5.1 of the Storm Water Plan.

- Lake Wylie (Phase II is the lead) – Provide a statement that strategies and tailor and/or expand BMPs within the scope of the six minimum measures have been implemented by Mecklenburg County to enhance water quality. List and briefly describe these strategies and tailored and/or expanded BMPs as discussed in Section 9.5.2 of the Storm Water Plan.

- Monitoring Report: Provide a summary of all monitoring data collected in the TMDL watersheds listed above that are the responsibility of the Phase II jurisdictions as follows: Rocky River, Goose Creek and Lake Wylie, including all data collected for the past 12 months. Where long-term data is available, include an analysis of the data to show trends. Do not provide monitoring data collected in the TMDL watersheds listed above that are the responsibility of the City of Charlotte as follows: Long Creek, McKee Creek, Steele Creek, Little Sugar Creek, Sugar Creek, and McAlpine Creek. Instead, state that the City of Charlotte has taken the lead on the collection and reporting of the data from these watersheds.
- Source Reduction Report: Provide a description of progress made toward fulfilling source reduction targets in the TMDL watersheds listed above that are the responsibility of the Phase II jurisdictions as follows: Rocky River, Goose Creek and Lake Wylie. Do not provide a source reduction report for the TMDL watersheds listed above that are the responsibility of the City of Charlotte as follows: Long Creek, McKee Creek, Steele Creek, Little Sugar Creek, Sugar Creek, and McAlpine Creek. Instead, state that the City of Charlotte has taken the lead on the collection and reporting of the data from these watersheds.
- Water Quality Report: Provide a description of the current status and trends toward meeting the water quality standards for the TMDL watersheds listed above that are the responsibility of the Phase II jurisdictions as follows: Rocky River, Goose Creek and Lake Wylie. Do not provide a water quality report for the TMDL watersheds listed above that are the responsibility of the City of Charlotte as follows: Long Creek, McKee Creek, Steele Creek, Little Sugar Creek, Sugar Creek, and McAlpine Creek. Instead, state that the City of Charlotte has taken the lead on the collection and reporting of the data from these watersheds.
- BMP Assessment: Provide a written assessment of the effectiveness of current water quality enhancement measures and a description of what, if any, additional BMP measures will be implemented to achieve the goal of reducing storm water pollutant loads to the maximum extent practicable for the TMDL watersheds listed above that are the responsibility of the Phase II jurisdictions as follows: Rocky River, Goose Creek and Lake Wylie. Also, describe the schedule for implementation of these future BMPs. Do not provide a BMP assessment for the TMDL watersheds listed above that are the responsibility of the City of Charlotte as follows: Long Creek, McKee Creek, Steele Creek, Little Sugar Creek, Sugar Creek, and McAlpine Creek. Instead, state that the City of Charlotte has taken the lead on the implementation of the BMPs in these watersheds.

During the fiscal year following the completion of the above report, the Storm Water Plan, program activities and BMPs will be modified as necessary based on the results of this

evaluation in order to ensure that the specific goals and objectives of the TMDL Program are being effectively and efficiently fulfilled to the maximum extent practicable.

Section 10: Documentation, Review and Reporting

10.1 Documentation

Implementation of the Storm Water Plan will include documentation of all program components that are being undertaken by CMSWS including, but not limited to, inspections, maintenance activities, educational programs, implementation of BMPs, enforcement actions, and other storm water activities. Monitoring information, including all calibration and maintenance records, and copies of all reports required by the Phase II Permit will also be maintained by CMSWS. All documentation will be maintained digitally in EDMS by CMSWS for a period of no less than five (5) years. Documentation will be made available to NCDENR upon request.

10.2 Storm Water Plan Review and Modification

CMSWS will review the Storm Water Plan on at least an annual basis for the purpose of identifying the modifications and improvements necessary to maximize Storm Water Plan effectiveness at achieving established program goals and fulfilling Permit requirements to the extent practicable. The review will also serve to assess the need for modifications to address procedural, protocol, or programmatic changes. All such identified modifications and improvements will be completed and the Storm Water Plan updated as soon as practicable, but not later than 90 days from when the need for the change is identified. Implementation of the updated Storm Water Plan typically occurs at the beginning of the next fiscal year beginning July 1st but could be sooner depending on the nature of the change. CMSWS will submit a digital version of the modified Storm Water Plan to NCDENR immediately upon completion.

10.3 Reports to NCDENR

CMSWS will submit annual reports to NCDENR by the last work day in August of each year along with a Program Assessment Report Certification. These annual reports are completed on-line using NCDENR's Storm Water Assessment Program Report, which includes appropriate information for accurately describing the progress, status, and results of the implementation of the Storm Water Plan. The following components are included in this annual report:

- Detailed description of the status of implementation of the Storm Water Plan as a whole, including information on development and implementation of each major component of the Storm Water Plan for the past year and schedules and plans for the year following each report.

- Description and justification of any proposed changes to the Storm Water Plan, including descriptions and supporting information for the proposed changes and how these changes will impact the effectiveness and implementation schedule of the Storm Water Plan. Typically this information is provided when the revised Storm Water Plan is submitted to NCDENR as described in Section 10.2 above and is included in the annual report only when the submittal of the revised plan coincides with the submittal of the annual report, which rarely occurs.

- Description of necessary changes to programs or practices for assessment of management measures implemented through the Stormwater Plan.

- Summary of data accumulated through the implementation of the Storm Water Plan throughout the year.

- Assessment of compliance with the permit, information on the establishment of appropriate legal authorities, inspections, and enforcement actions.

In addition to the Storm Water Assessment Program Report described above, CMSWS will also submit an annual report to NCDENR documenting its annual assessment of the program to enhance water quality in the watersheds to which a TMDL applies. Any monitoring data and information generated from the previous year for these watersheds will be submitted to NCDENR along with each annual report. These TMDL reports will be submitted by the last work day in August of each year.

Appendix A: BMP Summary Table

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
Public Education and Outreach on Storm Water Impacts											
PE-1	Distribute Biannual (twice a year) Newsletter	Distribute biannual newsletter to residents in the Phase II jurisdictions and make available at event displays. Include information regarding the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollution, including participating in volunteer programs.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PE-2	Develop & Distribute Pollution Prevention Brochures & Educational Materials	Develop and distribute educational brochures and storm water pollution prevention awareness information through responses to citizen requests for service, special events, workshops, and other appropriate venues. Include information regarding the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollution, including participating in volunteer programs.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PE-3	Promote and Maintain Informational Web Pages at http://stormwater.charmeck.org	Promote and maintain informational pages on the CMSWS's website that contain information on current water quality conditions, storm water pollutants and ways to minimize them, and municipal storm water projects/activities as well as provide a means to register for various volunteer initiatives discussed in Section 4. Also provide contacts for reporting pollution problems/concerns and submitting questions to staff.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PE-5	Conduct Media Campaign	Develop and implement a media campaign designed to reach the targeted audience described in Section 3.4. Promote the 311 helpline as part of this campaign.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PE-6	Conduct Presentations for Schools/ Teachers	Develop age-specific educational information for use in schools and for presentations to school age children.	X	X	X	X	X	Erin Oliverio (Senior Environmental	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.g

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
		Present information in appropriate format.						Specialist)			ov
PE-7	Conduct Outreach Program for Commercial/ Industrial Facilities	Conduct an educational campaign to inform commercial/industrial facilities of the sources of pollutants and actions they can take to improve water quality.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PE-9	Evaluate Effectiveness of Public Education and Outreach Program	Evaluate the effectiveness of the storm water education/outreach program at meeting established goals. Include in this evaluation a review of the effectiveness of volunteer initiatives. Also, include an estimate of the extent of exposure for the media campaign and a comparison to previous years. Modify programs activities as necessary to enhance its overall effectiveness at meeting established goals.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
Public Involvement and Participation											
PI-1	Conduct Phase II Public Meeting	Meet with SWAC in a public forum to provide information regarding activities performed to comply with Phase II requirements and to receive input from the public regarding storm water issues and the storm water program.	X	X	X	X	X	Rusty Rozzelle (Water Quality Program Manager)	(704) 336-5449	(704) 336-5151	rusty.rozzelle@mecklenburgcountync.gov
PI-2	Implement Adopt-A-Stream Program	Implement an Adopt-A-Stream Program for the Phase II jurisdictions/entities. This program will include the adoption of stream sections by the general public, businesses and institutions. These stream sections will be walked at least annually by the adoption group, pollution sources will be identified and eliminated and trash removed.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PI-3	Implement Storm Drain Marking Program	Implement a Storm Drain Marking Program for the Phase II jurisdictions/entities. This program will include the placement of markers on storm drain inlets with the message “Do Not Dump – Drains To Creek.”	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
PI-4	Conduct Annual Surface Water Clean	Conduct annual surface water cleanup	X	X	X	X	X	Erin Oliverio	(704) 336-	(704) 336-	erin.oliverio

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
	Up	event in coordination with N.C. Big Sweep aimed at removing trash and debris from lakes and streams and identifying pollutant sources.						(Senior Environmental Specialist)	5595	5151	@mecklenburgcountync.gov
PI-5	Conduct Annual Volunteer Appreciation Event	Conduct annual volunteer appreciation event. The purpose of the event will be to recognize volunteer efforts for protecting water quality.	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov
Illicit Discharge Detection and Elimination											
ID-1	Maintain Storm Sewer System Maps	Maintain and update as necessary maps of the storm sewer systems serving all Phase II jurisdictions/entities in Mecklenburg County showing the locations of inlets, outlets and receiving waters.	X	X	X	X	X	Meredith Moore (Senior Environmental Specialist)	(704) 432-1383	(704) 336-5151	meredith.moore@mecklenburgcountync.gov
ID-2	Conduct Field Screening for Non-Storm Water Flows	Conduct field investigations for identifying dry weather flows to the storm sewer system including sampling and elimination of identified pollution sources.	X	X	X	X	X	Meredith Moore (Senior Environmental Specialist)	(704) 432-1383	(704) 336-5151	meredith.moore@mecklenburgcountync.gov
ID-3	Enforce Surface Water Pollution Control Ordinance	Prohibit non-storm water discharges in accordance with IDDE Policies and Procedures through the enforcement of the surface water pollution control ordinances, except those discharges specifically allowed by the ordinances. At least annually, assess the effectiveness of these ordinances at prohibiting illicit connections and discharges and update/revise as necessary.	X	X	X	X	X	Erin Hall (Environmental Specialist)	(704) 432-4870	(704) 336-5151	erin.hall@mecklenburgcountync.gov
ID-4	Implement Water Quality Monitoring Program	Conduct water quality monitoring activities and follow up as necessary to identify and eliminate illicit discharges to the storm sewer system and surface waters in accordance with IDDE procedures.	X	X	X	X	X	Jon Beller (Senior Environmental Specialist)	(704) 432-1384	(704) 336-5151	jon.beller@mecklenburgcountync.gov
ID-5	Public Outreach Program for Illicit Discharges & Improper Waste Disposal	Develop and implement a program to inform the general public, businesses, industries, and public employees (including municipal staff, who, as part of	X	X	X	X	X	Erin Oliverio (Senior Environmental Specialist)	(704) 336-5595	(704) 336-5151	erin.oliverio@mecklenburgcountync.gov

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
		their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system), of the hazards associated with illegal discharges and improper disposal of waste. This will be incorporated into activities conducted for the Public Education and Outreach Program.									
ID-6	Conduct Follow up Inspections and Respond to Citizen Requests and Emergencies	Respond to citizen requests for service and emergency situations as well as conduct follow up inspections as necessary to identify and eliminate pollution problems and restore water quality conditions in accordance with IDDE Policies and Procedures.	X	X	X	X	X	John McCulloch, David Caldwell and Richard Farmer (Environmental Supervisors)	(704) 336-5455	(704) 336-5151	john.mcculloch@mecklenburgcountync.gov
ID-8	Stream Walk/Outfall Inventory & Inspection/Dry Weather Flow Analysis	Conduct stream walk activities, inventory and inspect storm drain outfalls and identify dry weather flows as well as identify and eliminate illegal discharges and other pollution sources in accordance with IDDE Policies and Procedures.	X	X	X	X	X	Meredith Moore (Senior Environmental Specialist)	(704) 432-1383	(704) 336-5151	meredith.moore@mecklenburgcountync.gov
ID-9	Intensive Stream Investigation & Survey (ISIS)	Investigate and monitor select locations on a regular, recurring schedule for the identification and elimination of pollution problems using physical observations in accordance with IDDE Policies and Procedures.	X	X	X	X	X	Heather Sorensen (Environmental Specialist)	(704) 432-1969	(704) 336-5151	heather.sorensen@mecklenburgcountync.gov
ID-10	Evaluate Effectiveness of IDDE Program	Evaluate the effectiveness of the IDDE program and modify as necessary. Include in this assessment a review of the written IDDE Policies and Procedures.	X	X	X	X	X	John McCulloch (Environmental Supervisor)	(704) 336-5455	(704) 336-5151	john.mcculloch@mecklenburgcountync.gov
Construction Site Storm Water Runoff Control											
CS-1	Enforce Erosion Control Ordinances	Enforce erosion and sedimentation control ordinances for the Phase II jurisdictions by permitting and controlling develop activities disturbing one or more acres of land surface and those activities less than one acre that are	X	X	X	X	X	Corey Priddy (Senior Environmental Specialist)	(704) 336-6312	(704) 336-5151	corey.priddy@mecklenburgcountync.gov

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
		part of a larger common plan of development as authorized under the Sediment Pollution Control Act of 1973.									
CS-2	Erosion Control Education	Develop and implement an outreach program to educate contractors and land developers regarding proper erosion control.	X	X	X	X	X	Jason Klingler (Environmental Specialist)	(704) 336-6312	(704) 336-5151	jason.klingler@mecklenburgcountync.gov
CS-3	Evaluate Effectiveness of Erosion Control Program	Evaluate the effectiveness of the program and modify as necessary. Include in this assessment a review of written policies and procedures.	X	X	X	X	X	Corey Priddy (Senior Environmental Specialist)	(704) 336-6312	(704) 336-5151	corey.priddy@mecklenburgcountync.gov
Post-Construction Storm Water Management in New Development/Re-Development											
PC-1	Implement Post-Const. Storm Water Ordinances	Implement the post-construction ordinances adopted in the Phase II areas.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PC-2	Implement BMP Inspections	Conduct site inspections of structural storm water controls installed for compliance with ordinance requirements.	X	X	X	X	X	Heather Davis (Environmental Specialist)	(704) 336-5445	(704) 336-5151	heather.davis@mecklenburgcountync.gov
PC-3	Implement a Program to Educate and Assist Developers	Implement a program to educate the development community and the general public concerning the post-construction storm water management requirements.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PC-5	Evaluate Effectiveness of Post-Construction Control Program	Evaluate the effectiveness of the program and modify as necessary. Include in this assessment a review of written policies and procedures.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
Pollution Prevention/Good Housekeeping for Municipal Operations											
PP-1	Implement Employee Training Program	Implement a training program for employees involved in implementing pollution prevention and good housekeeping practices.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PP-2	Conduct Inspections of Municipal Operations	Conduct annual inspections of all municipal operation facilities and/or operations covered by this Program. Identify potential pollution sources and work with each jurisdiction/entity to ensure that these sources are eliminated.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
		Distribute and explain written guidance materials developed in PP-1 as needed.									
PP-3	Maintain and Update Spill Response Procedures	Develop and implement spill response procedures for municipally owned and/or operated facilities.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PP-4	Maintain and Implement Storm Water Pollution Prevention Plans	Maintain, implement, evaluate annually and update as necessary Storm Water Pollution Prevention Plans (SWPPP) for municipally owned and/or operated facilities with the significant potential for generating polluted storm water runoff. This SWPPP must include the frequency of inspections and routine maintenance requirements.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PP-5	Maintain and Update an Inventory of Municipal Operations	Maintain an inventory of all facilities and operations owned and/or operated by the County, Towns, CMS and CPCC that have a significant potential for generating polluted storm water runoff, including (but not limited to) those facilities that are subject to NPDES storm water general permits or individual NPDES permits for discharges of storm water associated with industrial activity. Include in this inventory the permit number and certificate of coverage number for each facility.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PP-6	Develop and Implement BMPs for Streets, Roads and Parking Lots	Develop and implement BMPs to reduce polluted storm water runoff from municipally-owned streets, roads, and public parking lots. Evaluate the effectiveness of these BMPs based on cost and the estimated quantity of pollutants removed.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PP-7	Develop and Implement Operation and Maintenance Plans for Conveyance System	Develop and implement an O&M program for storm water sewer systems, including catch basins and conveyance systems.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov

#	BMP Description	Measurable Goals	Schedule (yrs)					Responsible Staff	Phone #	Fax #	Email Address
			1	2	3	4	5				
PP-8	Pesticide, Herbicide, Fertilizer Application Management	Ensure that municipal employees and contractors are properly trained and all permits, certifications, and other compliance measures for applicators are followed.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
PP-9	Evaluate Effectiveness of Pollution Prevention/ Good Housekeeping Program	Evaluate the effectiveness of the program and modify as necessary.	X	X	X	X	X	Don Ceccarelli (Project Manager)	(704) 432-4216	(704) 336-5151	don.ceccarelli@mecklenburgcountync.gov
Total Maximum Daily Loads											
IW-2	Develop and Implement Water Quality Recovery Plans	Develop and implement written Water Quality Recovery Plans (WQRPs) for those watersheds with TMDLs that include a Waste Load Allocation (WLA) assigned to storm water.	X	X	X	X	X	David Kroening (Project Manager)	(704) 336-5448	(704) 336-5151	david.kroening@mecklenburgcountync.gov
IW-3	Develop and Implement Water Quality Recovery Strategies	Develop and implement Water Quality Recovery Strategies (WQRSs) for those watersheds with TMDLs that do not include a Waste Load Allocation (WLA) assigned to storm water.	X	X	X	X	X	David Kroening (Project Manager)	(704) 336-5448	(704) 336-5151	david.kroening@mecklenburgcountync.gov
IW-4	Assess, Report and Modify WQRPs	Assess the effectiveness of the WQRPs and WQRSs, summarize in a written report and submit the report to NCDENR.	X	X	X	X	X	David Kroening (Project Manager)	(704) 336-5448	(704) 336-5151	david.kroening@mecklenburgcountync.gov

Appendix B: Storm Water Inspection Checklist for Municipal Facilities

Stormwater Inspection Report/Checklist

Facility Name:		**Inspection Type:**	**MH-I** ☐ **PP-2** ☐ **PP-2-CMS** ☐ **PP-2-CPCC** ☐ **IN-I (non-permitted)** ☐
Permit No.:	**NCG** **NCS0** **Not Applicable** ☐	**Permit Effective Date** (if applicable)**:**	
Permit Status (If not currently permitted)**:**			

Inspection Date:		**Discharges to:**	
Inspector(s):		**Facility Personnel Assisting with Inspection** (Name/Phone Number)**:**	
Entry Time:		**Exit Time:**	
SIC Code:		**Facility Hours of Operation:**	

Facility Description:

File Review/History:

Inspection Summary:

This form is a procedural guide for Inspectors to follow when conducting facility stormwater compliance inspections.

Stormwater Inspection Report/Checklist

I. Site Inspection			
Were the following items observed onsite? *(Inspector should comment on issues observed)*	**Yes**	**No**	**Repeat Finding**
1. Stormwater System: catch basins, open ditches, channels, pipes, outfalls, etc.	☐	☐	☐
Comments:			
2. Erosion Issues	☐	☐	☐
Comments:			
3. Structural Stormwater BMPs	☐	☐	☐
Comments:			
4. Illicit Discharges / Connections	☐	☐	☐
Comments:			
5. Aboveground Storage Tanks (ASTs): List size, material type, and if secondary containment is provided	☐	☐	☐
Comments:			
6. Underground Storage Tank (UST) Fill Port Area	☐	☐	☐
Comments:			
7. Outdoor Material Storage Area(s)	☐	☐	☐
Comments:			
8. Outdoor Processing Area(s)	☐	☐	☐
Comments:			
9. Loading/Unloading Area(s)	☐	☐	☐
Comments:			
10. Vehicle/Equipment Area(s): fueling, washing, maintenance, storage	☐	☐	☐
Comments:			
11. Oil/Water Separator / Pretreatment	☐	☐	☐
Comments:			
12. Waste Storage / Disposal Area(s): scrap metal, dumpsters, grease bins, etc.	☐	☐	☐
Comments:			
13. Food Service Area(s)	☐	☐	☐
Comments:			
14. Indoor Material Storage Area(s)	☐	☐	☐
Comments:			
15. Indoor Processing Area(s)	☐	☐	☐
Comments:			

Stormwater Inspection Report/Checklist

I. Site Inspection (continued)	Yes	No	Repeat Finding	
16. Floor drains – illicit connections	☐	☐	☐	
Comments:				
17. Spill Response Equipment	☐	☐	☐	
Comments:				

II. Stormwater Pollution Prevention Plan	Yes	No	NA	Repeat Finding
Does the site have a Stormwater Pollution Prevention Plan (SPPP)?	☐	☐	☐	☐
If the site has a SPPP, then complete questions in Sections II and III.				
1. Does the Plan include a General Location (USGS) map?	☐	☐	☐	☐
Facility location in relation to roads and surface waters. Includes: name of receiving stream or name of municipal storm sewer system, and accurate lat. and long. of point of discharge.				
2. Does the Plan include a "Narrative Description of Practices"?	☐	☐	☐	☐
Should cover storage practices, loading and unloading areas, outdoor process areas, dust or particulate generating or control processes, waste disposal practices, etc.				
3. Does the Plan include a detailed site map including outfall locations and drainage areas?	☐	☐	☐	☐
Should show • Location of industrial activities (storage areas, disposal areas, process areas, unloading and loading areas) • The drainage structures • Drainage areas for each outfall and activities occurring in the drainage area • Building locations • Existing BMPs and impervious surfaces and the % of each drainage area that is impervious • For each outfall, a narrative description of the potential pollutants which could be expected to be present in the stormwater discharge. This forces permittee to analyze the site with relation to stormwater discharges. It is also a tool for the inspector to understand if the site has changed over time, i.e. if site map does not match facility they must update their plan.				
4. Does the Plan include a list of significant spills occurring during the past 3 years?	☐	☐	☐	☐
Needs to include corrective actions that were taken. The permittee needs to know what the reportable quantities are for wastewater, oil pollution, and SARA Title III.				
5. Have stormwater outfalls been evaluated for the presence of non-stormwater discharges?	☐	☐	☐	☐
Signature required: • Corporation - signed by Responsible Corporate Officer or assigned manager • Partnership or Sole Proprietorship – General Partner or the Proprietor Municipality, State, Federal, or other public agency – either principal executive officer or ranking elected official				
6. Has the facility evaluated feasible alternatives to current practices?	☐	☐	☐	☐
• Provide a review of the technical and economic feasibility of changing the methods of operations and/or storage practices to eliminate or reduce exposure of materials and processes to stormwater. • In areas where elimination of exposure is not practical, the stormwater management plan shall document the feasibility of diverting the stormwater runoff away from areas of potential contamination.				
7. Does the facility provide all necessary secondary containment?	☐	☐	☐	☐
• Applies to liquid raw materials, manufactured products, waste materials, or by-products • Single AST capacity > 660 gallons • Multiple AS containers in close proximity to each other with a total combined capacity of > 1,320				

Stormwater Inspection Report/Checklist

II. Stormwater Pollution Prevention Plan (continued)	Yes	No	NA	Repeat Finding
• If connected to SW conveyance; controlled by manually activated valves or other similar devices? (Closed?) • Collected water observed for color, foam, outfall staining, visible sheens, and dry weather flow prior to release • Document individual making observation, description of water, date, and time of release Retain record 5 years				
8. Does the Plan include a BMP summary?	☐	☐	☐	☐
Narrative description of BMPs to be considered including oil and grease separation, debris control, vegetative filter strips, infiltration and stormwater detention or retention, where necessary. The need for structural BMPs shall be based on the assessment of potential sources to contribute significant quantities of pollutants to stormwater discharges and data collected through monitoring of stormwater discharges.				
9. Does the Plan include a Spill Prevention and Response Plan (SPRP)?	☐	☐	☐	☐
• Assessment of potential pollutant sources based on materials inventory of the facility • Facility personnel responsible for implementing the SPRP shall be identified • **Responsible person shall be on-site at all times** during facility operations that have the potential to contaminate stormwater runoff through spills or exposure of materials associated with the facility operations.				
10. Does the Plan include a Preventative Maintenance and Good Housekeeping Plan?	☐	☐	☐	☐
• Document schedules of inspections and maintenance activities of stormwater control systems, plant equipment and systems • Inspect material handling areas • Regular cleaning schedules of these areas				
11. Does the facility provide and document Employee Training?	☐	☐	☐	☐
• Provide at a minimum, annual training for all personnel including: proper spill response, cleanup procedures, preventative maintenance activities **for all personnel involved in any of the facility's operations that have the potential to contaminate stormwater runoff** • Develop training schedule and identify facility personnel responsible for implementing the training				
12. Does the Plan include a list of Responsible Parties?	☐	☐	☐	☐
Identify position responsible for the overall coordination, development, implementation, and revision of the SPPP				
13. Is the Plan reviewed and updated annually?	☐	☐	☐	☐
Have there been any changes to the design, construction, operation, or maintenance of the facility, which would have a significant effect on the potential for the discharge of pollutants to surface waters? Does plan include changes?				
14. Does the Plan include a Stormwater Facility Inspection Program?	☐	☐	☐	☐

• Inspect semi-annually at a minimum - once in Fall and once in Spring
• Inspection and subsequent maintenance activities performed shall be documented
  ○ Record date and time
  ○ Individual performing inspection
  ○ Narrative description of the stormwater outfall and plant equipment and systems
• Records should be incorporated into the SPPP				

Stormwater Pollution Prevention Plan Comments:				

Stormwater Inspection Report/Checklist

III. Qualitative and Analytical Monitoring	Yes	No	NA	Repeat Finding
1. Has the facility conducted its **Qualitative Monitoring** semi-annually?	☐	☐	☐	☐
Color Odor Clarity Floating Solids Suspended solids Foam Oil Sheen Other indicators				
2. Has the facility conducted its **Analytical Monitoring**?	☐	☐	☐	☐
3. Has the facility conducted its **Analytical Monitoring** from Vehicle Maintenance areas?	☐	☐	☐	☐
Qualitative and Analytical Monitoring Comments:				
IV. Permit and Outfalls				
1. Is a copy of the Permit and the Certificate of Coverage available at the site?	☐	☐	☐	☐
2. Were all outfalls observed during the inspection?	☐	☐	☐	☐
3. If the facility has representative outfall status, has it been documented by the NC Division of Water Quality?	☐	☐	☐	☐
4. If the facility has a No-Exposure Certificate, has the facility self-inspected and documented this on an annual basis?	☐	☐	☐	☐
Permit and Outfalls Comments:				